



C&K Switches Catalog

Pushbutton

Tactile

Navigation

Keyswitch

Detect

Toggle

Rocker

Dip

Slides

Snap

Rotary

Rotary (Encoder)

Switchlock

Thumbwheel

Smartcard Connector





Pushbutton Product Selection Guide

A
Pushbutton

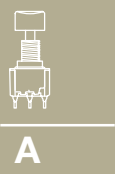
Pushbutton									
Series	ELUM	EP	TP	E020	8020	E010	8060	8500	KM
Switch Type	Mom./Latching	Tiny	Tiny	Snap-acting Mom.	Snap-acting Mom.	Miniature	Alternate Action	Sub-miniature	Sub-miniature
Poles/Throws	SPDT	SPST, SPDT, DPST	SPST, SPDT, DPST	SPDT, DPDT	SPDT, DPDT, 3PDT, 4PDT	SPDT	SPDT, DPDT	SPST	SPST, SPDT
Max. Current	3.5 VA	1 Amp	1 Amp	1 Amp	1 Amp	4 Amps	6 Amps	3 Amps	1 Amp
Process Sealed		•		•		•			
Illuminated	•				•		•	•	
PCB Mount Options									
Thru-hole	•	•	•	•	•	•	•	•	•
Vertical		•	•	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•	•	•	•
Surface Mount	•	•							
Panel Mount			•		•	•	•	•	•
Page No.	A-4	A-9	A-15	A-21	A-29	A-46	A-52	A-62	A-67

Pushbutton							
Series	8600	8700	GP	PN	PHB	F	NE-18
Switch Type	Micro-miniature	Over Travel	Ultra-miniature	Alternate & Mom. Action	Short Stroke	Alternate & Mom. Action	Mains / Power
Poles/Throws	SPST	SPST	SPST, SPDT	SPDT, DPDT, 4PDT	DPDT, 4PDT	DPDT, 4PDT, 6PDT, 8PDT, 10PDT	DPST, DPDT Varied
Max. Current	500 mA	1 Amp	0.4 VA	200 mA	100 mA	500 mA	6 A
Process Sealed			•				
PCB Mount Options							
Thru-hole	•	•	•	•	•	•	•
Vertical	•	•	•				
Right Angle			•	•	•	•	•
Surface Mount			•				
Panel Mount	•	•				•	•
Page No.	A-71	A-74	A-77	A-81	A-84	A-87	A-96



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Pushbutton Product Selection Guide



A
Pushbutton

Pushbutton								
Series	FP	AP	APB	HP	NP	PBA	PB	PS
Switch Type	Ultra Miniature	Industrial	Industrial	Hall Effect	Sealed Power	Snap-acting Mom.	Miniature	Sub-miniature Microminiature
Poles/Throws	SPST	SPST	SPST	Linear Output	SPDT	DPST	DPDT 4PDT	SPDT DPDT
Max. Current	0.4 VA	400mA	400mA	10 mA	5 Amp	250mA	0.3A / 1A	0.1 / 1A 0.3 / 2A
Process Sealed	•	IP67	IP67	IP68	IP68			
PCB Mount Options								
Thru-hole	•	•	•		•	•	•	•
Vertical	•	•	•	•	•			•
Right Angle	•					•	•	•
Panel Mount		•	•	•	•			•
Wire Leads		•	•	•	•			
Solder Lug		•	•					
Surface Mount								
Quick Connect								
Page No.	A-105	A-108	A-114	A-118	A-120	A-127	A-131	A-139



A

Pushbutton

ELUM™ Series Right Angle Illuminated Latching Pushbutton

**LEAD FREE
COMPATIBLE OPTION**

Features/Benefits

- **SPDT (N.O. & N.C.)**
- **Low height above PCB**
- **Reliable self-cleaning contact**
- **Surface-mount or thru-hole PCB**
- **Standard or custom actuator**
- **Central LED illumination**
- **Latching or Momentary**
- **Long travel. Smooth feel**
- **RoHS compliant and compatible**

Typical Applications

- **Telecom network equipment**
- **Automotive electronics**
- **Consumer electronics**
- **Computer, server, modem, data storage**
- **Professional instrumentation, medical**

Patent Numbers
6,974,924 B2 US
EP1583118B1 Europe



Materials

FIXED CONTACTS: Stainless steel, silver plated with gold flash
 TERMINALS: Stainless steel, silver plated
 MOVABLE CONTACTS: Copper alloy, silver plated with gold flash
 BASE: Glass filled LCP (UL94V-0)
 ACTUATOR: Glass filled nylon 4/6 (UL94V-0)
 COVER: Stainless steel

Operating Environment

OPERATING TEMPERATURE: -40°C TO 80°C.
 STORAGE TEMPERATURE: -40°C TO 80°C.
 RELATIVE HUMIDITY: 90% R.H. @ 80°C.
 OPERATING LIFE: 30,000 Cycles.
 VIBRATION: Per EIA 186-E Method
 MECHANICAL SHOCK: Per EIA 186-E Method 12.
 OVERLOAD: Withstands 40 N for 1 minute without damage

Electrical

MAXIMUM POWER: 3.5 VA
 MIN./MAX. VOLTAGE: 20 mV – 50 VDC
 MIN./MAX. CURRENT: 0.01 mA – 250 mA
 DIELECTRIC STRENGTH: ≥ 250 Vrms
 CONTACT RESISTANCE: ≤ 50 mΩ
 INSULATION RESISTANCE: ≥ 10⁹ Ω
 BOUNCE TIME: ≤ 1 ms
 LED SPECIFICATIONS: See page A-5

Process Environment

SOLDERABILITY: According to Mil STD 202F Method 208D or EIA RS-186E Method 9.
 LEAD FREE PROCESS COMPATIBLE: 260°C peak, 10 seconds Max. above 250° C.
 WASHING PROCESS: No clean process compatible (SMT)
 Bottom wash compatible (Thru-hole)
 SHEAR TEST (SWITCH/PCB): > 40 N

Mechanical

OPERATING FORCE: 2.5 N at Full Travel
 SWITCHING TRAVEL: .067" (1.7 mm)
 LATCH TRAVEL: .131" (3.6 mm)
 FULL TRAVEL: .200" (5.1 mm)

Packaging

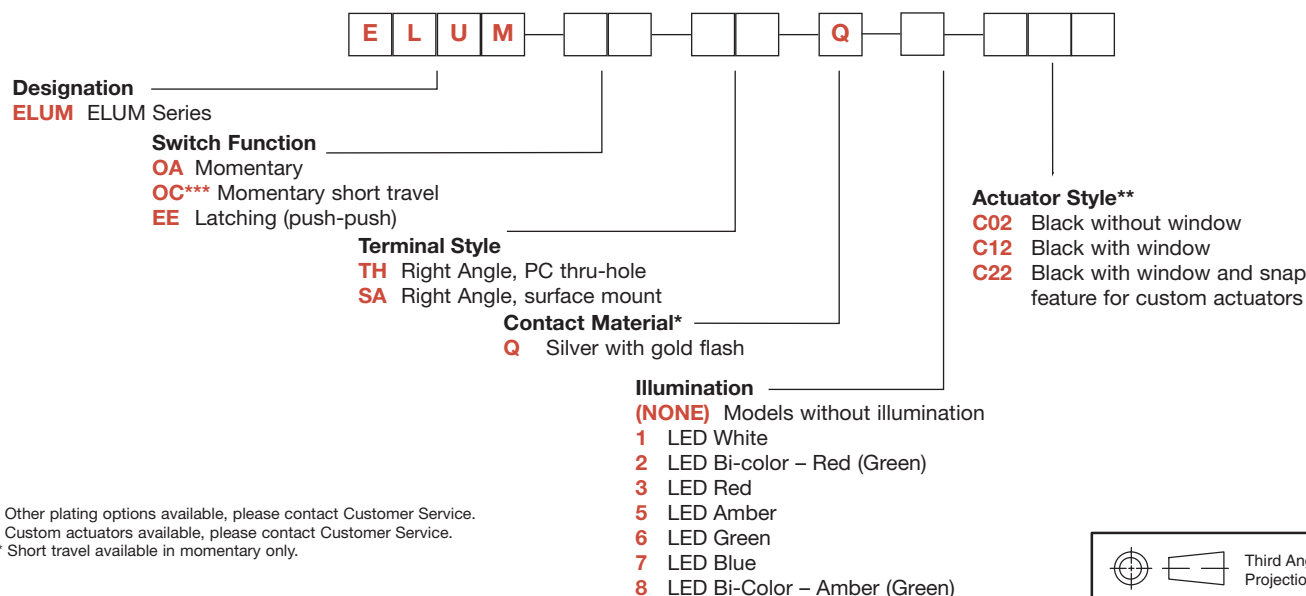
"SA" Terminal Style SMT: Tape and reel per EIA 481-2 (450/reel)
 "TH" Terminal Style PC: Tray (60/tray)

NOTE: Any models supplied with Q, contact material are RoHS compliant.

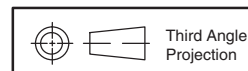
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



* Other plating options available, please contact Customer Service.
 ** Custom actuators available, please contact Customer Service.
 *** Short travel available in momentary only.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ELUM™ Series Right Angle Illuminated Latching Pushbutton

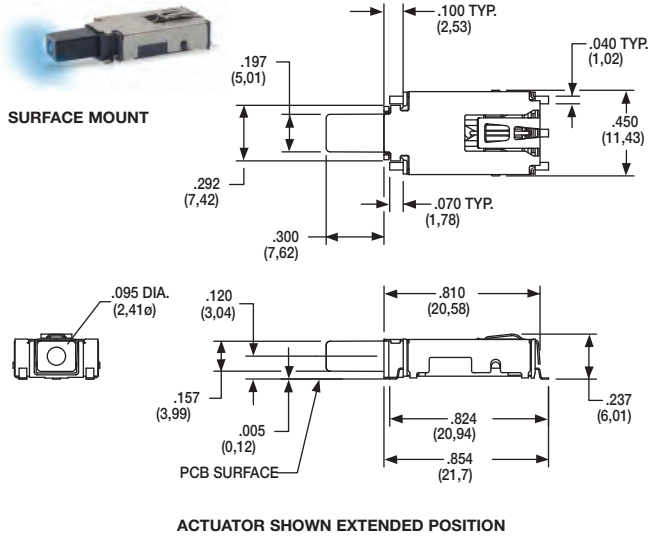


A

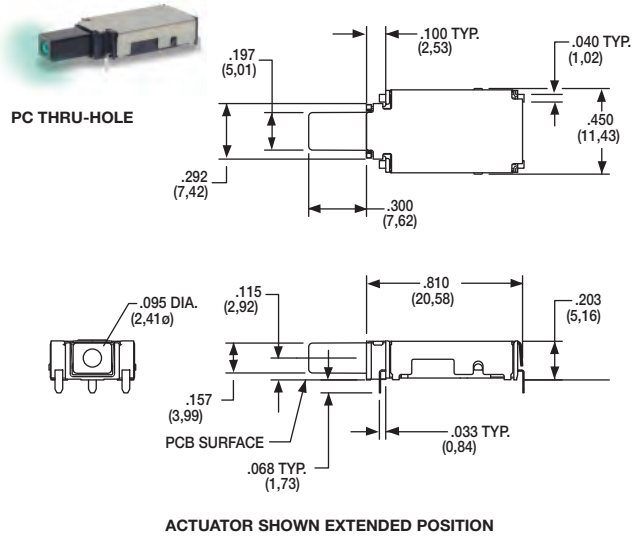
Pushbutton

STANDARD OPTIONS

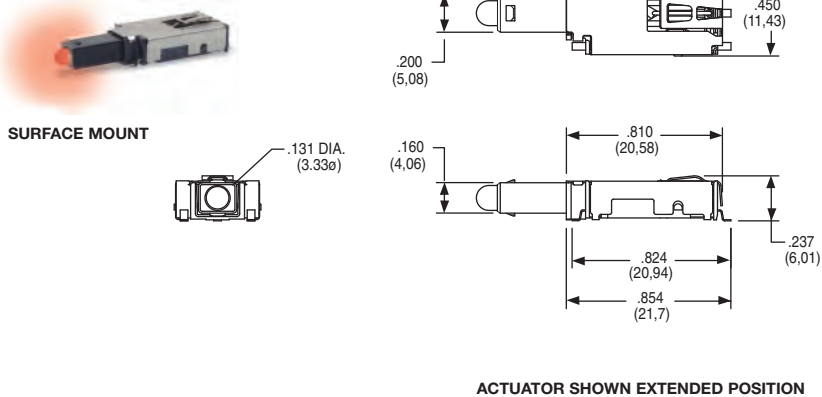
ELUMEESAQ7C12



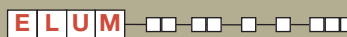
ELUMOATHQ6C12



ELUMEESAQ3C22



DESIGNATION



ELUM ELUM SERIES, Illuminated Latching Pushbutton

SWITCH FUNCTION



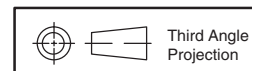
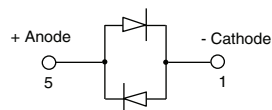
OPTION CODE	NO. OF POLES	POSITION 1	CONNECTED TERMINALS	POSITION 2	CONNECTED TERMINALS	SCHEMATIC
		ON		ON (Mom.)		
OA / OC	SP Momentary	ON	3 - 4	ON (Mom.)	3 - 2	
EE	SP Latching (Push-Push)	ON	3 - 4	ON	3 - 2	

For SPST N.O. function, only terminals 3 & 2 are used.
For SPST N.C. function, only terminals 3 & 4 are used.
Circuit: Make before break

LED pins 1 & 5 are independent of switch function.

NOTE:

For bi-color LED's the polarity must be reversed to alternate the color



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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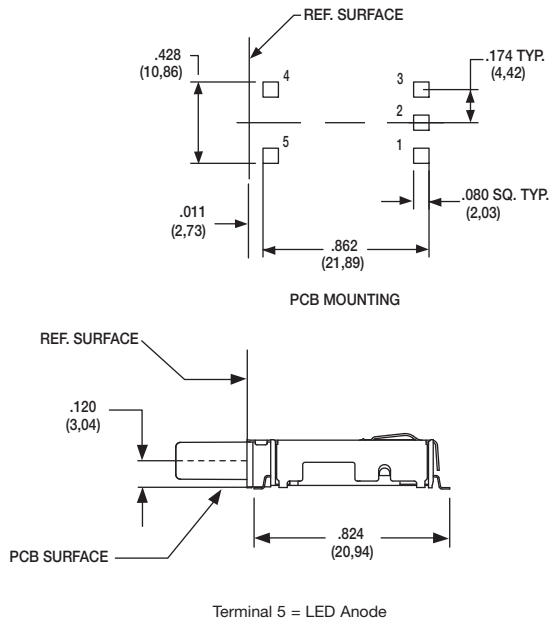
ELUM™ Series Right Angle Illuminated Latching Pushbutton

Pushbutton
A

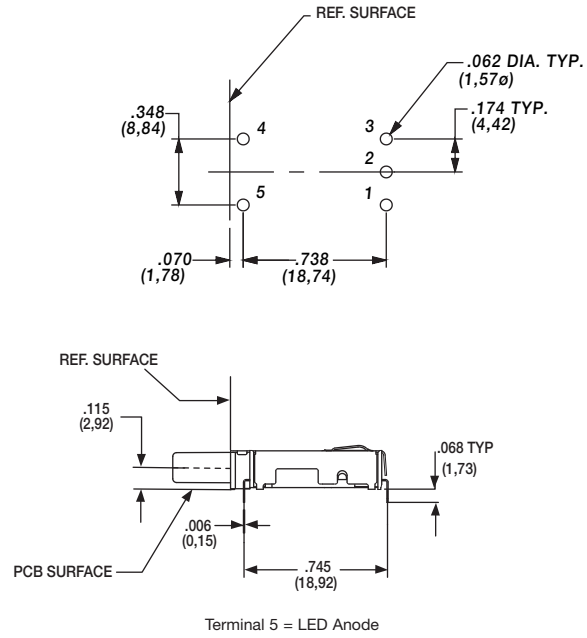
TERMINAL STYLE



SA RIGHT ANGLE, SURFACE MOUNT



TH RIGHT ANGLE, PC THRU-HOLE



CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	SILVER WITH GOLD FLASH	SILVER	250 mA

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

FIXED CONTACTS AND TERMINALS: Stainless steel, silver plated with gold flash

MOVABLE CONTACTS: Copper alloy, silver plated with gold flash

NOTE: Any models supplied with Q, contact material are RoHS compliant.

ILLUMINATION



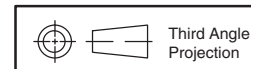
OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY* MIN	TYPICAL INTENSITY* MAX	PEAK WAVELENGTH	V _f Forward Voltage
		(mcd)		(nm)	
0	Model without illumination	N/A		N/A	
1	LED Super White	4,000	5,000	N/A	3.5
2	LED Bi-Color – Red (Green)	10	20	635/565	2.0
3	LED Red	4	8	700	2.0
5	LED Amber	35	50	610	2.0
6	LED Green	35	50	565	2.0
7	LED Super Blue	800	1,500	470	3.8
8	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ELUM™ Series Right Angle Illuminated Latching Pushbutton



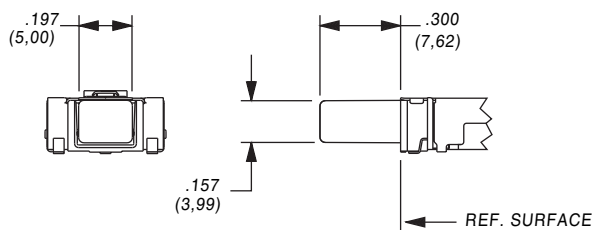
A

Pushbutton

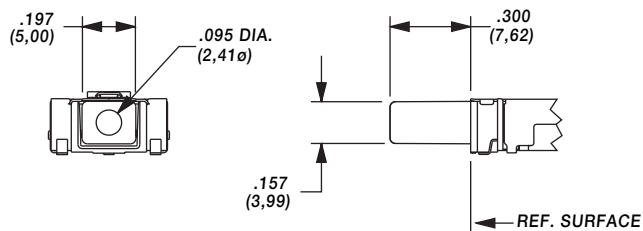
ACTUATOR STYLE*



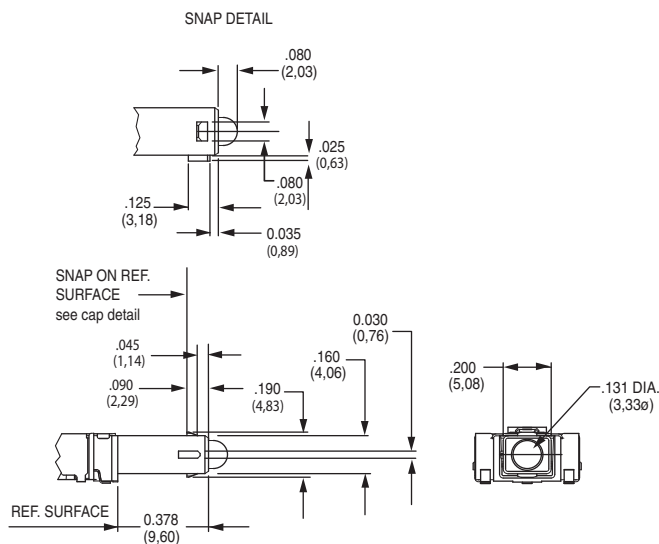
C02 BLACK WITHOUT WINDOW



C12 BLACK WITH WINDOW

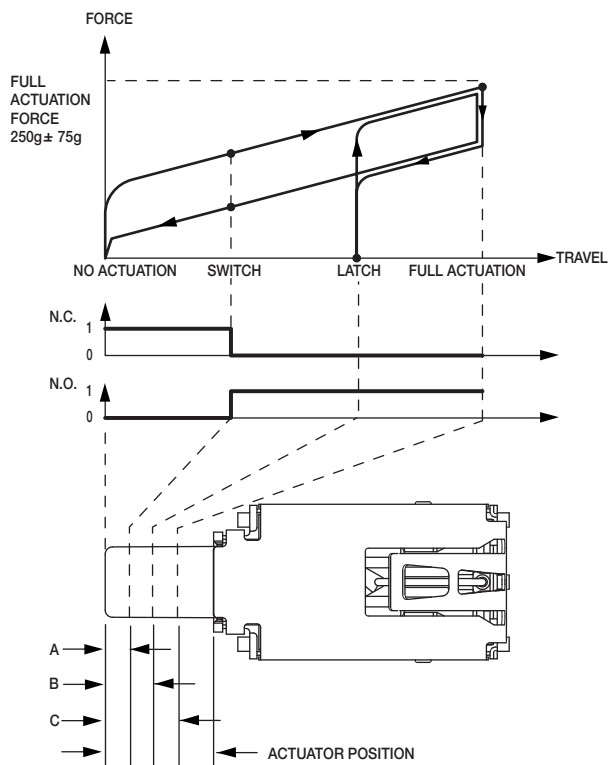


C22 BLACK WITH WINDOW AND SNAP FEATURE TO ACCEPT CUSTOM CAP



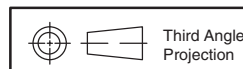
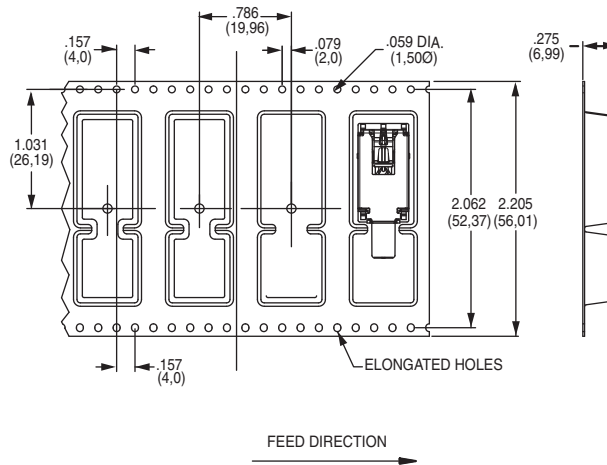
* Custom actuators available, please contact Customer Service.

FORCE TRAVEL DIAGRAM



OA, EE ACTUATOR POSITION			
A	SWITCH POINT	.067 ± .020	1,7 ± 0.5mm
B	LATCH	.131 ± .020	3,3 ± 0.5mm
C	FULL ACTUATION	.200 ± .020	5,1 ± 0.5mm
OC ACTUATOR POSITION			
A	SWITCH POINT	.067 ± .020	1,7 ± 0.5mm
C	FULL ACTUATION	.098 ± .020	2,5 ± 0.5mm

TAPE & REEL



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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ELUM™ Series Right Angle Illuminated Latching Pushbutton

AVAILABLE HARDWARE

A
Pushbutton

Cap



PART NO.

957C00000 High temperature black cap with universal standby symbol

956C02000 High temperature black cap with no symbol

Material: 4/6 Nylon SMT compatible

Cap



PART NO.

181D01000 Paint and Laser Etched with black paint and universal standby symbol

Material: Clear polycarbonate

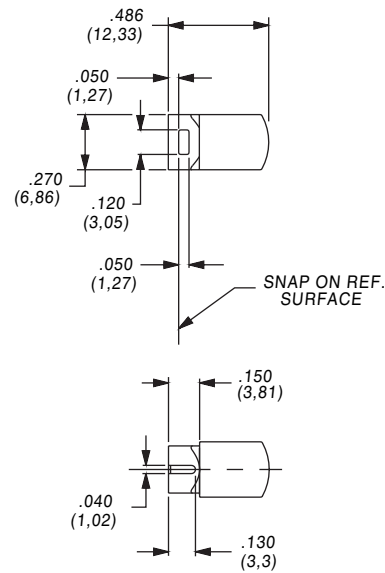
Cap



PART NO.

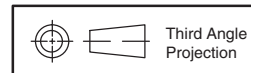
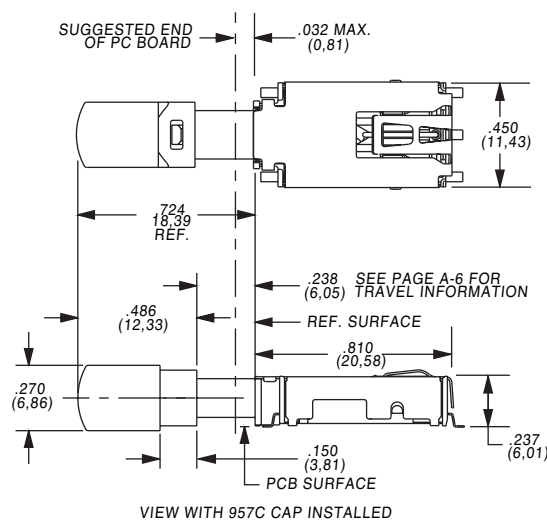
181D00000 Paint and laser etched with white paint underlay and black paint with universal standby symbol.

Material: Clear polycarbonate



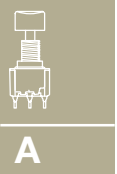
NOTE: Caps are for use with the C22 actuator style. Other colors and symbols available, consult Customer Service Center.

CAP INSTALLATION



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

EP Series Sealed Tiny Pushbutton Switches



A
Pushbutton

Features/Benefits

- Sealed against solder & cleaning processes
- Thru-hole and surface mount models
- Snap-fitting actuator accepts standard caps
- Tape & reel packaging available
- RoHS compliant models available

Typical Applications

- Telecommunications and networking equipment
- Computers and peripherals
- Instrumentation and controls



Models Available

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-13 for additional ratings.

ELECTRICAL LIFE: EP11, EP21 models: 60,000 make-and-break cycles at full load. EP12 models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-14 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Materials

CASE & BUSHING: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0) on EP11 / EP12 models; glass filled nylon 6/6 on EP21.

PLUNGER: Thermoplastic polyester or glass filled nylon (UL 94V-0), with internal o-ring seal. SA surface mount: High temperature material, glass filled LCP (UL 94V-0).

SWITCH SUPPORT: Brass, matte-tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-13 for additional contact materials.

TERMINAL SEAL: Epoxy.

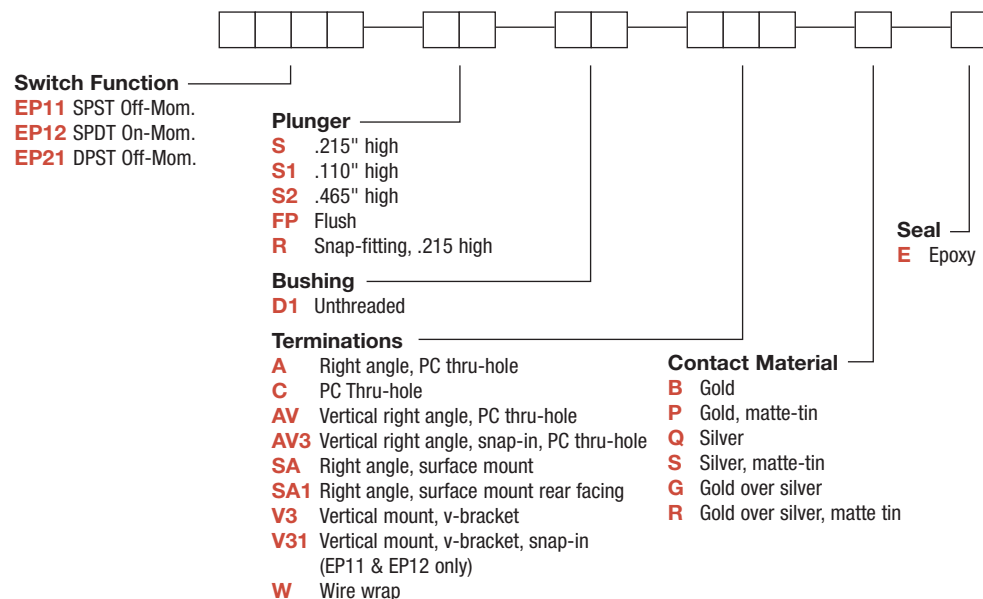
NOTE: Any models supplied with Q, B, P, S, R or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-10 thru A-14. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



EP Series Sealed Tiny Pushbutton Switches

Pushbutton A

SWITCH FUNCTION

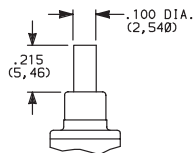
NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	EP11	OFF	MOM.	OPEN	1-3	SPST
	EP12	ON	MOM.	2-1	2-3	SPDT
SPDT						
DP	EP21	OFF	MOM.	OPEN	1-3,4-6	DPST
DPST						

MOM. = Momentary

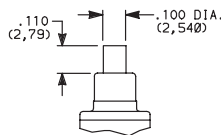
All models with all options when ordered with G, Q, R or S contact material.

PLUNGER

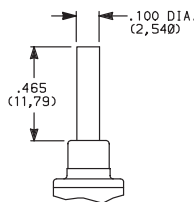
S .215" HIGH



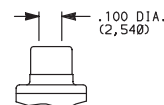
S1 .110" HIGH



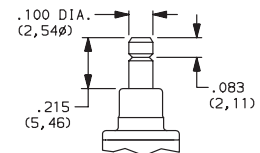
S2 .465" HIGH



FP FLUSH PLUNGER



R SNAP-FITTING



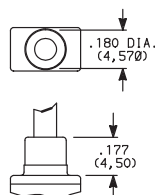
S1 & S2 actuators are not available with EP12 & EP21 models.

FP & R actuators are not available with EP21 model.

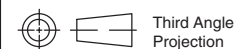
NOTE: Caps available for plunger options, see page A-14.

BUSHING

D1 UNTHREADED



NOTE: Internal actuator o-ring standard.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



EP Series Sealed Tiny Pushbutton Switches

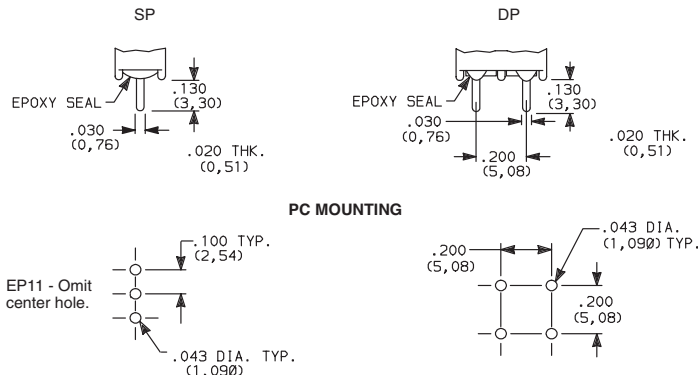


A Pushbutton

TERMINATIONS

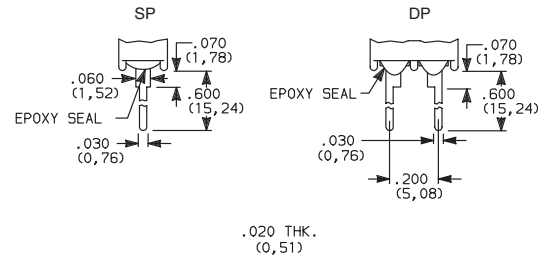


C PC THRU-HOLE



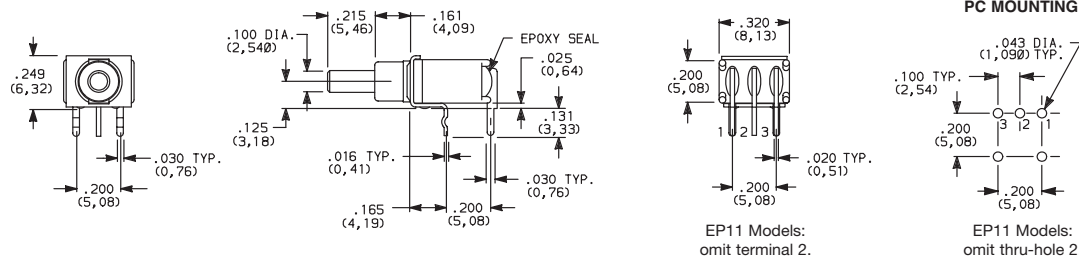
SP and DP

W WIRE WRAP



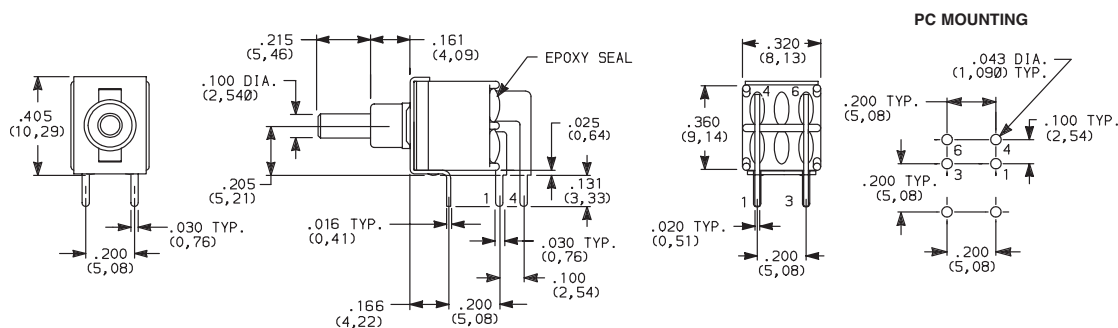
SP and DP

A RIGHT ANGLE, PC THRU-HOLE



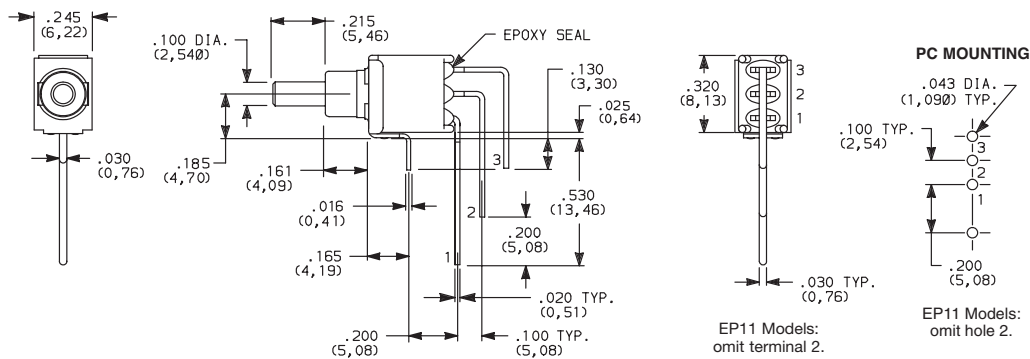
EP12SD1ABE
SPDT

A RIGHT ANGLE, PC THRU-HOLE



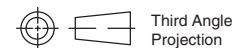
EP21SD1ABE
DPST

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



EP12SD1AVBE
SPDT

NOTE: Terminal bend radii and lead-in manufacturing option.



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



EP Series Sealed Tiny Pushbutton Switches

TERMINATIONS



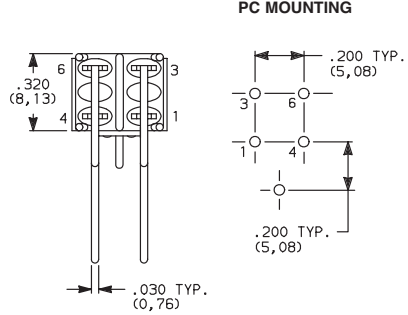
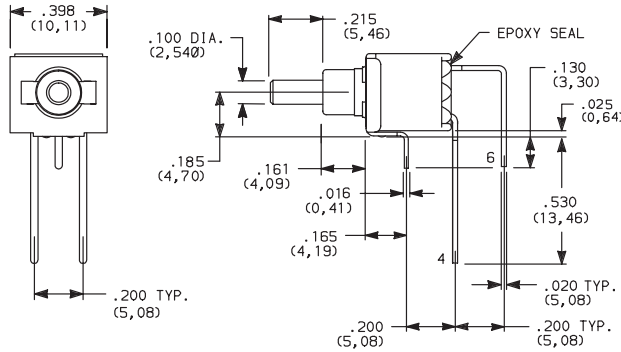
Pushbutton

A

AV VERTICAL RIGHT ANGLE, THRU-HOLE



**EP21SD1AVBE
DPST**

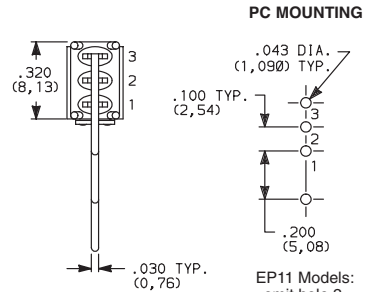
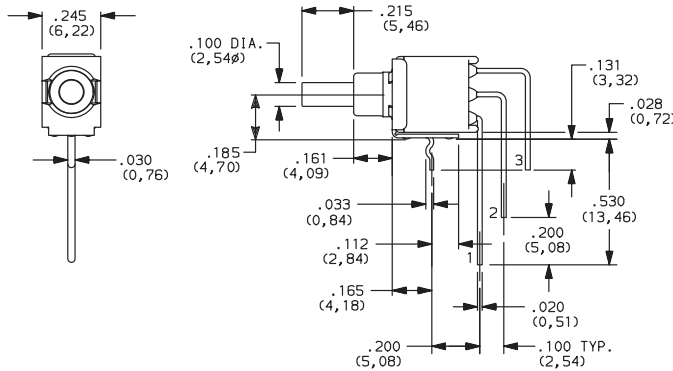


NOTE: Terminal bend radii and lead-in manufacturing option.

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



**EP12SD1AV3BE
SPST**

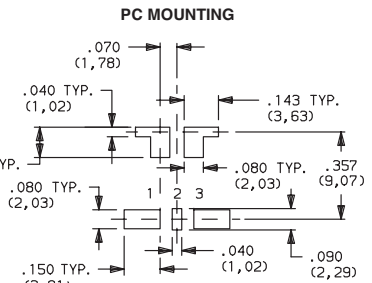
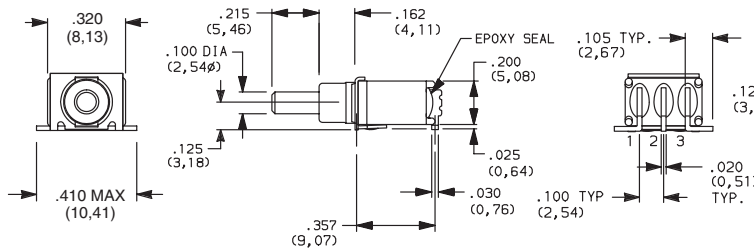


EP11 Models:
omit hole 2.

SA RIGHT ANGLE, SURFACE MOUNT



**EP12SD1SAPE
SPDT**



EP11 Models:
omit pad 2.

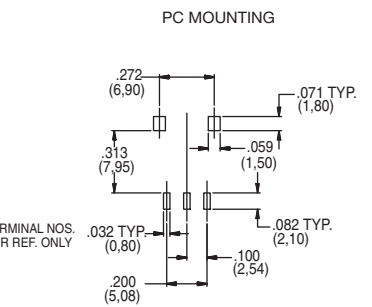
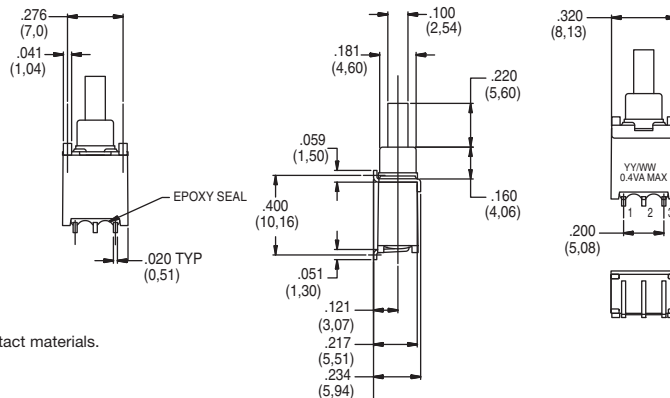
Available with P contact material only.
Not Available on DPST models.

EP11 Models:
omit terminal 2.

SA1 RIGHT ANGLE, SURFACE MOUNT



**EP12SD1SA1BE
SPDT**



SA1 is only available with B and P contact materials.
Not Available on DPST models.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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EP Series Sealed Tiny Pushbutton Switches



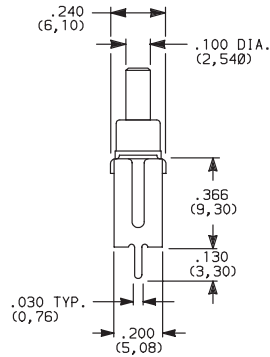
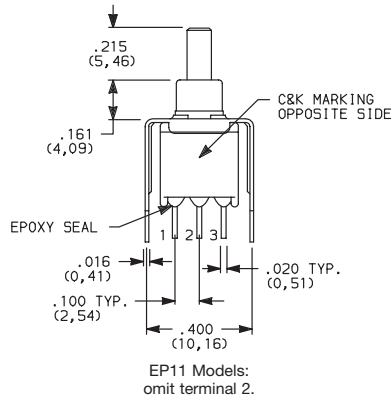
A

Pushbutton

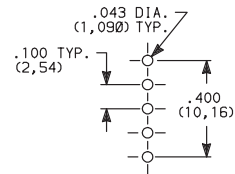
TERMINATIONS

V3 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING

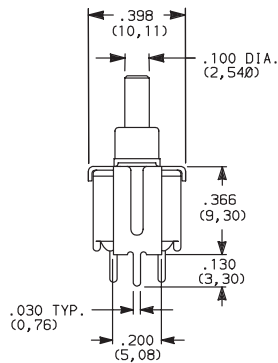
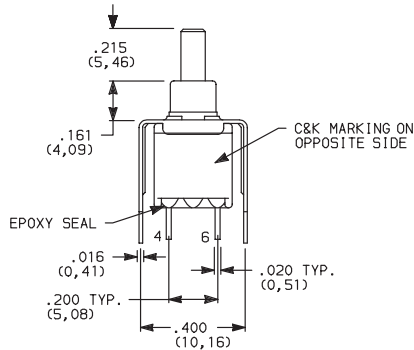


EP11 Models:
omit centerhole.

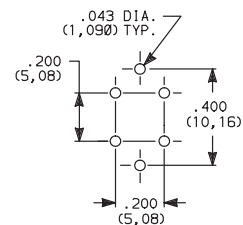


EP12SD1V3BE
SPDT

V3 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



EP21SD1V3BE
DPST

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	1 AMP @ 120 V AC OR 28 V DC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.


³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

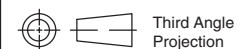
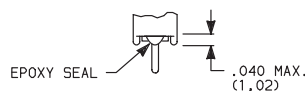
⁶ TERMINALS: Copper alloy, with matte tin over nickel plate.

NOTE: Any models supplied with Q, B, P, S, R or G contact material are RoHS compliant.

All models  with all options when ordered with G, S, R or Q contact material.

SEAL

E EPOXY SEAL



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

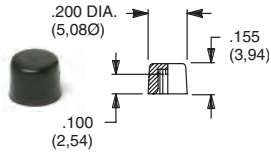


EP Series Sealed Tiny Pushbutton Switches

Pushbutton
A

AVAILABLE HARDWARE

Cap



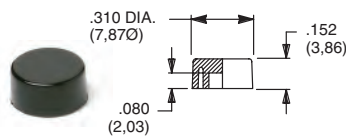
PART NO.

508101000 WHITE
508102000 BLACK
508103000 RED

Material: Nylon
Finish: Gloss

Not for use on S1 plunger

Cap



PART NO.

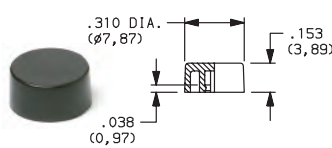
465801000 WHITE
465802000 BLACK
465803000 RED

Material: Nylon
Finish: Gloss

Not for use on S1 plunger

Cap

Compatible with snap-fitting plungers
EP11 & EP12 Models. R option only.



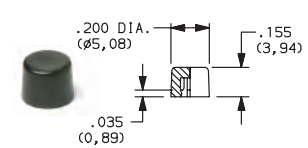
PART NO.

585A01000 WHITE
585A02000 BLACK
585A03000 RED

Material: Nylon
Finish: Gloss

Cap

Compatible with snap-fitting plungers
EP11 & EP12 Models. R option only.



PART NO.

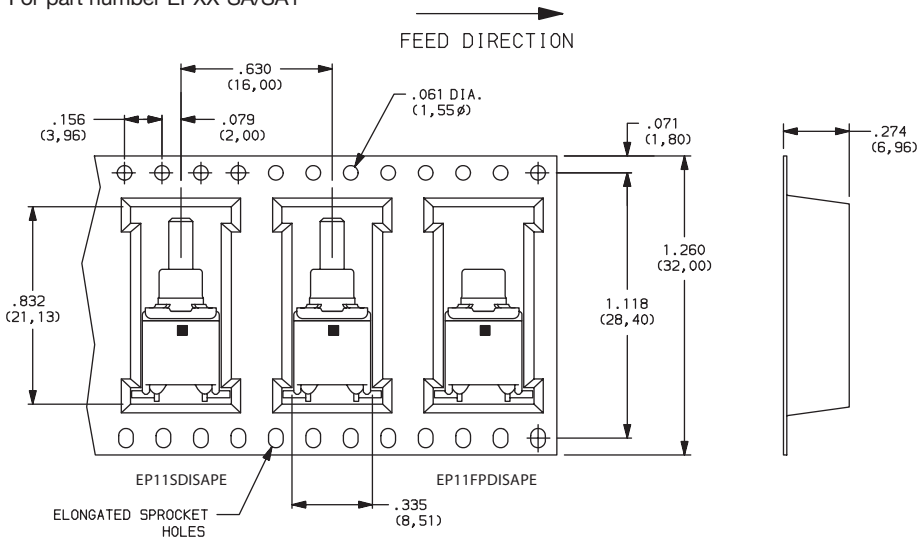
785A01000 WHITE
785A02000 BLACK
785A03000 RED

Material: Nylon
Finish: Gloss

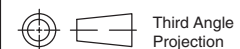
NOTE: Other colors available, consult Customer Service Center.

TAPE & REEL

For part number EPXX-SA/SA1



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TP Series Tiny Pushbutton Switches



A
Pushbutton

Features/Benefits

- **Subminiature size**—capable of switching 1 AMP
- **Vertical & right angle terminations**
- **PC & panel mount models**
- **Snap-in front panel mounting available**
- **Epoxy terminal seal-compatible with bottom wash cleaning**
- **RoHS compliant models available**



Models Available

Typical Applications

- **Telecommunications and networking equipment**
- **Computers and peripherals**
- **Instrumentation and controls**



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 1 AMP @ 120 V AC or 28 V DC. See page A-19 for additional ratings.

ELECTRICAL LIFE: TP11, TP21 MODELS: 60,000 make-and-break cycles at full load. TP12 MODELS: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with Q, B, P, R or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 4/6 or 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0).

PLUNGER: Thermoplastic polyester (UL 94V-0).

CAP & FRAME: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page A-19 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page A-19 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter

HARDWARE: Nut & Locking Ring: Brass nickel plated.
Lockwasher: Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-16 thru A-20. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

<p>Switch Function</p> <p>TP11 SPST Off-Mom.</p> <p>TP12 SPDT On-Mom.</p> <p>TP21 DPST Off-Mom.</p>	<p>Actuator or Bushing</p> <p>SH .155" high plunger, threaded, .220" high bushing, flat</p> <p>SH8 .155" high plunger, unthreaded, .220" high bushing, round</p> <p>SH9 .155" high plunger, unthreaded, .220" high bushing, flat</p> <p>J81 Snap-in with frame</p> <p>LT .215" high plunger, threaded, .310" high bushing, flat</p> <p>LT9 .215" high plunger, unthreaded, .310" high bushing, flat</p> <p>MS9 .130" high plunger, .020" high bushing, round</p>	<p>Terminations</p> <p>A Right angle, PC thru-hole</p> <p>C PC Thru-hole</p> <p>Z Solder lug</p> <p>AV Vertical right angle, PC thru-hole</p> <p>V3 Vertical mount, v-bracket</p> <p>W Wire wrap</p>	<p>Seal</p> <p>E Epoxy</p>	<p>Cap Color</p> <p>2 Black</p> <p>NONE Models with no cap</p> <p>1 White</p>	<p>Contact Material</p> <p>B Gold</p> <p>P Gold, matte-tin</p> <p>Q Silver</p> <p>G Gold over silver</p> <p>R Gold over silver, matte-tin</p>	<p>Frame Color</p> <p>2 Black</p> <p>NONE Models with no frame</p>
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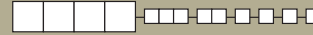
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



TP Series Tiny Pushbutton Switches

Pushbutton
A

SWITCH FUNCTION

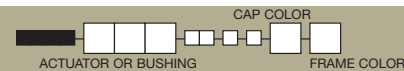


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	TP11	OFF	MOM.	OPEN	1-3	SPST 1 2 3
	TP12	ON	MOM.	2-1	2-3	SPDT NC 1 2 (COMMON) 3 NO
SPDT 						
DP	TP21	OFF	MOM.	OPEN	1-3,4-6	DPST 1 3 4 6
DPST 						

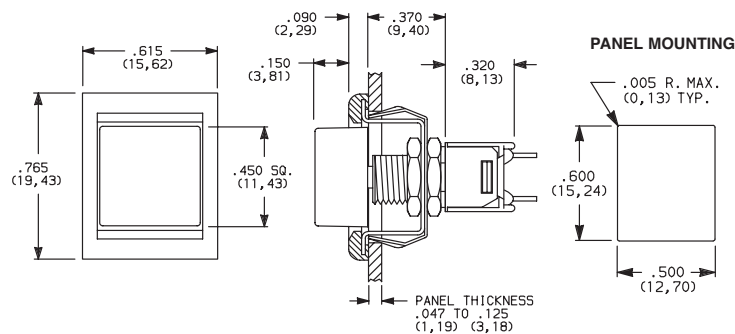
MOM. = Momentary

All models with all options when ordered with G, Q or R contact material.

ACTUATOR—SNAP-IN FRONT MOUNT



J81 SNAP-IN WITH FRAME



OPTION CODE	CAP COLOR
2	BLACK
1	WHITE

OPTION CODE	FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)

Cap and Frame Finish: matte. Other colors available, consult Customer Service Center.
NOTE: Available with Z, C, or W terminations.

NOTE: Caps & frames available separately, see page A-20.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



TP Series Tiny Pushbutton Switches



A

Pushbutton

SH .155" HIGH PLUNGER,
.220" HIGH BUSHING,
THREADED, FLAT

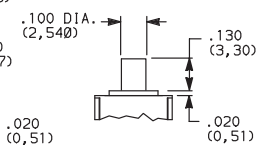
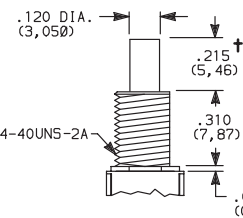
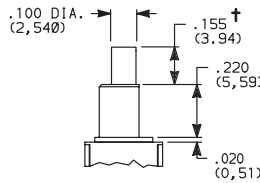
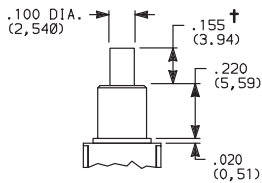
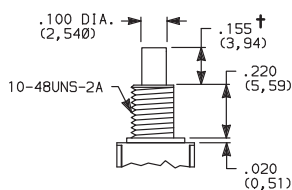
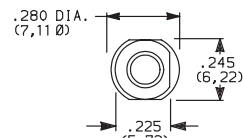
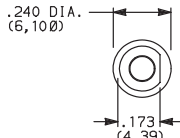
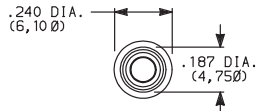
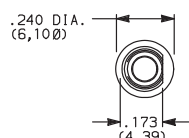
SH8 .155" HIGH PLUNGER,
.220" HIGH BUSHING,
UNTHREADED

SH9 .155" HIGH PLUNGER,
.220" HIGH BUSHING,
UNTHREADED, FLAT

LT .215" HIGH PLUNGER,
.310" HIGH BUSHING,
THREADED

MS9 .130" HIGH
PLUNGER

LT9 .215" HIGH PLUNGER,
.310" HIGH BUSHING,
UNTHREADED



Standard with Z, C, W terminations.

Standard with A, AV, V3 terminations.

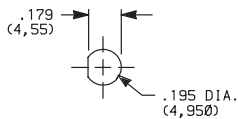
Not available with Z terminations.

† Subtract .016 (0,41) for models with A, AV or V3 terminations.

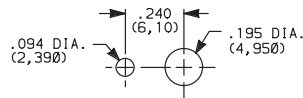
NOTE: Caps available for plunger options, see page A-20.

PANEL MOUNTING

10-48 BUSHING

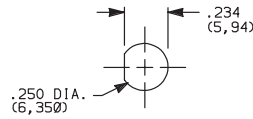


Without locking ring

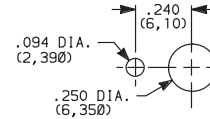


With standard locking ring

1/4 IN. BUSHING



Without locking ring

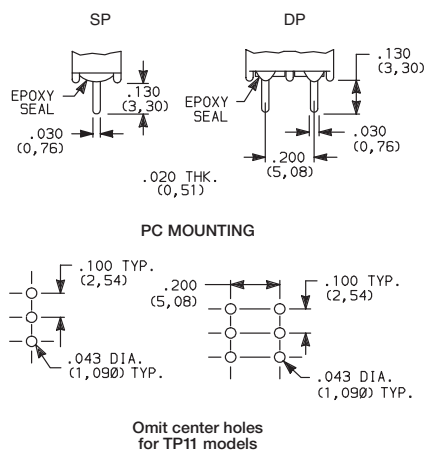


With standard locking ring

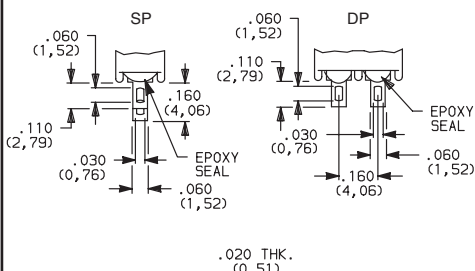
NOTE: One mounting nut, locking ring and lockwasher supplied standard with 10-48 threaded bushings (two nuts with 1/4-40 bushings). Optional mounting nut and locking ring styles and finishes available separately, see section "Technical Data and Additional Hardware".

TERMINATIONS

C PC THRU-HOLE

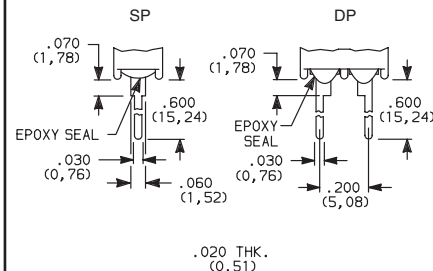


Z SOLDER LUG



Not available with MS9 bushing or P or R contact material.

W WIRE WRAP



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



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TP Series Tiny Pushbutton Switches

TERMINATIONS



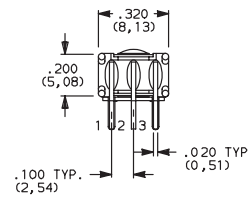
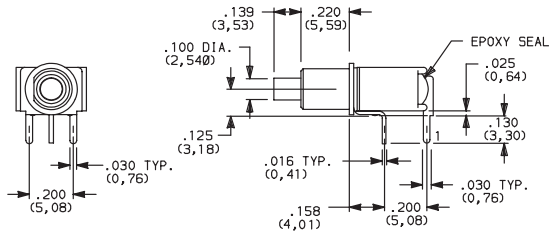
Pushbutton

A

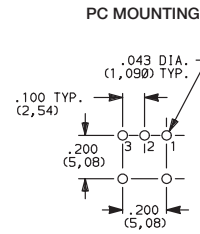
A RIGHT ANGLE, PC THRU-HOLE



**TP12SH9ABE
SPDT**



**TP11 Models:
omit terminal 2.**

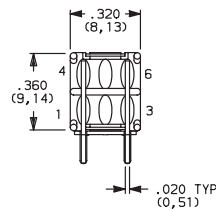
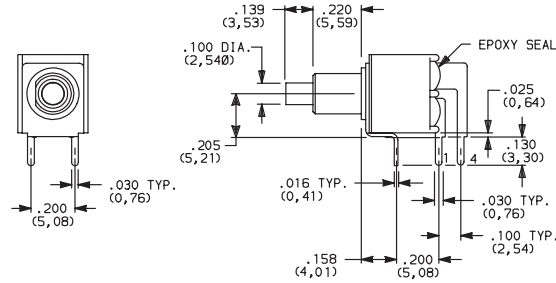


**TP11 Models:
omit hole 2.**

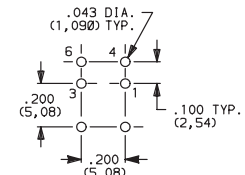
A RIGHT ANGLE, PC THRU-HOLE



**TP21SH9ABE
DPST**



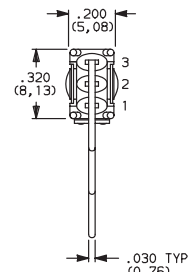
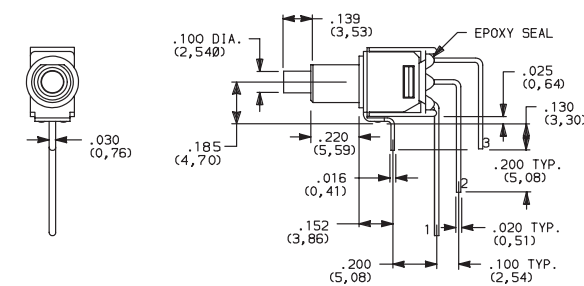
PC MOUNTING



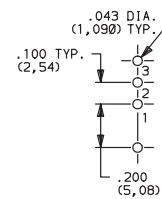
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



**TP12SH9AVBE
SPDT**



PC MOUNTING



**TP11 Models:
omit hole 2.**

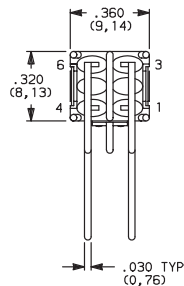
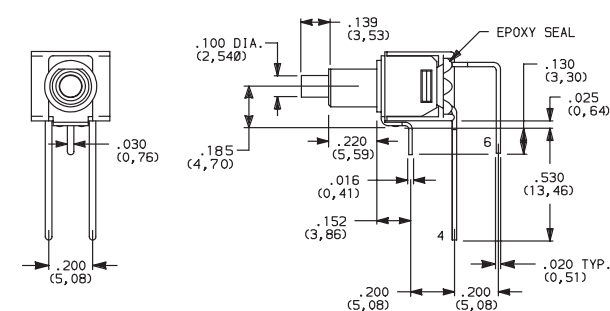
**TP11 Models:
omit terminal 2.**

NOTE: Terminal bend radii and lead-in manufacturing option.

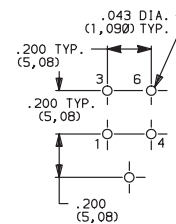
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



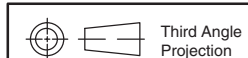
**TP21SH9AVBE
DPST**



PC MOUNTING



NOTE: Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TP Series Tiny Pushbutton Switches

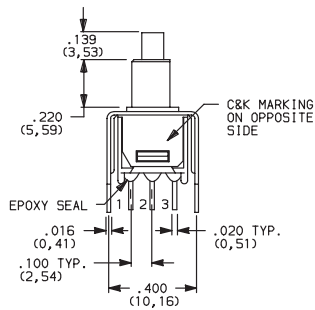


A

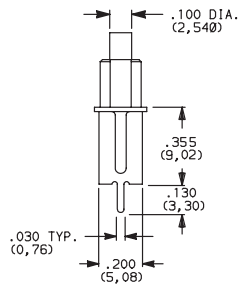
Pushbutton

TERMINATIONS

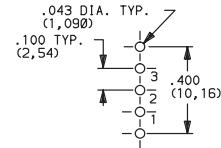
V3 VERTICAL MOUNT, V-BRACKET



TP11 Models:
omit terminal 2.



PC MOUNTING

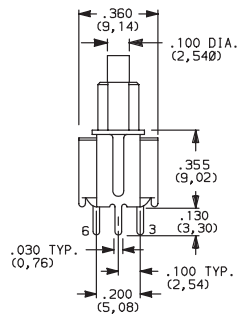
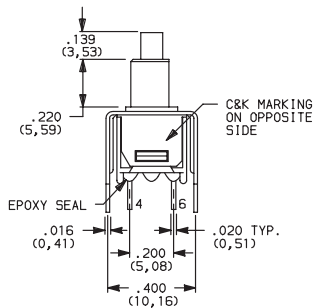


TP11 Models:
omit hole 2.

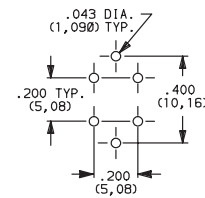


TP12SH9V3BE
SPDT

V3 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



TP21SH9V3BE
DPST

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	1 AMP @ 120 V AC OR 28 V DC.
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with P, R, Q, B or G contact material are RoHS compliant.

All models with all options when ordered with R, G, or Q contact material.

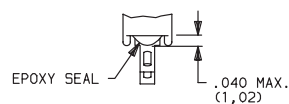
B contact material standard with A, AV, V3 & W terminations.

Q contact material standard with C & Z terminations

P, R contact materials not available with Z terminations.

SEAL

E EPOXY SEAL



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

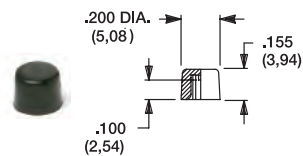


TP Series Tiny Pushbutton Switches

Pushbutton
A

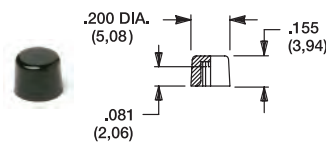
AVAILABLE HARDWARE

Cap, .100" DIA. Plungers



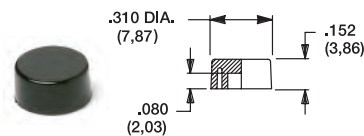
PART NO.
508101000 WHITE
508102000 BLACK
 Material: Nylon
 Finish: Gloss

Cap, .100" DIA. Plungers
(Recommended for S9 plunger)



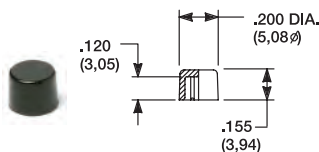
PART NO.
538701000 WHITE
538702000 BLACK
 Material: Nylon
 Finish: Gloss

Cap, .100" DIA. Plungers



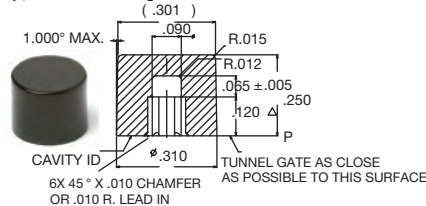
PART NO.
465801000 WHITE
465802000 BLACK
 Material: Nylon
 Finish: Gloss

Cap, .120" DIA. Plungers



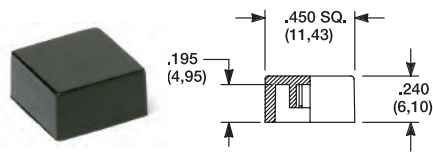
PART NO.
708901000 WHITE
708902000 BLACK
 Material: Nylon
 Finish: Gloss

Cap, .120" DIA. Plungers



PART NO.
891D01000 WHITE
891D02000 BLACK
 Material: Nylon
 Finish: Gloss

Cap, J81 option only



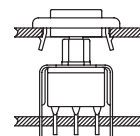
PART NO.
484601000 WHITE
484602000 BLACK
 Material: Nylon
 Finish: Gloss

PART NO.
798201000 WHITE
798202263 BLACK
 Material: Nylon
 Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
 Other cap colors available, consult Customer Service Center.

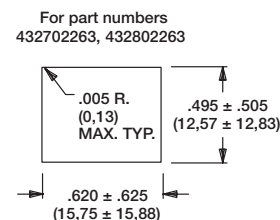
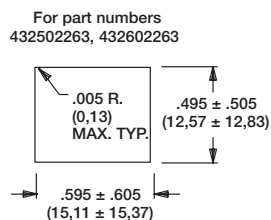
Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



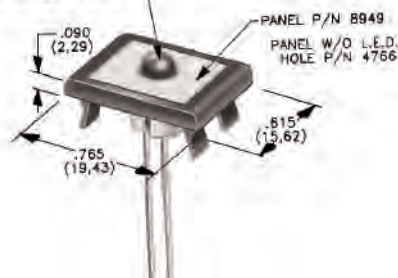
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. 432502263	PART NO. 432602263	PART NO. 432702263	PART NO. 432802263 BLACK

PANEL MOUNTING



Panel Inserts

L.E.D. (.200 DIA. (5,08)) SNAPS SECURELY INTO INSERT (P/N 8949). HEIGHT DEPENDS ON L.E.D. USED.



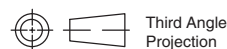
Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**

PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

E020 Series Sealed Snap-acting Momentary Pushbutton Switches



A

Pushbutton

Features/Benefits

- Process sealed with disposable splashproof boot
- Long life contact design
- Snap-fitting plunger available
- RoHS compliant models available

Typical Applications

- Instrumentation
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: B contact material (EX25 Models): 0.4 VA max. @ 20 V AC or DC max. G contact material (EX21 Models): 1 AMP @120 V AC or 28 V DC or 0.4 VA max. @ 20 V AC or DC max.
Note: Break-before-make contacts. Multi-pole contacts do not make and break simultaneously. See page A-26 for additional ratings.

ELECTRICAL LIFE: 60,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 75°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

SOLDERABILITY: Per MIL-STD-202F method 208D, or

EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with P, R, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant (UL 94V-0).

PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0).

SWITCH SUPPORT: Brass or steel, matte-tin.

SWITCH SUPPORT RETAINER: Stainless steel.

N.O. & N.C. CONTACTS: EX25 MODELS: B contact material: Copper alloy, with gold plate over nickel plate. EX21 MODELS: G contact material: Coin silver, with gold plate over nickel plate. See page A-26 for additional contact materials.

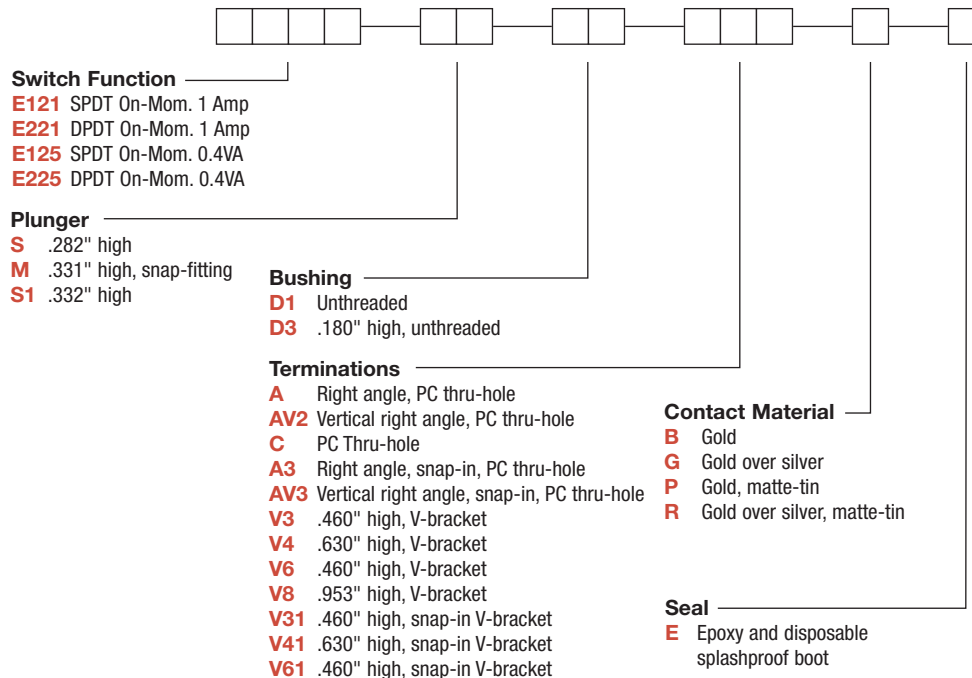
COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate. See page A-26 for additional contact materials.

TERMINAL SEAL: Epoxy.

DISPOSABLE BOOT: Vinyl splashproof boot supplied standard. Remove and discard only after soldering and cleaning processes are complete.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-22 thru A-28. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E020 Series Sealed Snap-acting Momentary Pushbutton Switches

Pushbutton
A

SWITCH FUNCTION

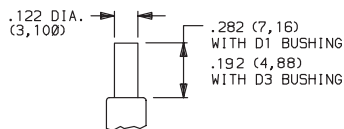
NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	E121	ON	MOM.	1-3	1-2	
	E125	ON	MOM.	1-3	1-2	
SPDT <p>Part number shown: E121SD1CGE</p>						
DP	E221	ON	MOM.	1-3,4-6	1-2,4-5	
	E225	ON	MOM.	1-3,4-6	1-2,4-5	
DPDT <p>Part number shown: E221SD1CBE</p>						

MOM. = Momentary
E121, E221 models with all options when ordered with G or R contact material.

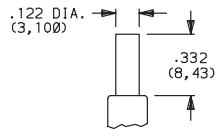
EX25 models must be ordered with B or P contact material.
EX21 models must be ordered with G or R contact material.

PLUNGER

S .282" HIGH

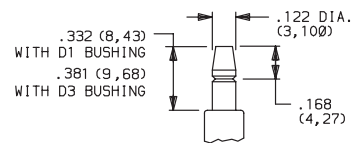


S1 .332" HIGH



Not Available with D1 bushing.

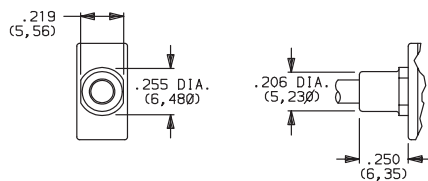
M .332" HIGH SNAP-FITTING



NOTE: Caps available for all plunger options, see page A-27.

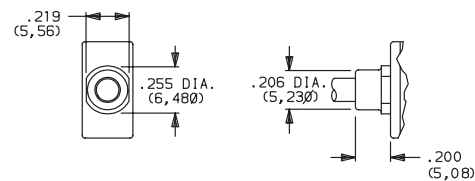
BUSHING

D1 UNTHREADED



Not available with S1 actuator.

D3 .180" HIGH UNTHREADED



NOTE: Disposable splashproof vinyl over actuator and bushing supplied std., see page A-26.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E020 Series Sealed Snap-acting Momentary Pushbutton Switches

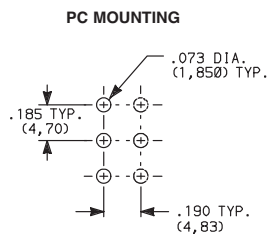
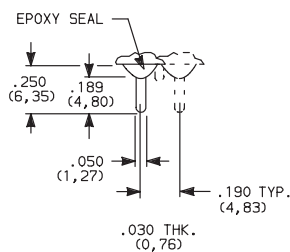


A

Pushbutton

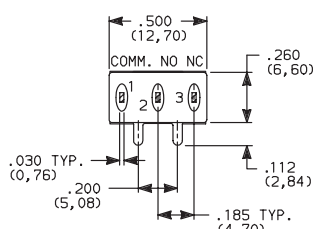
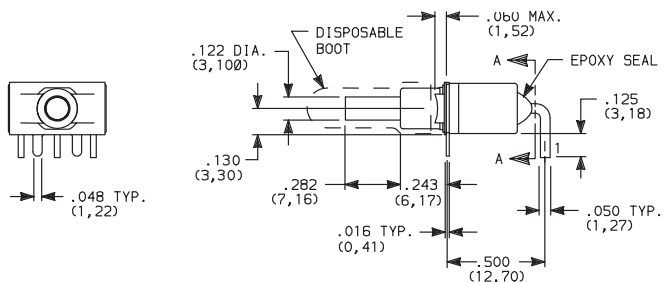
TERMINATIONS

C PC THRU-HOLE



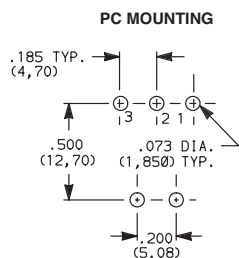
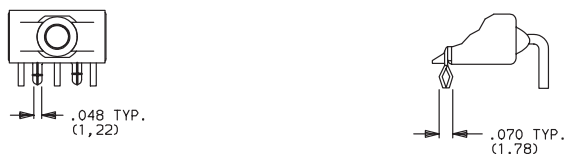
SPDT and DPDT

A RIGHT ANGLE, PC THRU-HOLE



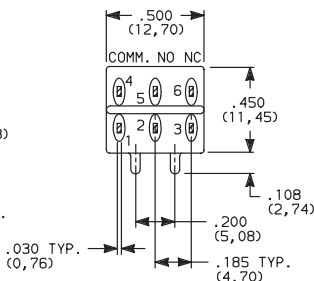
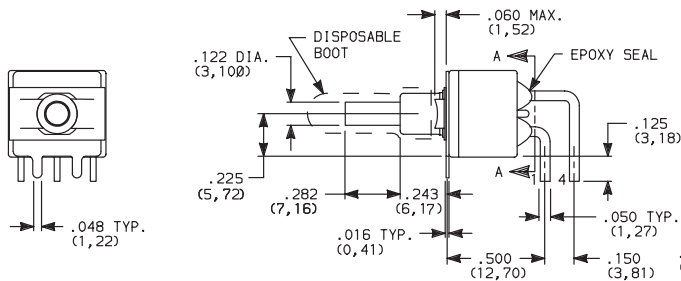
E121SD1AGE SPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



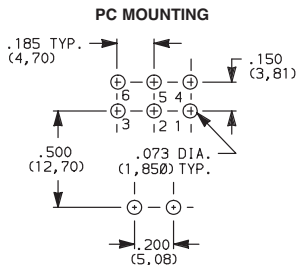
NOTE: Terminal bend radii and lead-in manufacturing option.

A RIGHT ANGLE, PC THRU-HOLE



E221SD1AGE DPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



NOTE: Terminal bend radii and lead-in manufacturing option.



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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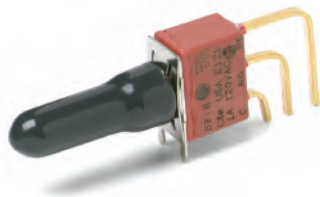
E020 Series Sealed Snap-acting Momentary Pushbutton Switches

TERMINATIONS

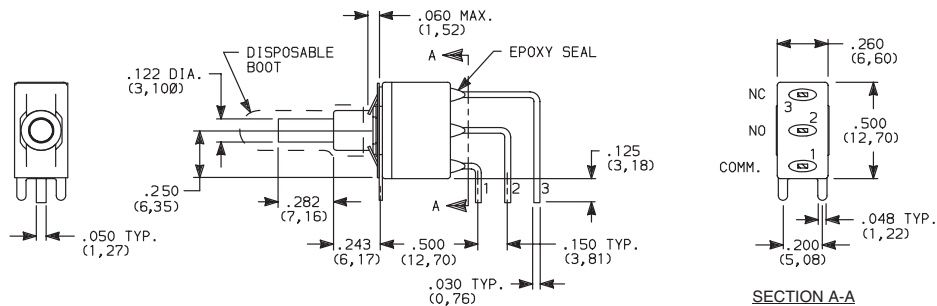


Pushbutton
A

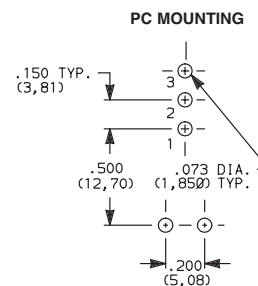
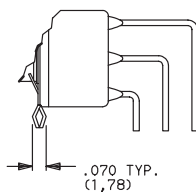
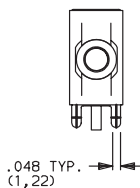
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



**E121SD1AV2GE
SPDT**



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH

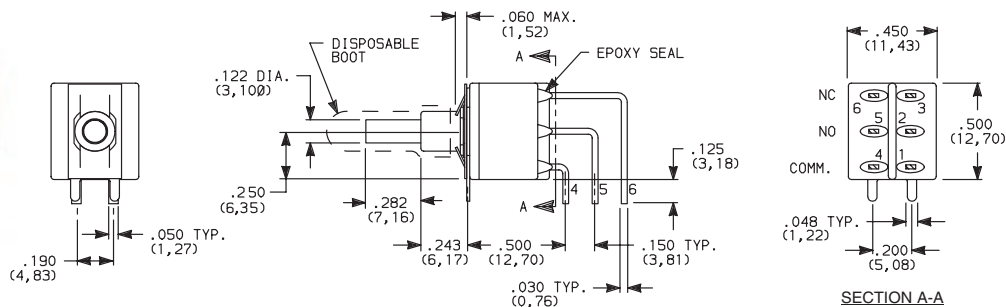


NOTE: Terminal bend radii and lead-in manufacturing option.

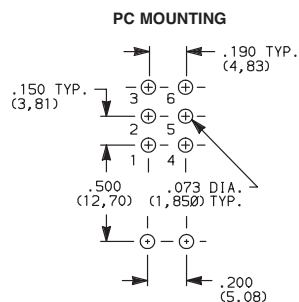
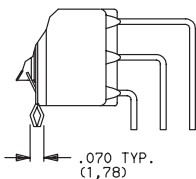
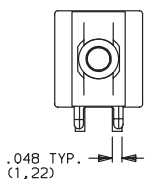
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



**E221SD1AV2GE
DPDT**



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH



NOTE: Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E020 Series Sealed Snap-acting Momentary Pushbutton Switches



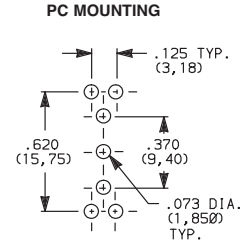
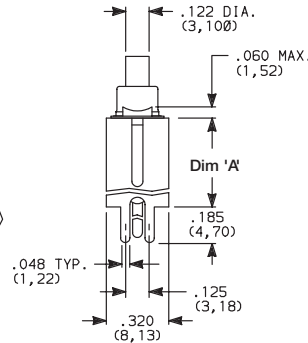
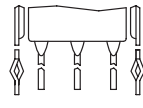
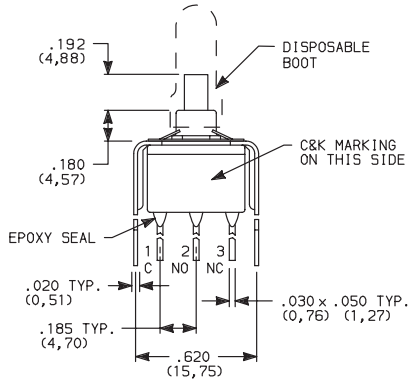
A

Pushbutton

TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN

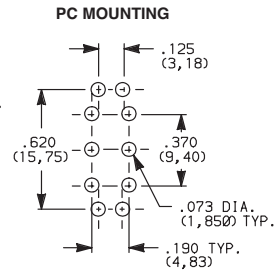
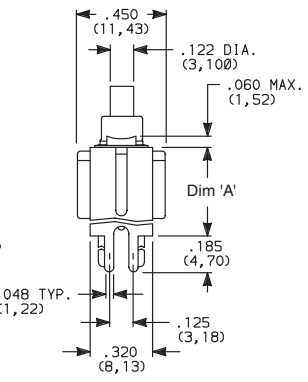
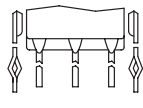
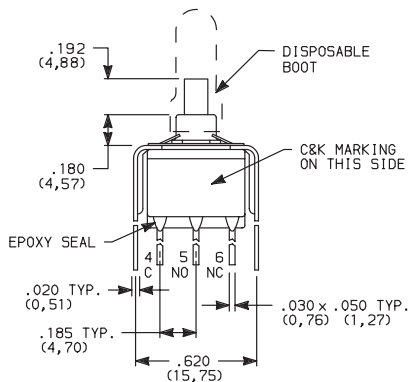


E121SD3_GE SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)

V3, V4 VERTICAL MOUNT, V-BRACKET

V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN

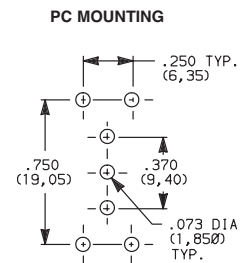
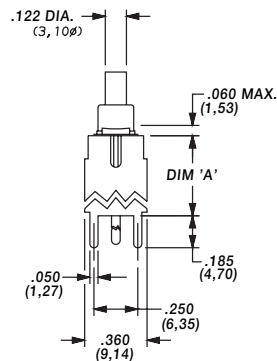
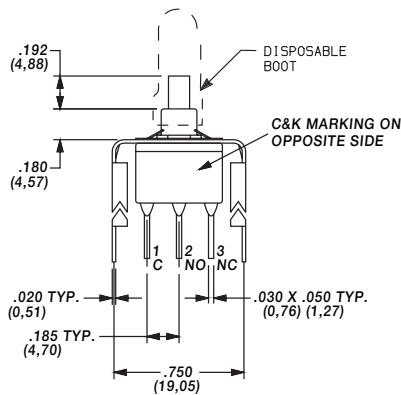


E221SD3_GE DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)

V6, V8 VERTICAL MOUNT, V-BRACKET

V61, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E121SD3_GE SPDT

OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)
V8, V81	.953 (24,21)



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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E020 Series Sealed Snap-acting Momentary Pushbutton Switches

Pushbutton

A

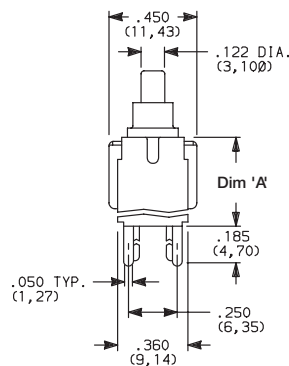
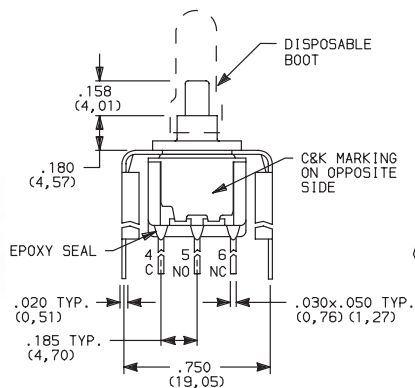
TERMINATIONS

V6, V8 VERTICAL MOUNT, V-BRACKET

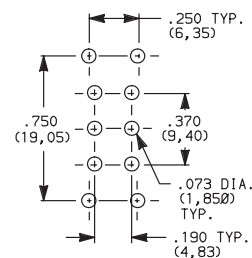
V61, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E221SD3V6GE DPDT



PC MOUNTING



OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)
V8, V81	.953 (24,21)

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	EX25 MODELS ONLY: 0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁴		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	EX21 MODELS ONLY: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁴		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

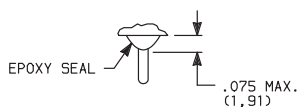
- ¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² N.O. AND N.C. CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- ⁴ TERMINALS: Copper alloy, with matte-tin alloy over nickel plate.

NOTE: Any models supplied with P, R, B or G contact material are RoHS compliant.

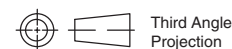
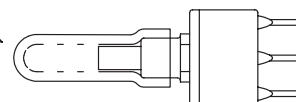
E121, E221 models with all options when ordered with mandatory G, or R contact material.
 P or B contact material must be ordered with EX25 models.
 R or G contact material must be ordered with EX21 models.

SEAL

E EPOXY SEAL AND DISPOSABLE SPLASHPROOF BOOT



Disposable splashproof boot supplied standard. Remove and discard boot *only after* soldering and cleaning processes are complete.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



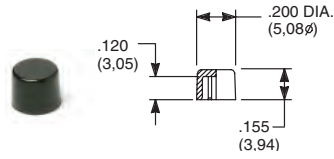
E020 Series Sealed Snap-acting Momentary Pushbutton Switches



A
Pushbutton

AVAILABLE HARDWARE

Cap

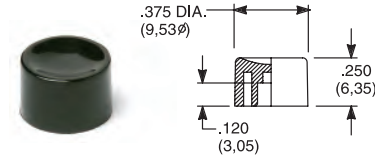


PART NO.

- 708901000** WHITE
- 708902000** BLACK
- 708903000** RED

Material: Nylon
Finish: Gloss

Cap

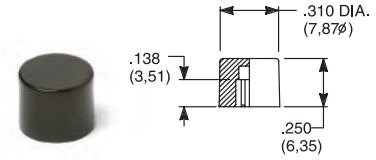


PART NO.

- 752701000** WHITE
- 752702000** BLACK
- 752703000** RED

Material: Nylon
Finish: Gloss

Cap

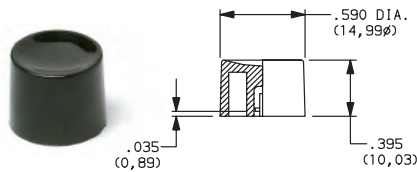


PART NO.

- 801801000** WHITE
- 801802000** BLACK
- 801803000** RED

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

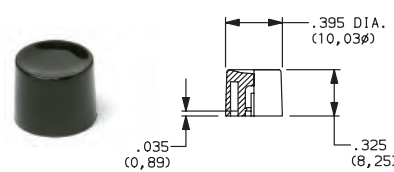


PART NO.

- 452D01000** WHITE
- 452D02000** BLACK
- 452D03000** RED

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

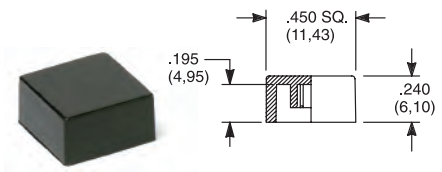


PART NO.

- 894101000** WHITE
- 894102000** BLACK
- 894103000** RED

Material: Nylon
Finish: Gloss

Cap



PART NO.

- 484601000** WHITE
- 484602000** BLACK
- 484603000** RED

Material: Nylon
Finish: Gloss

PART NO.

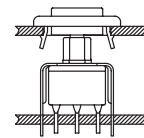
- 798201000** WHITE
- 798202263** BLACK
- 798203000** RED

Material: Nylon
Finish: Matte

NOTE: Other cap colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



.047" (1,19) PANEL THK.

PART NO.
432502263

.062" (1,57) PANEL THK.

PART NO.
432602263

.090" (2,29) PANEL THK.

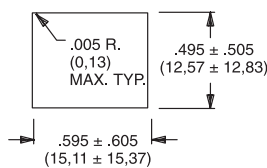
PART NO.
432702263

.125" (3,18) PANEL THK.

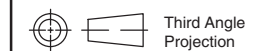
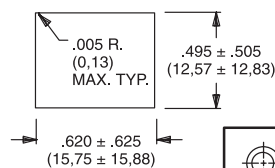
PART NO.
432802263 BLACK

PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx



For part numbers
4327xxxxx, 4328xxxxx



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



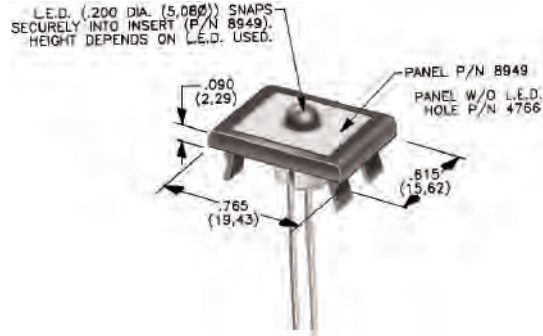
E020 Series Sealed Snap-acting Momentary Pushbutton Switches

AVAILABLE HARDWARE

Pushbutton
A

PANEL INSERTS

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT
WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

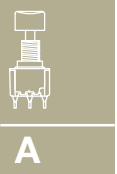
PART NO.
476602000 BLACK

Special colors, custom markings available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches



Pushbutton

Features/Benefits

- **Positive tactile feel**
- **Multi-positions available**
- **Wide variety of termination options**
- **Epoxy terminal seal compatible with bottom wash cleaning**
- **RoHS compliant models available**



Models Available

Typical Applications

- **Instrumentation**
- **Computer peripherals**
- **Telecommunications equipment**



Specifications

CONTACT RATING: B contact material (8X25 Models): 0.4 VA max. @ 20 V AC or DC maximum. G contact material (8X21, U8X1 Models): 1 AMP @ 120 V AC or 28 V DC or 0.4 VA max. @ 20 V AC or DC max. Note: Break-before-makecontacts. Multi-pole contacts do not make and break simultaneously. See page A-43 for additional ratings.

ELECTRICAL LIFE: 60,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: 8X2X MODELS: -30°C to 75°C.
U8X1 MODELS: -30°C to 65°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with B, P, R, or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6 or diallyl phthalate (DAP), flame retardant (UL 94V-0).

PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

N.O. & N.C. CONTACTS: 8X21, U8X1 MODELS: G contact material: Coin silver, with gold plate over nickel plate. See page A-43 for additional contact materials.

8X25 MODELS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-43 for additional contact materials.

COMMON CONTACT & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning Technical Data Chapter.

HARDWARE: Nut & Locking Ring: Brass, nickel plated;
Lockwasher: Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-30 thru A-45. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



Switch Function

- 8121** SPDT On-Mom. 1 Amp
- 8125** SPDT On-Mom. 0.4VA
- 8221** DPDT On-Mom. 1 Amp
- 8225** DPDT On-Mom. 0.4VA
- 8321** 3PDT On-Mom. 1 Amp
- 8325** 3PDT On-Mom. 0.4VA
- 8421** 4PDT On-Mom. 1 Amp
- 8425** 4PDT On-Mom. 0.4VA

Note: UL models available, see page A-30 and A-31.

Actuator or Plunger

- S** Plunger
- NONE** Snap-in
- J80** Snap-in
- J81** Snap-in w/frame
- J82** Snap-in w/frame for LED
- J83** Snap-in w/frame & flush cap
- J84** Snap-in w/frame for LED, flush cap
- J85** Snap-in w/frame & LED
- J95** PC w/V-bracket & LED
- L** Plunger
- M** Snap-fitting plunger

Bushing

- D9** .280" high, keyway
- H** .250" high, flat
- NONE** No bushing choice required
- D** .280" high, keyway
- D2** .288" high, flat
- D3** .180" high
- D8** .288" high, flat
- H9** .250" high, flat, hi torque
- Y** .350" high, keyway
- Y3** 6.35mm high, keyway, hi torque
- Y4** .378" high, flat, hi torque
- Y9** .350" high, keyway

Contact Material

- B** Gold
- P** Gold, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

Seal

- E** Epoxy
- I** Epoxy potted base

Cap Color

- 2** Black
- NONE** Models without caps
- 1** White
- 3** Red
- 4** Orange
- 5** Yellow
- 6** Green
- 7** Blue
- 9** Gray

Frame Color

- 2** Black
- NONE** Models without frame
- 1** White
- 3** Red
- 5** Yellow
- 6** Green
- 9** Gray

LED Color

- 3** Red
- NONE** Models without LED
- 5** Yellow
- 6** Green

Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- Z** Solder lug
- A2** Right angle, PC thru-hole
- A3** Right angle, snap-in, PC thru-hole
- A4** Right angle, PC thru-hole, reversed terminals
- A6** Right angle, PC thru-hole
- AV1** Vertical right angle, PC thru-hole
- AV3** Vertical right angle, snap-in, PC thru-hole
- R** Right angle with PCB
- R2** Right angle with PCB, reversed terminals
- V2** .555" high, V-bracket
- V3** .460" high, V-bracket
- V4** .630" high, V-bracket
- V6** .460" high, V-bracket
- V7** .630" high, V-bracket
- V8** .953" high, V-bracket
- V9** 1.150" high, V-bracket
- V31** .460" high, snap-in V-bracket
- V61** .460" high, snap-in V-bracket
- W** .750" long, wire wrap
- W1** .964" long, wire wrap
- W3** .425" long, wire wrap
- W4** 1.062" long, wire wrap
- Z3** Quick connect



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8020 Series Snap-acting Momentary Pushbutton Switches

SWITCH FUNCTION

Pushbutton
A

NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
SP	8121	U811	ON	MOM.	1-3	1-2	
	8125		ON	MOM.			
<p>SPDT</p> <p>Part number shown: 8121SHZGE</p>							
DP	8221	U821	ON	MOM.	1-3,4-6	1-2,4-5	
	8225		ON	MOM.			
<p>DPDT</p> <p>Part number shown: 8221SHZGE</p>							
3P	8321	U831	ON	MOM.	1-3,4-6,7-9	1-2,4-5,7-8	
	8325		ON	MOM.			
<p>3PDT</p> <p>Part number shown: 8321SHZGE</p>							

MOM. = Momentary

*U811 thru U841 model numbers with all options (except R, R2 terminations) when ordered with G or R contact material.

8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches



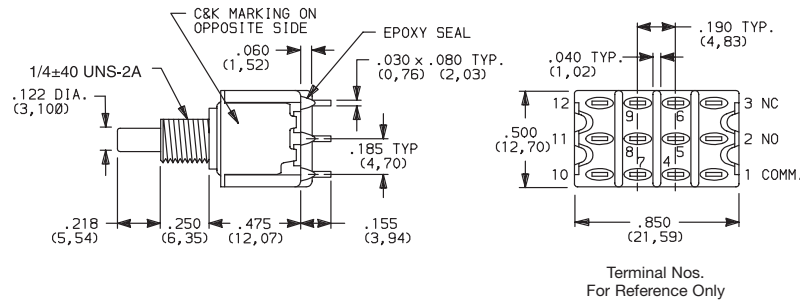
A

Pushbutton

SWITCH FUNCTION

NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
4P	8421	U841	ON	MOM.	1-3,4-6,7-9,10-12	1-2,4-5,7-8,10-11	
	8425		ON	MOM.			

4PDT



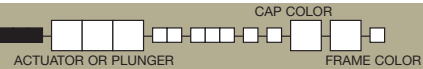
MOM. = Momentary

* U811 thru U841 model numbers with all options (except R, R2 terminations) when ordered with G or R contact material.

8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.

ACTUATOR—SNAP-IN FRONT MOUNT

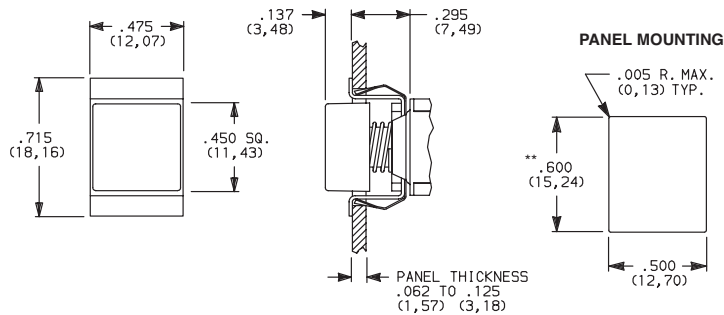


OPTION CODE	CAP AND FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

Other colors available, consult Customer Service Center. Cap and Frame Finish: matte.

NOTE: Caps and frames available separately, see pages A-44 and A-45.

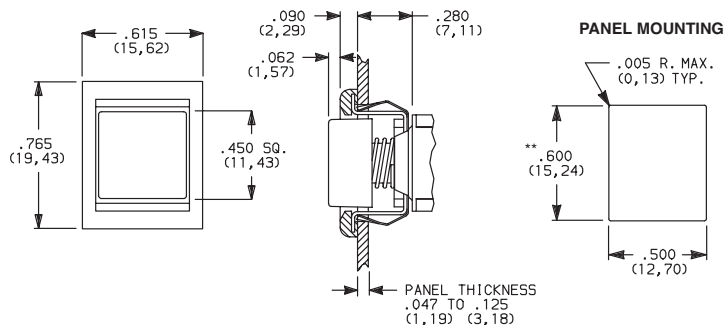
J80 SNAP-IN



NOTE: No frame color choice required.

** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

J81 SNAP-IN WITH FRAME



NOTE: Available with C, W-W4, Z or Z3 terminations and SPDT and DPDT models only.

** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

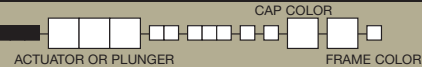


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



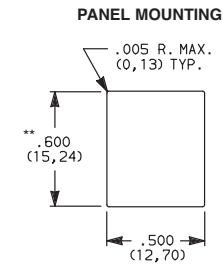
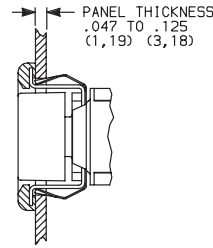
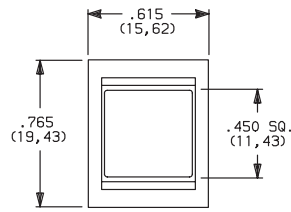
8020 Series Snap-acting Momentary Pushbutton Switches

ACTUATOR—SNAP-IN FRONT MOUNT

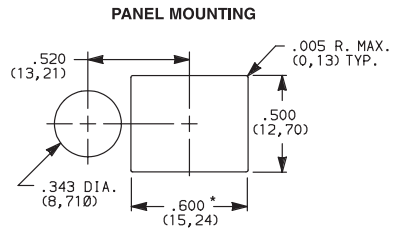
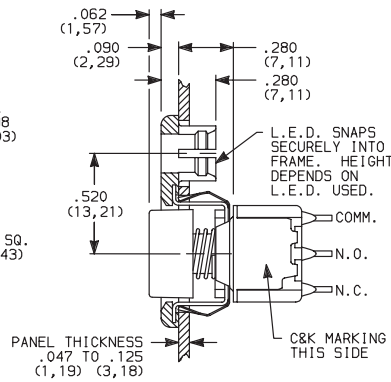
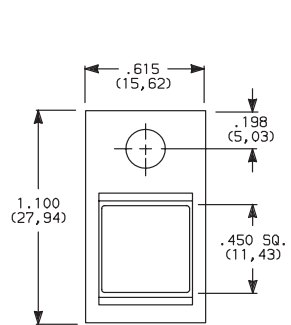


Pushbutton
A

J83 SNAP-IN WITH FRAME AND FLUSH CAP



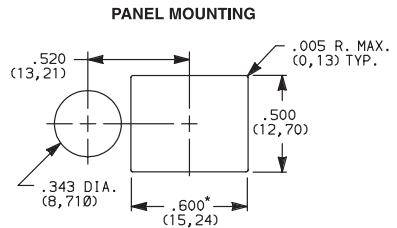
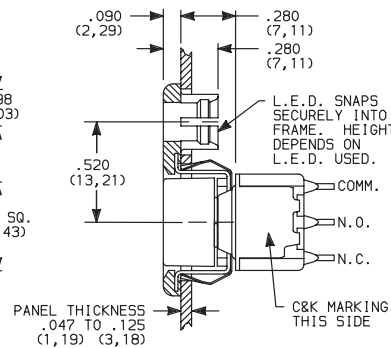
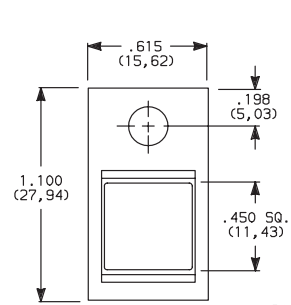
J82 SNAP-IN WITH FRAME FOR LED



* Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

LED not included.
For LED information, see page A-45.

J84 SNAP-IN WITH FRAME FOR LED, FLUSH CAP



* Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

LED not included.
For LED information, see page A-45.

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

Other colors available, consult Customer Service Center.
Cap and Frame Finish: matte.

Available with C, W-W4, Z or Z3 terminations and SPDT and DPDT models only.

NOTE: Caps and frames available separately, see pages A-44 and A-45.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



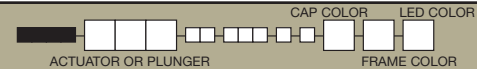
8020 Series Snap-acting Momentary Pushbutton Switches



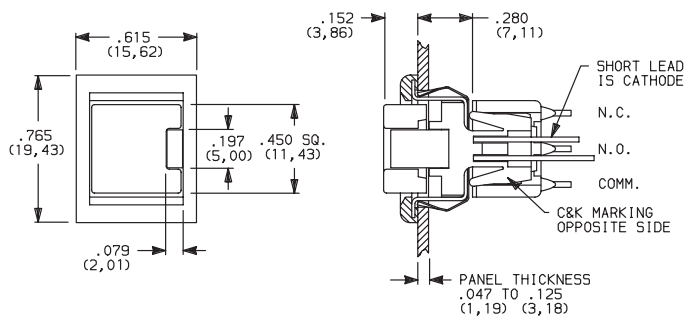
A

Pushbutton

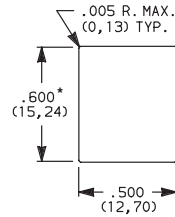
ACTUATOR—SNAP-IN FRONT MOUNT



J85 SNAP-IN WITH FRAME AND LED



PANEL MOUNTING



* Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.



8121J85ZGE223 SPST

Available with C, W-W4, Z or Z3 terminations and SPDT models only. For LED information see page A-45.

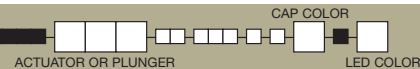
NOTE: Caps & frames available separately, see pages A-44 and A-45.

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

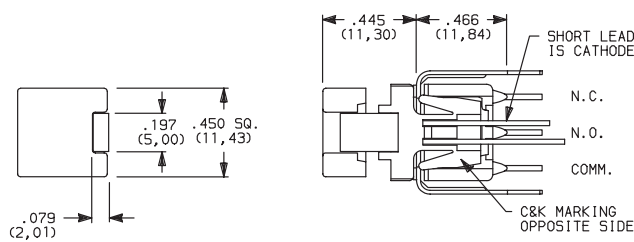
OPTION CODE	LED COLOR
3	RED
5	YELLOW
6	GREEN

For LED information see page A-45.

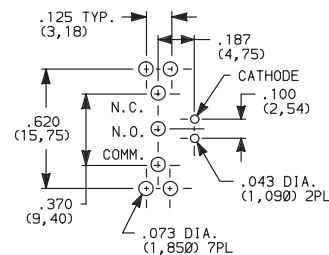
ACTUATOR—PC MOUNT



J95 PC WITH V-BRACKET AND LED



PC MOUNTING



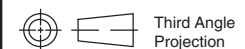
8121J95V3GE23 SPST

NOTE: Caps available separately, see page A-44. Available with V3 terminations and SPDT models only.

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

OPTION CODE	LED COLOR
3	RED
5	YELLOW
6	GREEN

For LED information see page A-45.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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8020 Series Snap-acting Momentary Pushbutton Switches

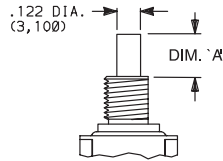
Pushbutton

A

PLUNGER

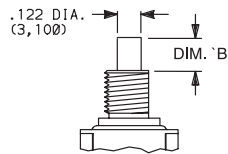


S PLUNGER

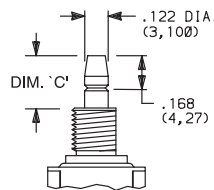


NONE NO PLUNGER CHOICE REQUIRED (JXX ACTUATORS)

L PLUNGER



M SNAP-FITTING PLUNGER



AVAILABLE BUSHINGS	DIM. 'A' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'A' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'A' FOR V3-V61 TERMINATIONS
D, D9	.244 (6,20)	.228 (5,79)	.224 (5,69)
H, H9	.218 (5,54)	.202 (5,13)	.198 (5,03)
Y, Y9	.203 (5,16)	.187 (4,75)	.183 (4,65)
Y3	(5,54)	(5,13)	(5,03)
Y4	.185 (4,70)	.169 (4,29)	.165 (4,19)
D2, D8	N/A	.232 (5,89)	.228 (5,79)
D3	N/A	.162 (4,11)	.158 (4,01)

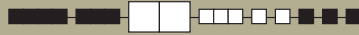
AVAILABLE BUSHINGS	DIM. 'B' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'B' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'B' FOR V3-V61 TERMINATIONS
Y, Y9	.178 (4,52)	.162 (4,11)	.158 (4,01)
Y4	.090 (2,29)	.074 (1,88)	.070 (1,78)

AVAILABLE BUSHINGS	DIM. 'C' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'C' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'C' FOR V3-V61 TERMINATIONS
D, D9	.297 (7,54)	.281 (7,14)	.277 (7,04)
H, H9	.267 (6,78)	.251 (6,38)	.247 (6,27)
Y, Y9	.259 (6,58)	.243 (6,17)	.239 (6,07)
Y3	(6,78)	(6,37)	(6,27)
Y4	.259 (6,58)	.243 (6,17)	.239 (6,07)
D2, D8	N/A	.273 (6,93)	.269 (6,83)
D3	N/A	.361 (9,17)	.357 (9,07)

N/A = NOT AVAILABLE

NOTE: When selecting plunger option, bushing selection must also be made, see next page. No plunger option is required when any JXX actuator option is selected. Additional plunger lengths are available on SPDT and DPDT models, consult Customer Service Center. Not all plunger lengths sufficient for use with caps, see page A-44.

BUSHING

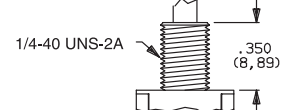
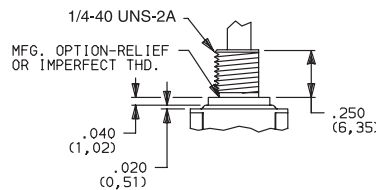
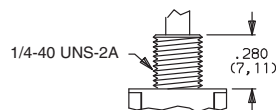
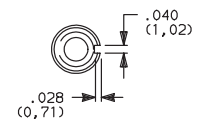
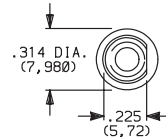
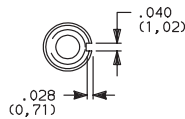


NONE NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

D .280" HIGH THREADED, KEYWAY
D9 .280" HIGH UNTHREADED, KEYWAY

H .250" HIGH THREADED, FLAT
H9 .250" HIGH UNTHREADED, FLAT

Y .350" HIGH THREADED, KEYWAY
Y9 .350" HIGH UNTHREADED, KEYWAY



D9 bushing standard with A-A6, R, R2 AV-AV3 terminations.

H bushing standard with C, W-W4, Z or Z3 terminations. H, H9 bushings not available on single pole models with A3-A6, R, R2 terminations.

Will withstand 12 in./lbs. of torque with no distortion.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

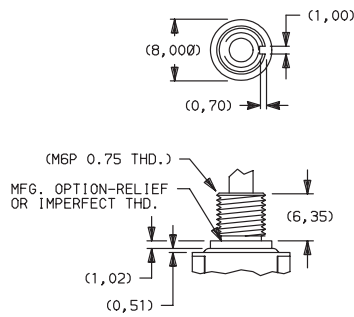
8020 Series Snap-acting Momentary Pushbutton Switches



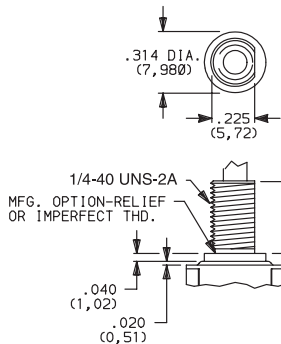
A Pushbutton

BUSHING

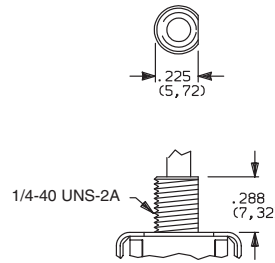
Y3 6.35mm THREADED, KEYWAY



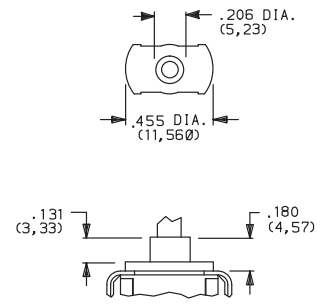
Y4 .378" HIGH THREADED, FLAT



D2 .288" HIGH THREADED, FLAT
D8 .288" HIGH UNTHREADED, FLAT



D3 .180" HIGH UNTHREADED



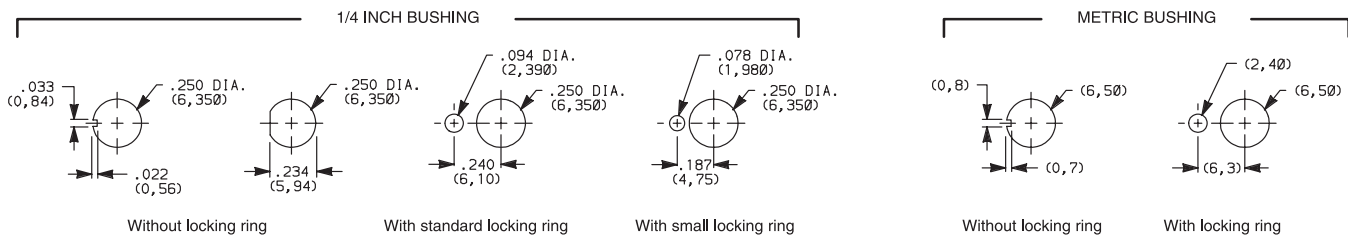
Y3 & Y4 bushings not available on single pole models with A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.

D2, D8 bushings not available with C, W-W4, Z, Z3 terminations.

D3 bushing available with A, A2, A3, AV, AV2, AV3 and V2-V61 terminations only.

NOTE: No bushing option choice required when JXX actuator option is selected. When selecting bushing option, plunger selection must also be made, see previous page. Plunger lengths vary with bushing and termination options selected.

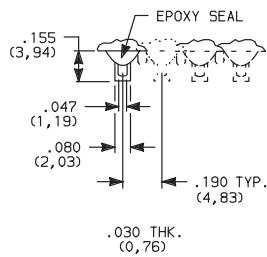
PANEL MOUNTING



NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles available, see section "Technical Data and Additional Hardware".

TERMINATIONS

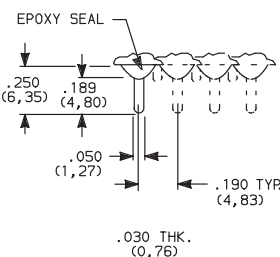
Z SOLDER LUG



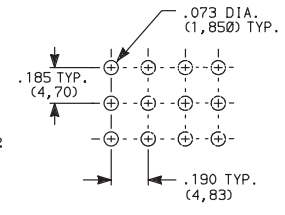
Not available with J95 actuator, P or R contact material.

SPDT thru 4PDT

C PC THRU-HOLE



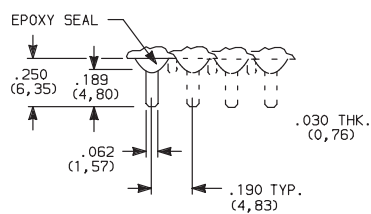
PC MOUNTING



Not available with J95 actuator option.

SPDT thru 4PDT

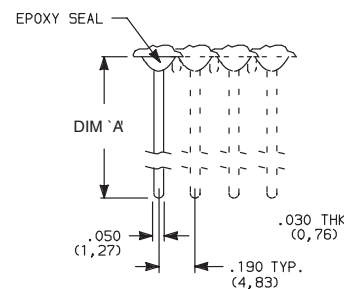
Z3 QUICK CONNECT



Not available with J95 actuator, P or R contact material. Mating quick connector available, order part number 530100000, page A-44.

SPDT thru 4PDT

W W1, W3, W4 WIRE WRAP



OPTION CODE	DIM 'A'
W	.750 (19,05)
W1	.964 (24,49)
W3	.425 (10,80)
W4	1.062 (26,97)

Not available with J95 actuator option.

SPDT thru 4PDT



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS



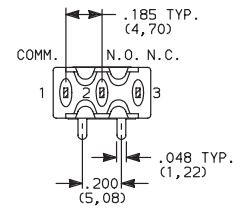
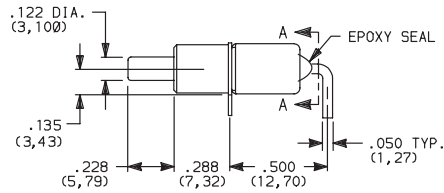
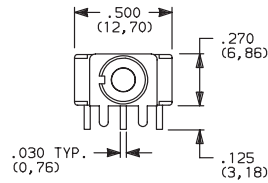
A

Pushbutton

A RIGHT ANGLE, PC THRU-HOLE

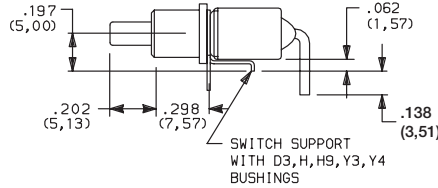


**8121SD9AGE
SPDT**



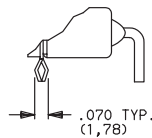
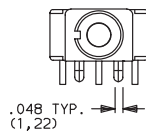
SECTION A-A

Terminal Nos.
For Reference Only.

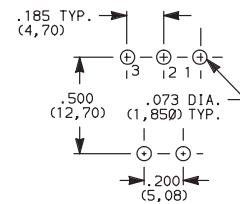


Part Number 8121SH9AGE

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING

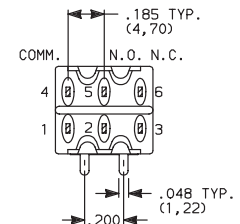
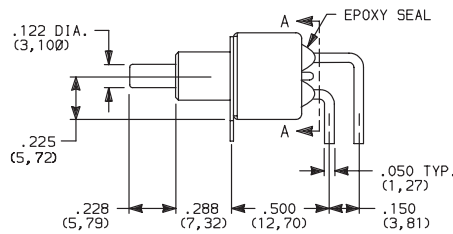
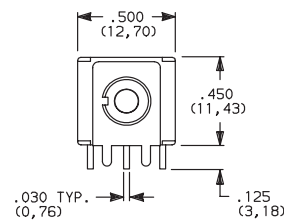


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

A RIGHT ANGLE, PC THRU-HOLE

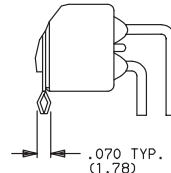
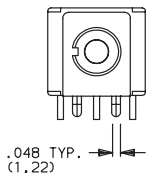


**8221SD9AGE
DPDT**

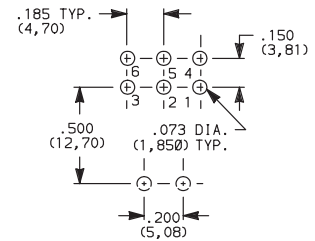


SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING



Not available with JXX actuators and I seal option.
Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches

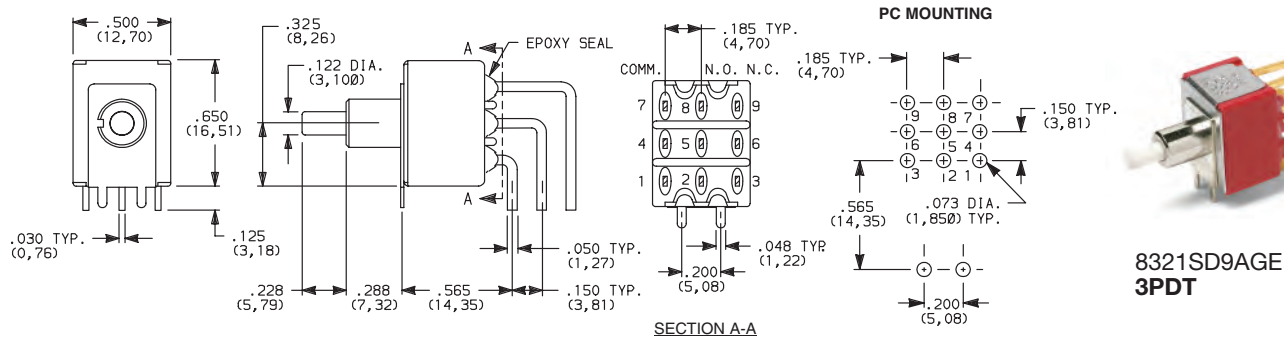


A

Pushbutton

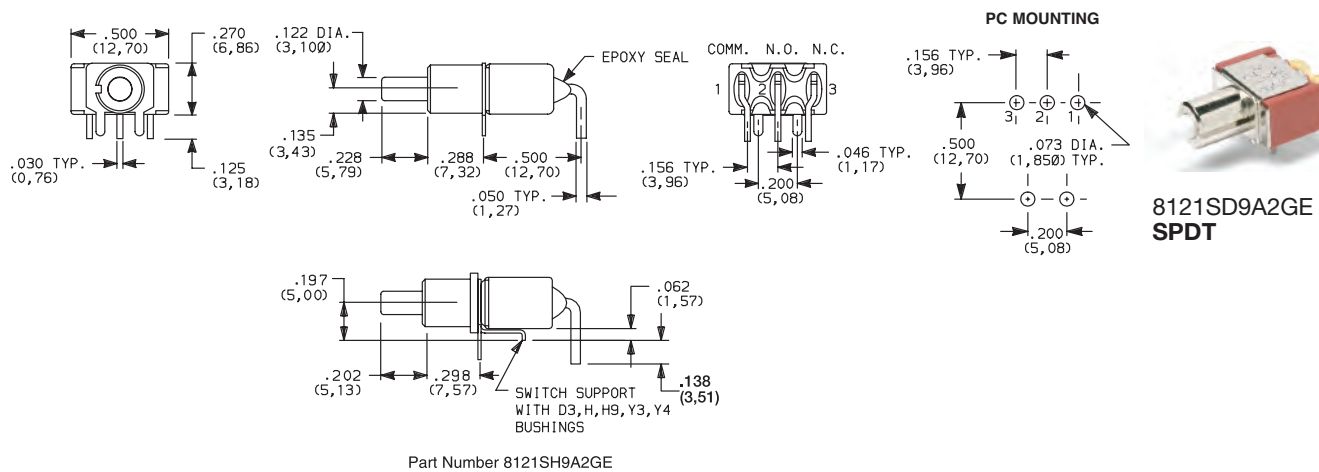
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE



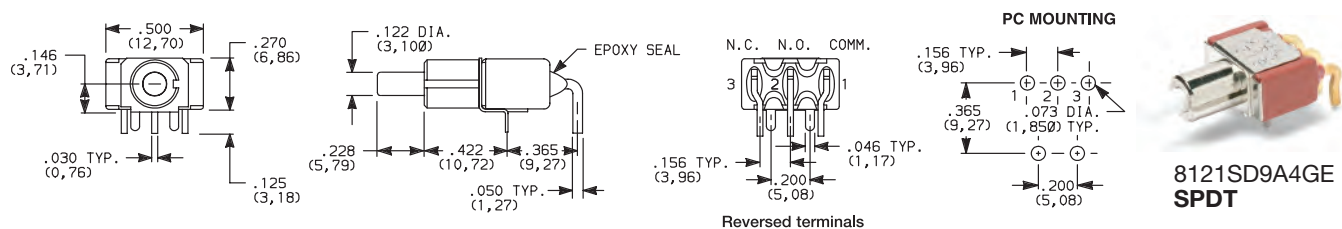
Not available with JXX actuators and I seal option.
Terminal bend radii and lead-in manufacturing option.

A2 RIGHT ANGLE, PC THRU-HOLE



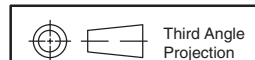
Not available with JXX actuators, I seal option.
Terminal bend radii and lead-in manufacturing option.

A4 RIGHT ANGLE, PC THRU-HOLE, REVERSED TERMINALS



Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
Terminal bend radii and lead-in manufacturing option.

The A4 and R2 termination options are functionally identical and fit the same PC mounting pattern. The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R2, the A4 option is available with UL/CSA.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS



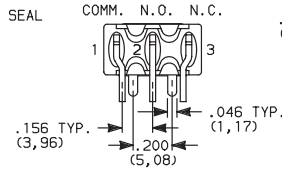
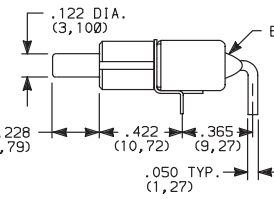
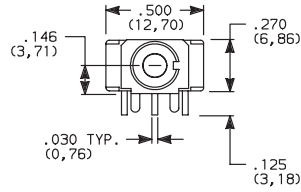
A

Pushbutton

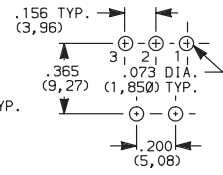
A6 RIGHT ANGLE, PC THRU-HOLE



8121SD9A6GE
SPDT



PC MOUNTING



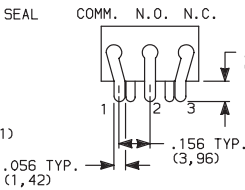
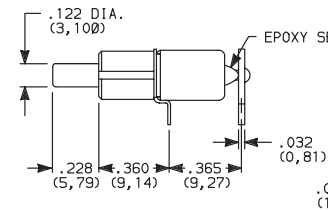
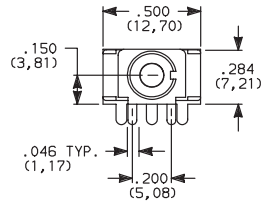
Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
Terminal bend radii and lead-in manufacturing option.

The A6 and R termination options are functionally identical and fit the same PC mounting pattern. The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R, the A6 option is available with UL/CSA.

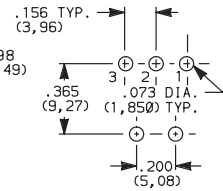
R RIGHT ANGLE WITH PCB



8121SD9RGE
SPDT



PC MOUNTING

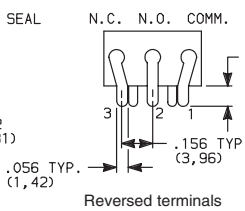
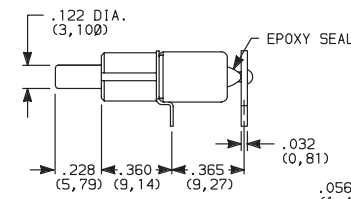
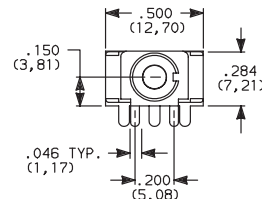


Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings, I seal option.
R termination not UL/CSA approved.

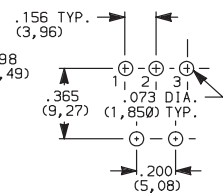
R2 RIGHT ANGLE WITH PCB, REVERSED TERMINALS



8121SD9R2GE
SPDT



PC MOUNTING



Reversed terminals

Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings, I seal option.
R2 termination not UL/CSA approved.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches

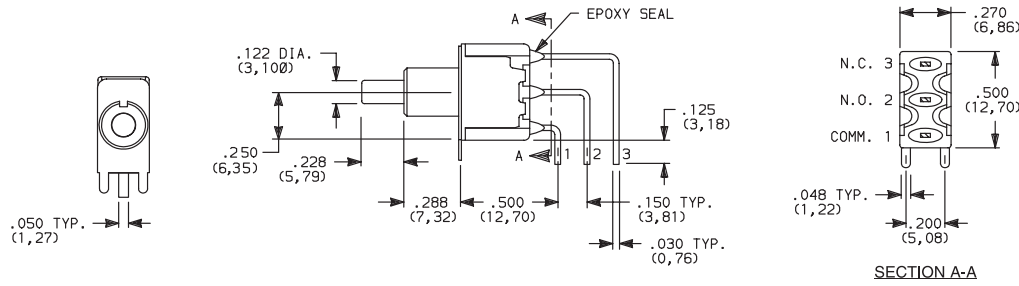


A

Pushbutton

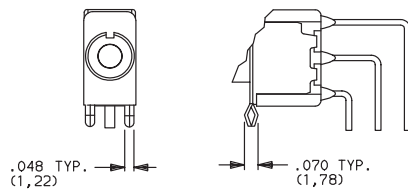
TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

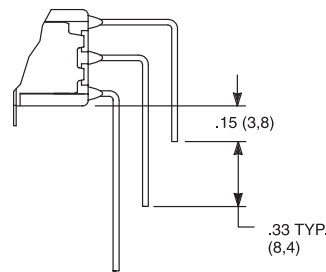


8121SD9AV2GE
SPDT

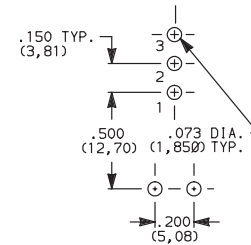
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH

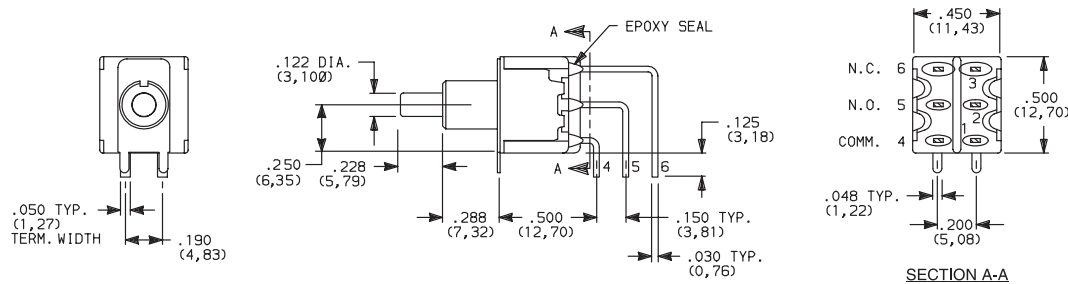


PC MOUNTING



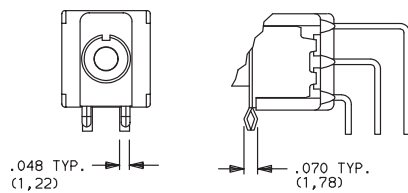
Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

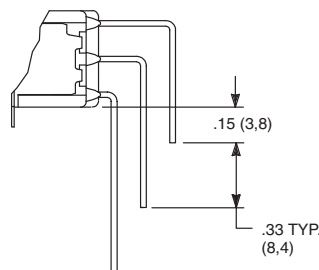


8221SD9AV2GE
DPDT

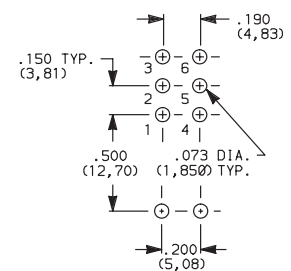
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH



PC MOUNTING



Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS

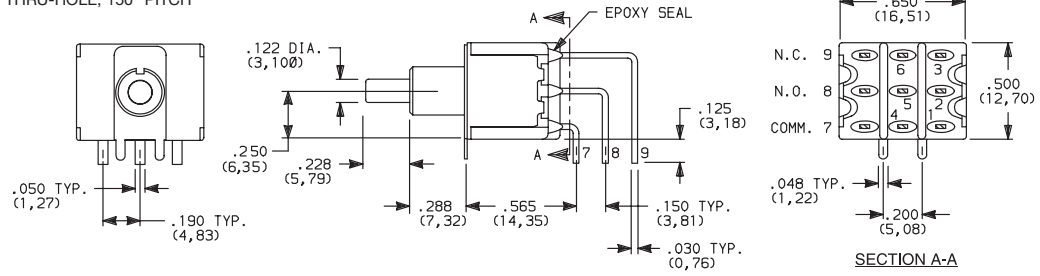
Pushbutton

A

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

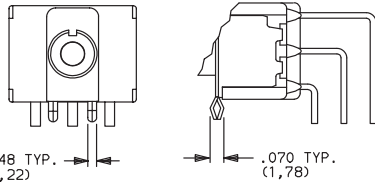


8321SD9AV2GE
3PDT



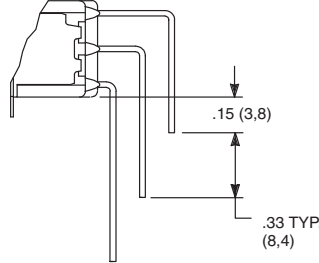
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH

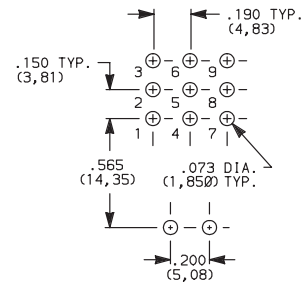


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH



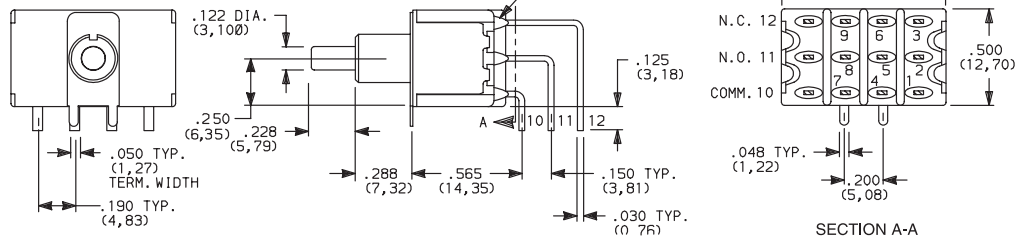
PC MOUNTING



AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

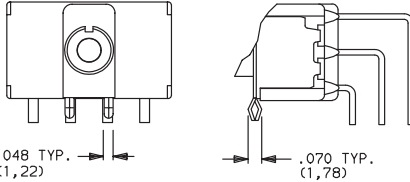


8421SD9AV2GE
4PDT



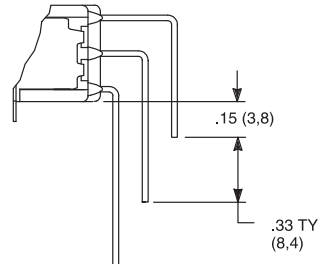
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH

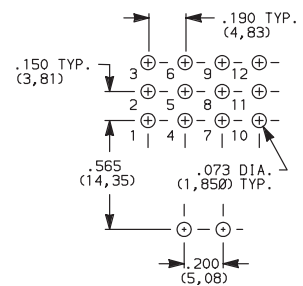


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH

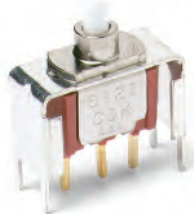


PC MOUNTING



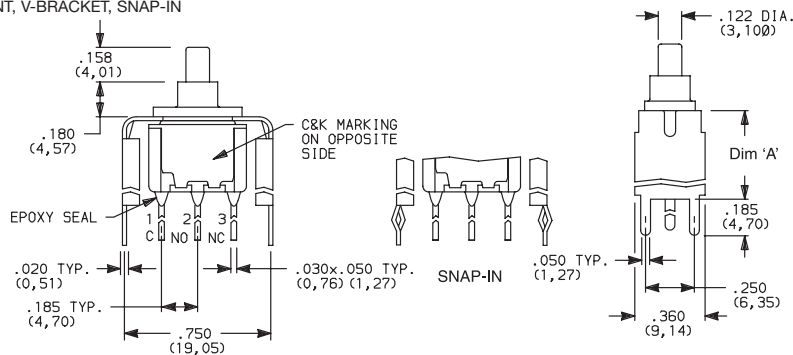
V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN

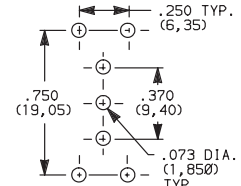


8121SD3_GE
SPDT

Not available with JXX actuators and I seal.



PC MOUNTING



OPTION CODE	DIM 'A'
V2	.555 (14,10)
V6, V61	.460 (11,68)
V7	.630 (16,00)
V8	.953 (24,21)



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches



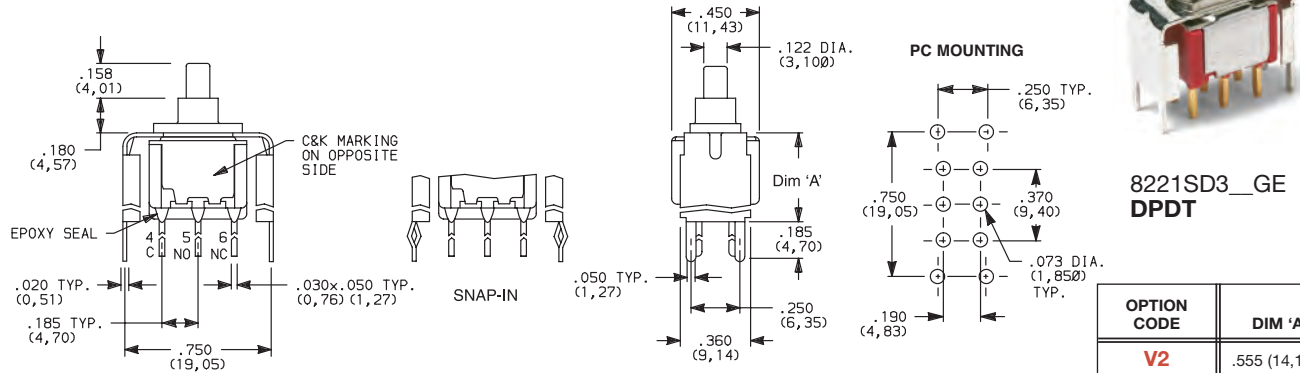
A

Pushbutton

TERMINATIONS

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN

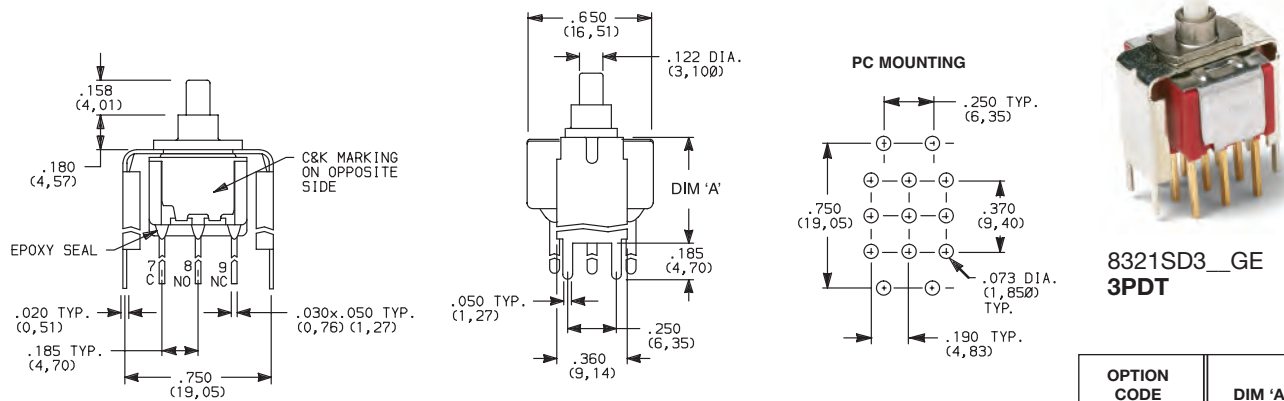


8221SD3_GE DPDT

OPTION CODE	DIM 'A'
V2	.555 (14,10)
V6, V61	.460 (11,68)
V7	.630 (16,00)
V8	.953 (24,21)

Not available with JXX actuators and I seal.

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

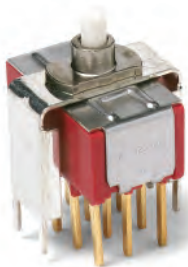
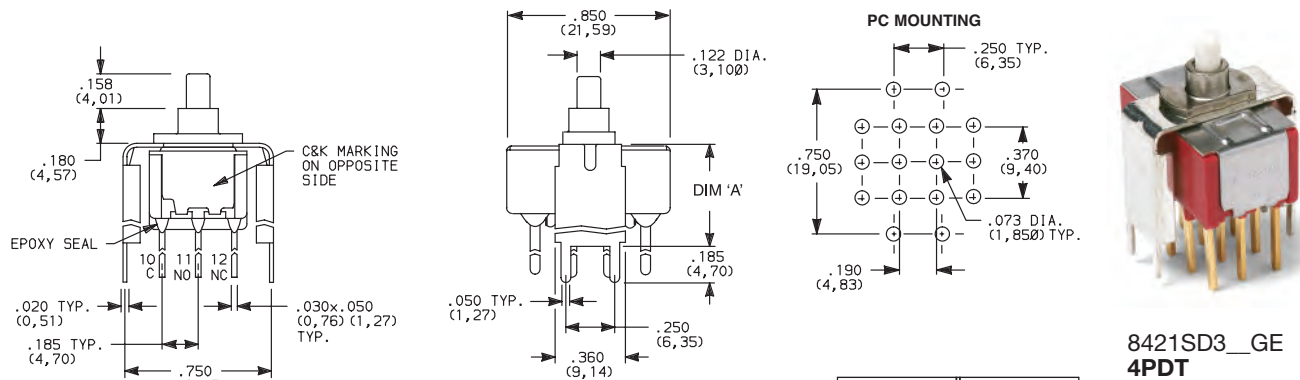


8321SD3_GE 3PDT

OPTION CODE	DIM 'A'
V2	.555 (14,10)
V7	.630 (16,00)
V8	.953 (24,21)

Not available with JXX actuators and I seal.

V2, V7, V8 VERTICAL MOUNT, V-BRACKET



8421SD3_GE 4PDT

OPTION CODE	DIM 'A'
V2	.555 (14,10)
V7	.630 (16,00)
V8	.953 (24,21)

Not available with JXX actuators and I seal.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS



Pushbutton

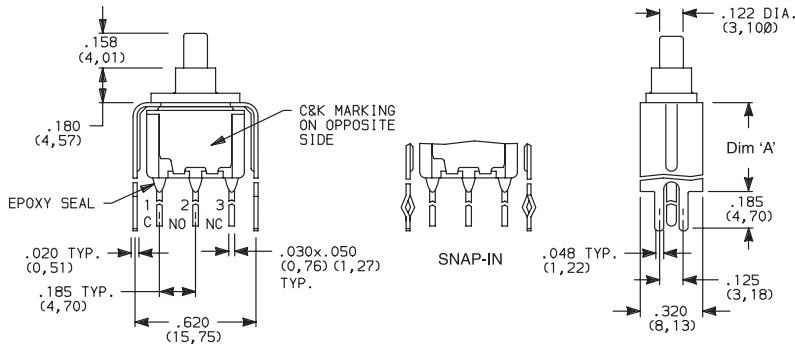
A

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

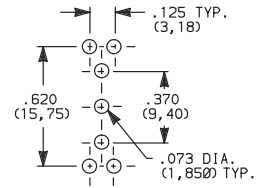
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



8121SD3_GE
SPDT



PC MOUNTING



OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

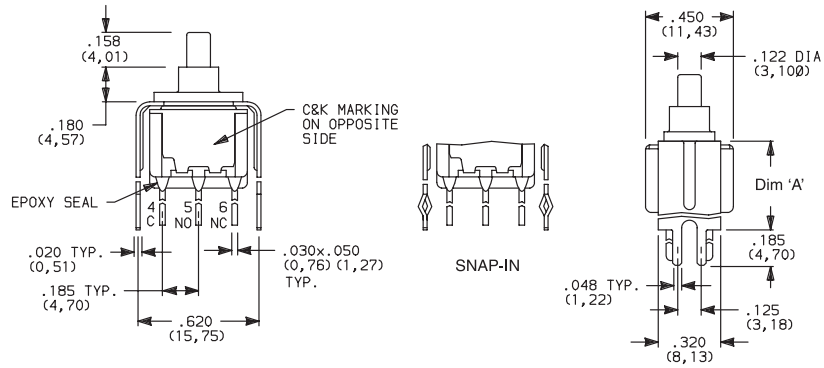
Not available with J8X actuators and I seal.

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

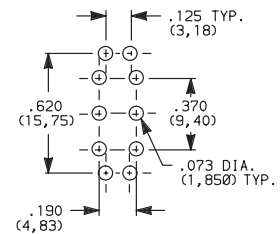
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



8221SD3_GE
DPDT



PC MOUNTING



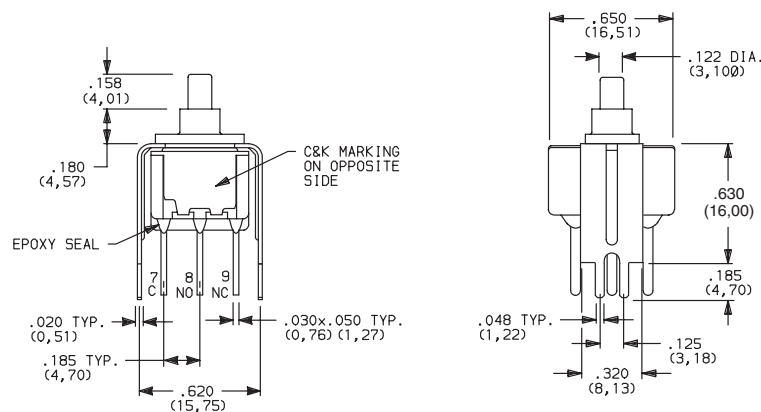
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with J8X actuators and I seal.

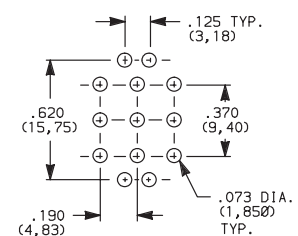
V4, V9 VERTICAL MOUNT, V-BRACKET



8321SD3V4GE
3PDT



PC MOUNTING



OPTION CODE	DIM 'A'
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with JXX actuators and I seal.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches

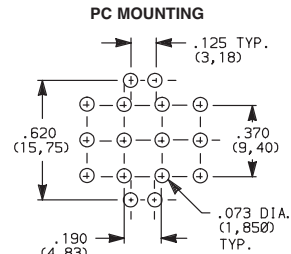
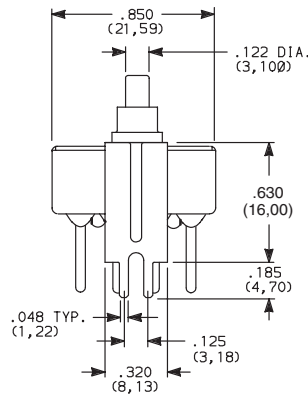
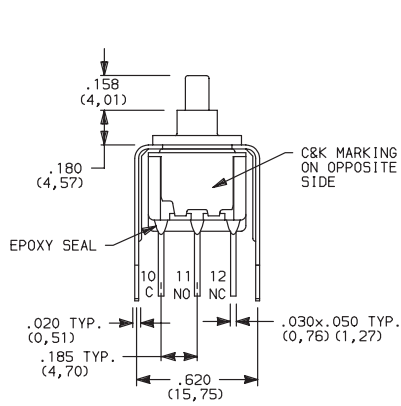


A

Pushbutton

TERMINATIONS

V4, V9 VERTICAL MOUNT, V-BRACKET



8421SD3V4GE
4PDT

OPTION CODE	DIM 'A'
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with JXX actuators and I seal.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	8x25 MODELS ONLY: 0.4 MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁴		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	8X21, U8X1 MODELS ONLY: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁴		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- ¹ ALL CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² N.O. AND N.C. CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- ⁴ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with B, P, R or G contact material are RoHS compliant.

U811-U841 models with all options (except R, R2 terminations) when ordered with mandatory G or R contact material.

B or P contact material must be ordered with 8X25 models.

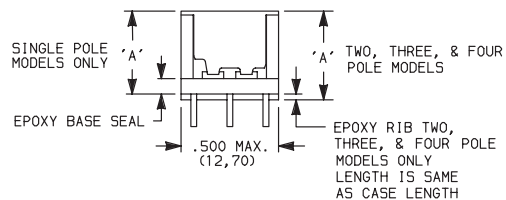
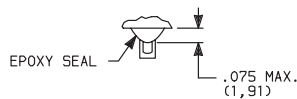
G or R contact material must be ordered with 8X21, U8X1 models.

P or R contact material not available with Z, Z3 terminations.

SEAL

E EPOXY SEAL

I EPOXY POTTED BASE



NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

NOTE: Available with C, W-W4, Z, Z3 terminations only.



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com

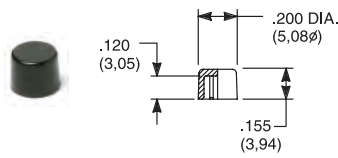


8020 Series Snap-acting Momentary Pushbutton Switches

Pushbutton
A

AVAILABLE HARDWARE

Cap

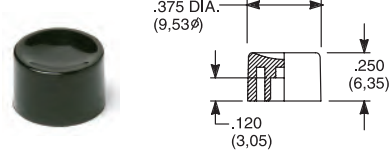


PART NO.

- 708901000 WHITE
- 708902000 BLACK
- 708903000 RED
- 708904000 ORANGE
- 708905000 YELLOW
- 708906000 GREEN
- 708907000 BLUE
- 708909000 GRAY

Material: Nylon
Finish: Gloss

Cap

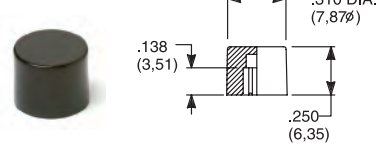


PART NO.

- 752701000 WHITE
- 752702000 BLACK
- 752703000 RED
- 752704000 ORANGE
- 752705000 YELLOW
- 752706000 GREEN
- 752707000 BLUE
- 752709000 GRAY

Material: Nylon
Finish: Gloss

Cap

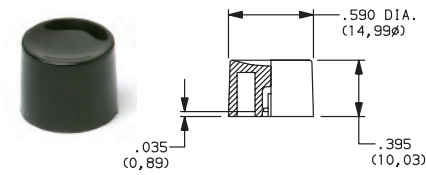


PART NO.

- 801801000 WHITE
- 801802000 BLACK
- 801803000 RED
- 801804000 ORANGE
- 801805000 YELLOW
- 801806000 GREEN
- 801807000 BLUE
- 801809000 GRAY

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

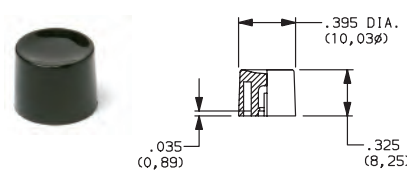


PART NO.

- 452D01000 WHITE
- 452D02000 BLACK
- 452D03000 RED
- 452D04000 ORANGE
- 452D05000 YELLOW
- 452D06000 GREEN
- 452D07000 BLUE
- 452D09000 GRAY

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

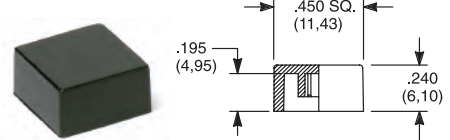


PART NO.

- 894101000 WHITE
- 894102000 BLACK
- 894103000 RED
- 894104000 ORANGE
- 894105000 YELLOW
- 894106000 GREEN
- 894107000 BLUE
- 894109000 GRAY

Material: Nylon
Finish: Gloss

Cap, J80, J81, J82, J83 & J84 options only



PART NO.

- 484601000 WHITE
- 484602000 BLACK
- 484603000 RED
- 484604000 ORANGE
- 484605000 YELLOW
- 484606000 GREEN
- 484607000 BLUE
- 484609000 GRAY

Material: Nylon
Finish: Gloss

PART NO.

- 798201000 WHITE
- 798202263 BLACK
- 798203000 RED
- 798204000 ORANGE
- 798205000 YELLOW
- 798206000 GREEN
- 798207000 BLUE
- 798209000 GRAY

Material: Nylon
Finish: Matte

Frame



PART NO.

- 615602263 BLACK

Material: Nylon
Finish: Matte

Frame

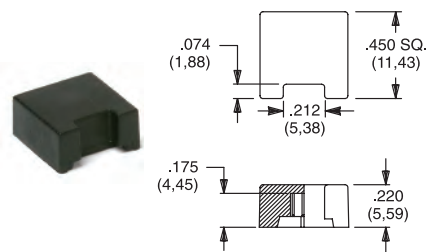


PART NO.

- 613302263 BLACK

Material: Nylon
Finish: Matte

Cap, J85 & J95 options only



PART NO.

- 459701000 WHITE
- 459702000 BLACK
- 459703000 RED
- 459704000 ORANGE
- 459705000 YELLOW
- 459706000 GREEN
- 459707000 BLUE
- 459709000 GRAY

Material: Nylon
Finish: Gloss

PART NO.

- 476801000 WHITE
- 476802000 BLACK
- 476803000 RED
- 476804000 ORANGE
- 476805000 YELLOW
- 476806000 GREEN
- 476807000 BLUE
- 476809000 GRAY

Material: Nylon
Finish: Matte

Fits Z3 Termination female connector



PART NO.

- 530100000

Available in loose pieces.

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".

Other cap & frame colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8020 Series Snap-acting Momentary Pushbutton Switches

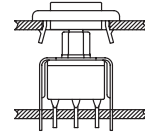


A Pushbutton

AVAILABLE HARDWARE

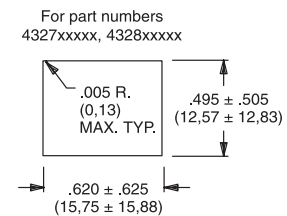
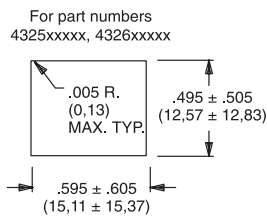
Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



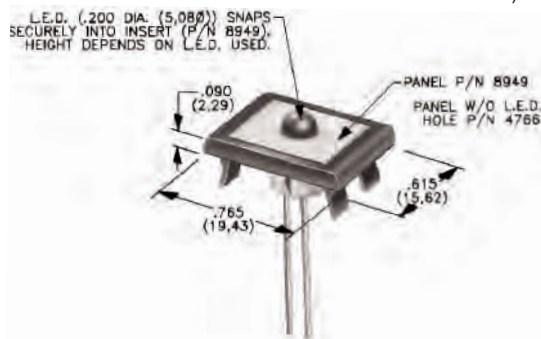
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. 432502263	PART NO. 432602263	PART NO. 432702263	PART NO. 432802263 BLACK

PANEL MOUNTING



Panel Inserts

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

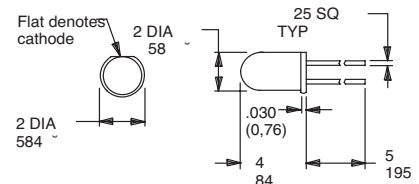
Special colors, custom markings available, consult Customer Service Center.

LED INFORMATION

SWITCHES WITH LED SUPPLIED: J85, J95 OPTIONS:

Rectangular LEDs are supplied on 8020 Series pushbutton switches with J85 and J95 options. These LEDs are factory installed and are not replaceable. The following specifications apply:

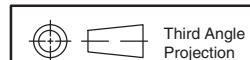
OPTION CODE	COLOR	TYP. INTENSITY	TYP. FORWARD VOLTAGE	TYP. FORWARD CURRENT	MAX RATINGS AT 25°C AMBIENT TEMPERATURE		
					FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION
6	Green	1.0 mcd	2.1 V	20 mA	2.5 V	50 mA	125 mW
3	Red*	0.5 mcd		10 mA		30 mA	75 mW
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW



Suggested LED for J82 & J84 options
Dimensions for reference only

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

Caution: Circuit elements must limit forward current of LED to 50mA max. continuous.
* Extra-bright red LED available (typ. intensity 4.5 mcd), consult Customer Service Center.
LEDs are not supplied with J82, J84 options. LED snaps into switch frame surrounding actuator and is wired externally.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

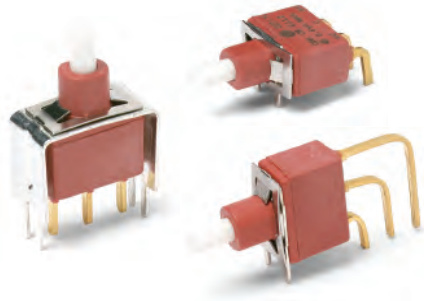




A

Pushbutton

E010 Series Sealed Momentary Pushbutton Switches



Features/Benefits

- Process sealed, withstands soldering and cleaning
- Long life contact design
- Snap-fitting plunger available, accepts a variety of caps
- RoHS compliant models available

Typical Applications

- Instrumentation
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC. See page A-50 for additional ratings.

ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 75°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with P, Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant (UL 94V-0).

PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0), with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

END CONTACTS: Q contact material: Coin silver, silver plated. See A-50 for additional ratings.

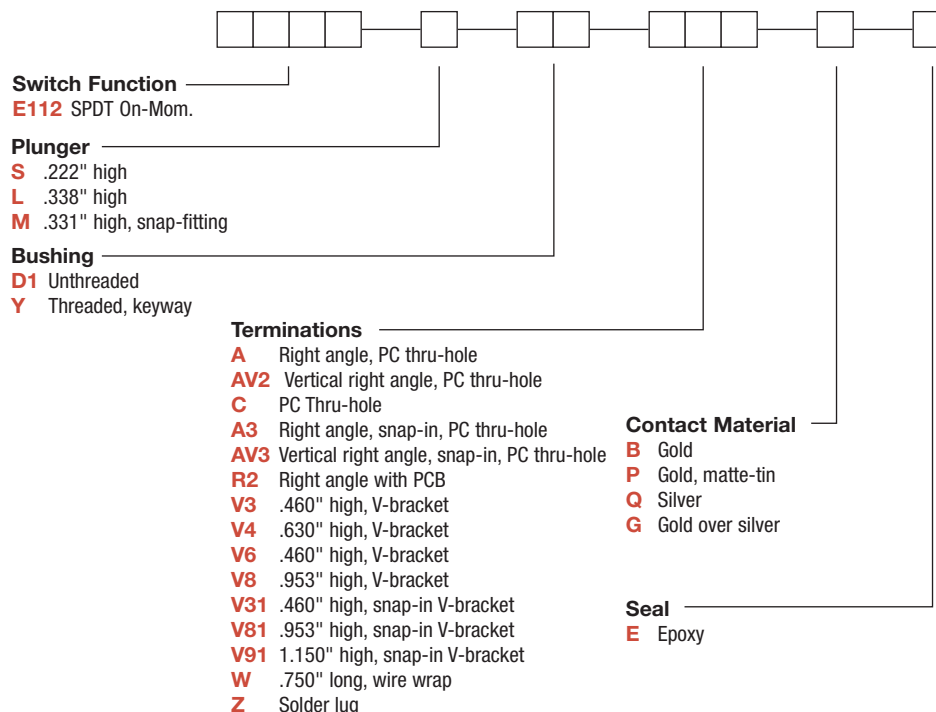
CENTER CONTACTS & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-50 for additional ratings.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & locking ring-Brass, nickel plated. Lockwasher-Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-47 thru A-51. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E010 Series Sealed Momentary Pushbutton Switches



A

Pushbutton

SWITCH FUNCTION

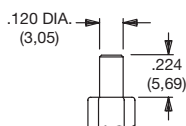
NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	E112	ON C&K marking this side	MOM. C&K marking this side	2-1 C&K marking this side	2-3 C&K marking this side	SPDT NC 1 ● 2 (COMM) ● 3 NO
<p>SPDT</p> <p>Part number shown: E112SD1CQE</p>						

MOM. = Momentary

All models with all options when ordered with G or Q contact material.

PLUNGER

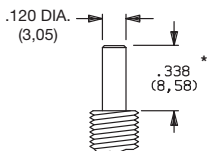
S .218" HIGH



Standard with D1 bushing (as shown).

† Subtract .100 (2,54) from plunger length when ordered with Y bushing.

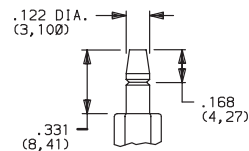
L .338" HIGH



Standard with Y bushing (as shown).

** Add .100 (2,54) from plunger length when ordered with D1 bushing.

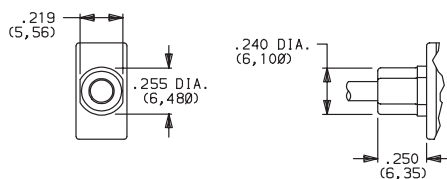
M .331" HIGH, SNAP-FITTING



NOTE: Caps available for all plunger options, see pages A-50 and A-51.

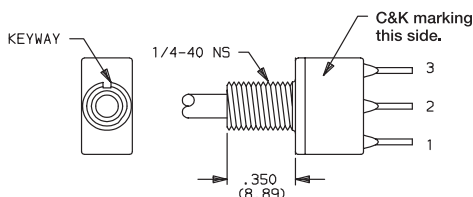
BUSHING

D1 UNTHREADED



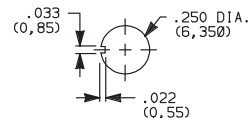
S plunger standard with D1 bushing.

Y THREADED, KEYWAY

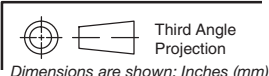


L plunger standard with Y bushing. Available only with C, Z terminations.
Hardware: One dress nut part number 299D01201, one hex nut and lockwasher supplied standard.
Withstands 4 in./lbs. without distortion.

PANEL MOUNTING



NOTE: Internal o-ring actuator seal standard for all bushing options.



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E010 Series Sealed Momentary Pushbutton Switches

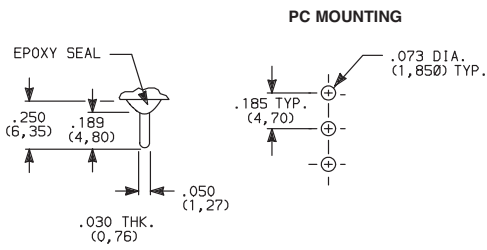
Pushbutton

A

TERMINATIONS

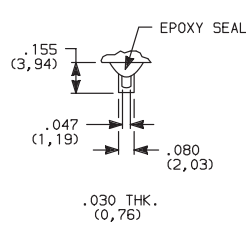


C PC THRU-HOLE



SPDT

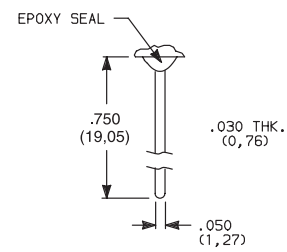
Z SOLDER LUG



SPDT

Not available with P contact materials.

W WIRE WRAP

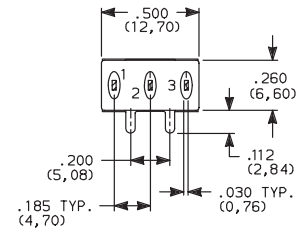
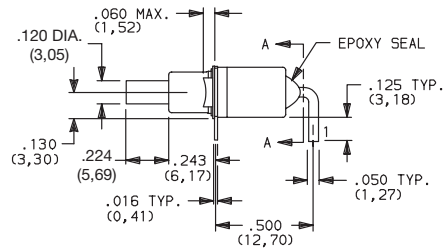
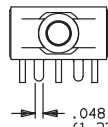


SPDT

A RIGHT ANGLE, PC THRU-HOLE

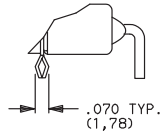
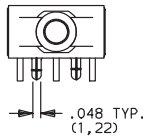


**E112SD1ABE
SPDT**

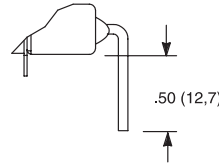


SECTION A-A

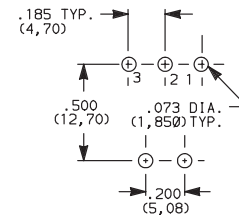
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



AW RIGHT ANGLE, EXTENDED, PC THRU-HOLE



PC MOUNTING

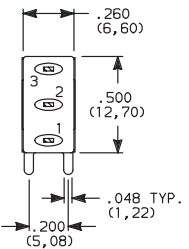
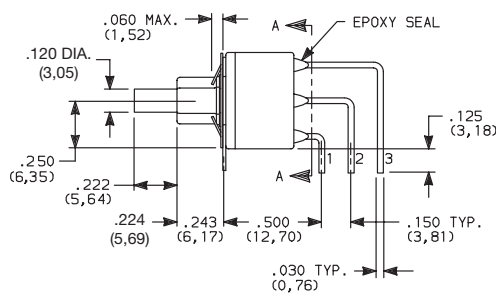


NOTE: Terminal bend radii and lead-in manufacturing option. Available with D1 bushing only.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

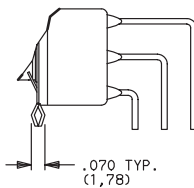
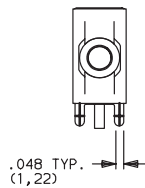


**E112SD1AV2BE
SPDT**

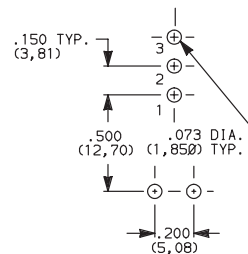


SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



PC MOUNTING



NOTE: Terminal bend radii and lead-in manufacturing option. Available with D1 bushing only.



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E010 Series Sealed Momentary Pushbutton Switches

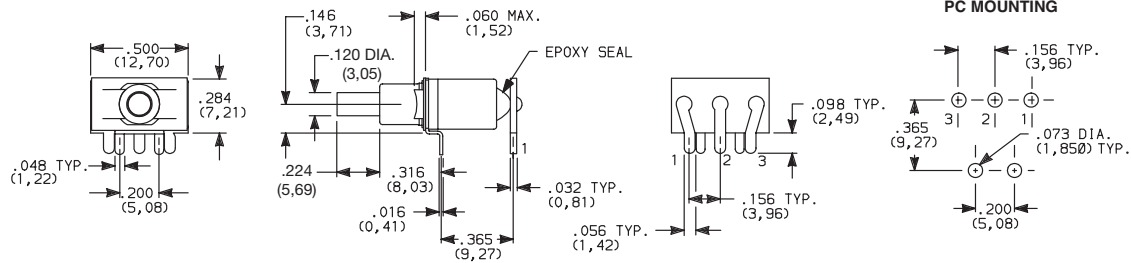


A

Pushbutton

TERMINATIONS

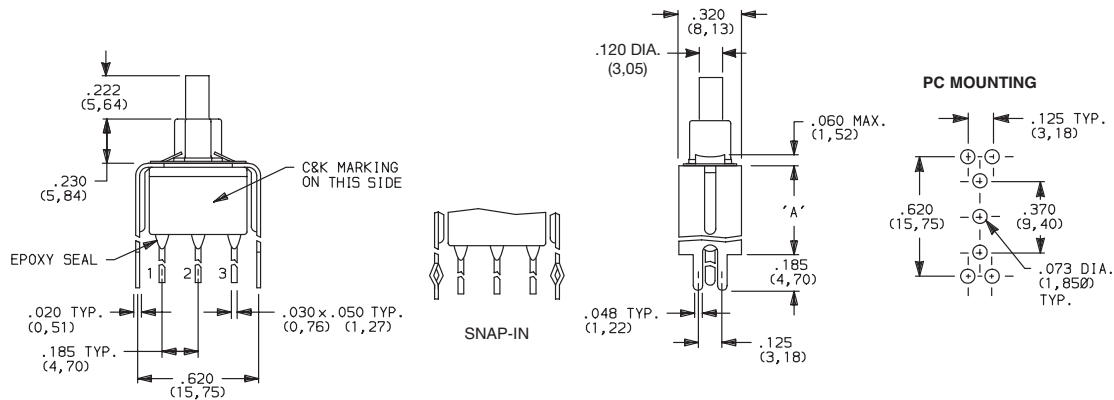
R2 RIGHT ANGLE WITH PCB



NOTE: Available with D1 bushing and B contact material only.

V3, V4 VERTICAL MOUNT, V-BRACKET

V31, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN

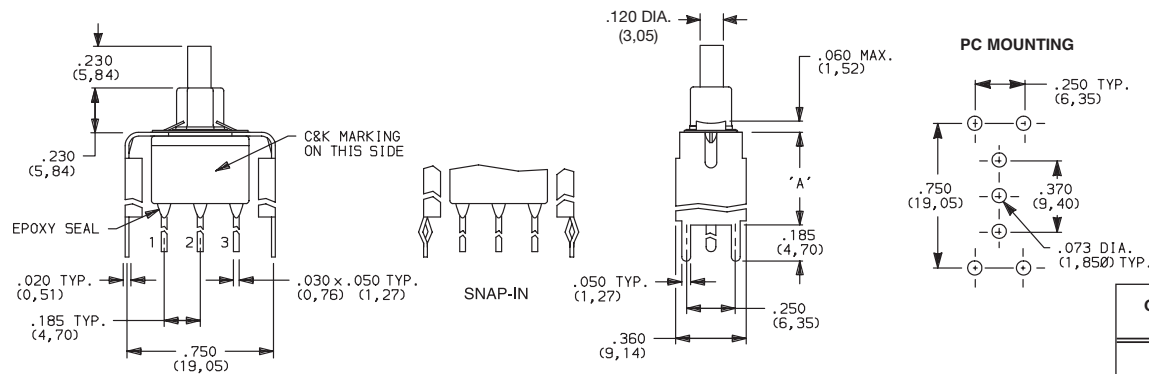


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V91	1.150 (29,21)

NOTE: Available with D1 bushing only.

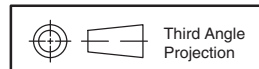
V6, V8 VERTICAL MOUNT, V-BRACKET

V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



OPTION CODE	DIM 'A'
V6	.460 (11,68)
V8, V81	.953 (24,21)

NOTE: Available with D1 bushing only.



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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E010 Series Sealed Momentary Pushbutton Switches

Pushbutton
A

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	4 AMPS @ 125 V AC OR 28 V DC.
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC OR DC MAX. OR 4 AMPS @ 125 V AC OR 28 V DC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- ¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² END CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ CENTER CONTACTS & ALL TERMINALS: Coin silver, with gold plate over nickel plate.
- ⁴ END CONTACTS: Coin silver, silver plated.
- ⁵ CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with P, Q, B or G contact material are RoHS compliant.

All models with all options when ordered with G or Q contact material.

B contact material standard with all terminations except C, Z.

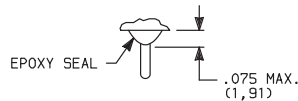
B contact material must be ordered with R2 terminations.

Q contact material standard with C, Z terminations.

P contact materials not available with Z terminations.

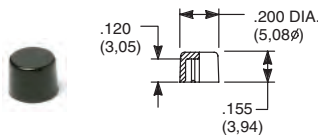
SEAL

E EPOXY SEAL



AVAILABLE HARDWARE

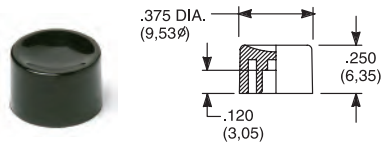
Cap



PART NO.
708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
 Finish: Gloss

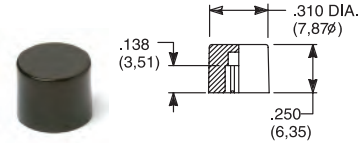
Cap



PART NO.
752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
 Finish: Gloss

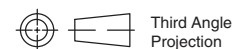
Cap



PART NO.
801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
 Finish: Gloss

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware". Other cap colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



E010 Series Sealed Momentary Pushbutton Switches

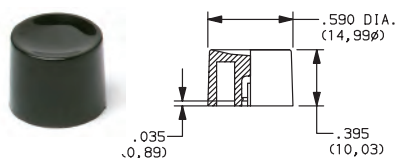


A

Pushbutton

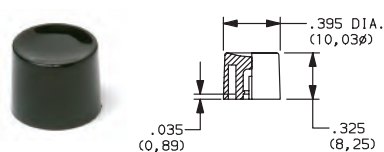
AVAILABLE HARDWARE

Cap, Snap-fitting plunger



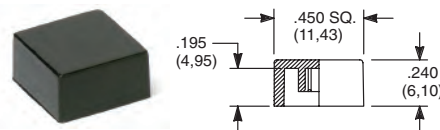
PART NO.
452D01000 WHITE
452D02000 BLACK
452D03000 RED
 Material: Nylon
 Finish: Gloss

Cap, Snap-fitting plunger



PART NO.
894101000 WHITE
894102000 BLACK
894103000 RED
 Material: Nylon
 Finish: Gloss

Cap



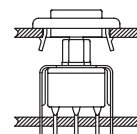
PART NO.
484601000 WHITE
484602000 BLACK
484603000 RED
 Material: Nylon
 Finish: Gloss

PART NO.
798201000 WHITE
798202263 BLACK
798203000 RED
 Material: Nylon
 Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
 Other cap colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

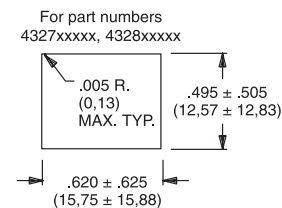
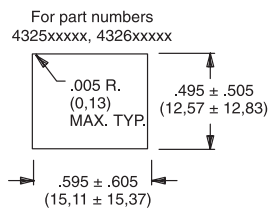
TYPICAL APPLICATION



.047" (1,19) PANEL THK. .062" (1,57) PANEL THK. .090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

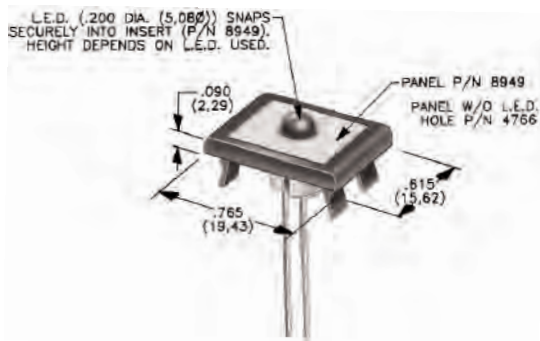
PART NO. **PART NO.** **PART NO.** **PART NO.**
432502263 **432602263** **432702263** **432802263** BLACK

PANEL MOUNTING



Panel Inserts

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

Special colors, custom markings available, consult Customer Service Center.



Third Angle Projection

Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



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A

Pushbutton

8060 Series Alternate Action and Momentary Pushbutton Switches



Features/Benefits

- Long travel
- Available with LED
- Long life contact design
- Epoxy terminal seal compatible with bottom wash cleaning
- RoHS compliant models available

Typical Applications

- Instrumentation
- Computers and peripherals
- Telecommunications and networking equipment



Models Available

Specifications

CONTACT RATING: Q contact material: 6 AMPS @ 120 V AC or 28 V DC; 3 AMPS @ 250 V AC. See page A-59 for additional ratings.

ELECTRICAL LIFE: 50,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

CAP INSTALLATION FORCE: 10 lbs. maximum permissible.

NOTE: Any models supplied with P, R, S, Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6 or diallyl phthalate (DAP), flame retardant (UL 94V-0).

PLUNGER: S, S1, S2 Options: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0). L, L1 Options: Brass, nickel plated.

CAP & FRAME: Nylon, black standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: Q contact material: Coin silver, silver plated. See page A-59 for additional contact materials.

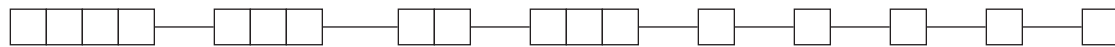
CENTER CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-59 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter.

HARDWARE: Nut & Locking Ring: Brass, nickel plated; Lockwasher: Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-53 thru A-61. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



Switch Function

- 8161** SPDT On-On
- 8168** SPDT On-Mom.
- 8261** DPDT On-On

Actuator or Plunger

- S** .710" high plunger with .375" dia. cap
- J80** Snap-in
- J81** Snap-in with frame
- J82** Snap-in with frame for LED
- J86** Snap-in with frame & LED
- L** .740" high plunger with .395" dia. cap
- L1** .740" high plunger with .590" dia. cap
- S1** .615" high plunger with .200" dia. cap
- S2** .710" high plunger with .310" dia. cap

Bushing

- H** .300" high, flat, hi torque
- H9** .300" high, flat, hi torque
- NONE** No bushing choice required
- Y3** 7.6mm, keyway

Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- Z** Solder lug
- A3** Right angle, snap-in, PC thru-hole
- AV3** Vertical right angle, snap-in, PC thru-hole
- V3** .460" high, V-bracket
- V4** .630" high, V-bracket
- V6** .460" high, V-bracket
- V21** .555" high, snap-in V-bracket
- V31** .460" high, snap-in V-bracket
- W** .750" long, wire wrap
- Z3** Quick connect

Contact Material

- B** Gold
- P** Gold, matte-tin
- Q** Silver
- S** Silver, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

Seal

- E** Epoxy
- I** Epoxy potted base

Cap Color

- 2** Black
- 1** White
- 3** Red
- 4** Orange
- 5** Yellow
- 9** Gray

Frame Color

- 2** Black

LED Color

- 3** Red
- NONE** Models without LED



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8060 Series Alternate Action and Momentary Pushbutton Switches



A
Pushbutton

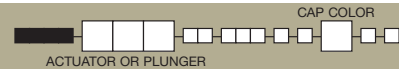
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	8161 8168	ON	ON	2-3	2-1	
		ON	MOM.	2-3	2-1	
<p>SPDT</p> <p>Part number shown: 8161SHZQE</p>						
DP	8261	ON	ON	2-3-5-6	2-1-5-4	
<p>DPDT</p> <p>Part number shown: 8261SHZQE</p>						

MOM. = Momentary

All models **C&K** US with all options when ordered with G or Q contact material.

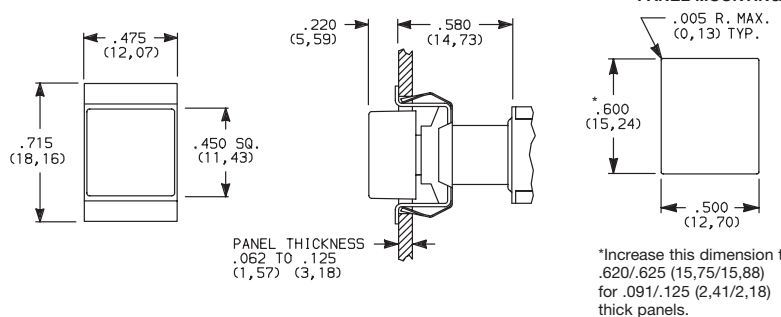
ACTUATOR—SNAP-IN FRONT MOUNT



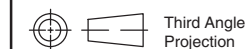
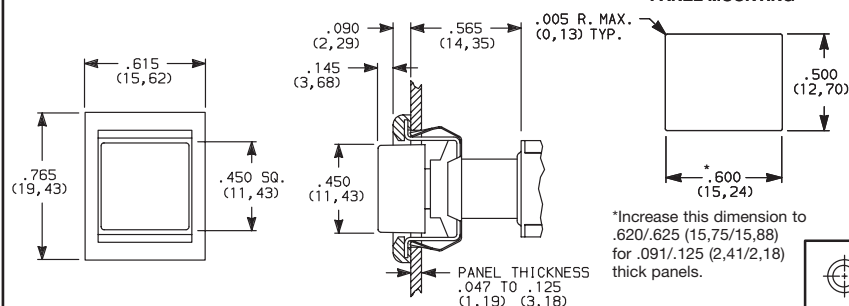
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

Cap Finish: matte.
Other colors available, consult Customer Service Center.
Available with C, W, Z or Z3 terminations.
NOTE: Caps & frames available separately, see pages A-60 and A-61.

J80 SNAP-IN



J81 SNAP-IN WITH BLACK FRAME



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



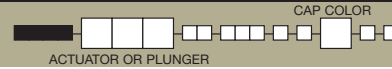


8060 Series Alternate Action and Momentary Pushbutton Switches

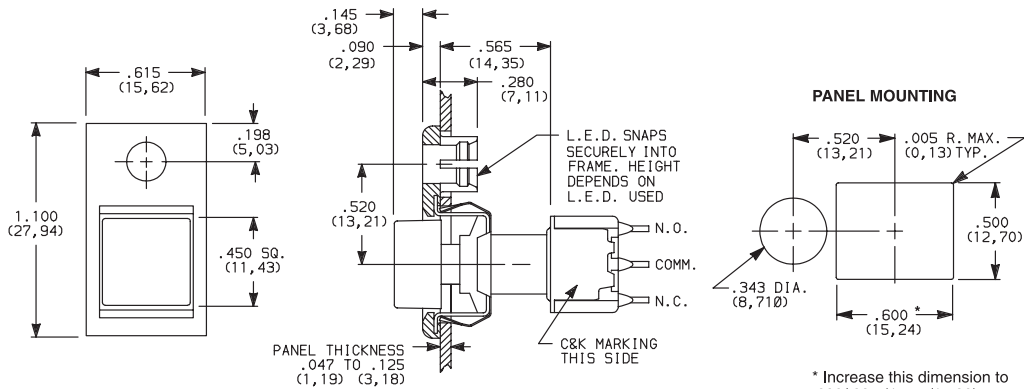
A

Pushbutton

ACTUATOR—SNAP-IN FRONT MOUNT



J82 SNAP-IN WITH BLACK FRAME FOR LED



Available with C, W, Z or Z3 terminations.

LED not included.
For LED information, see page A-61.

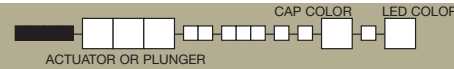
NOTE: Caps & frames available separately, see pages A-60 and A-61.

Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

* Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thick panels.

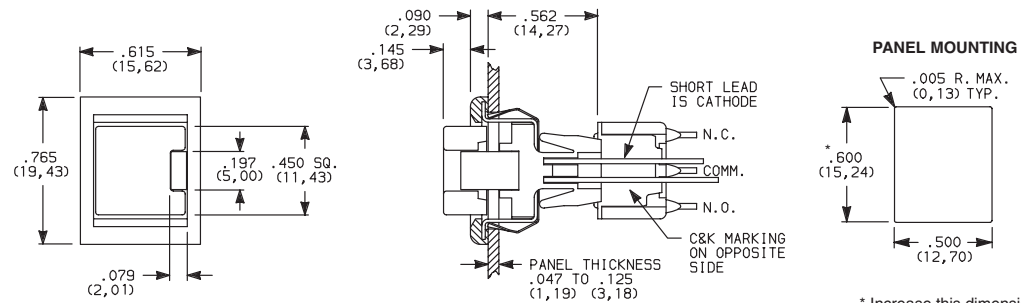
ACTUATOR—SNAP-IN FRONT MOUNT



J86 SNAP-IN WITH BLACK FRAME AND LED



8161J86ZQE223
SPDT



Available with C, W, Z or Z3 terminations and SPDT models only.

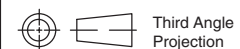
NOTE: Caps & frames available separately, see pages A-60 and A-61.

Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

OPTION CODE	LED COLOR
3	RED

For LED information, see page A-61.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8060 Series Alternate Action and Momentary Pushbutton Switches

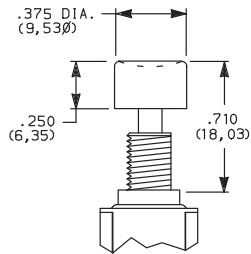


A

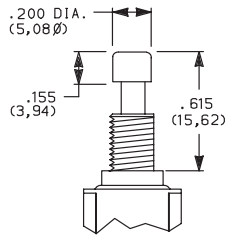
Pushbutton



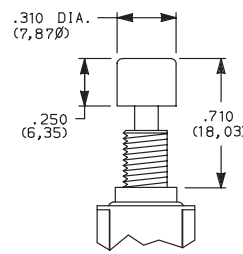
S PLUNGER WITH CAP P/N 7527



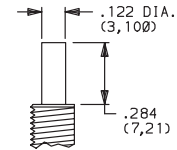
S1 PLUNGER WITH CAP P/N 7089



S2 PLUNGER WITH CAP P/N 8018

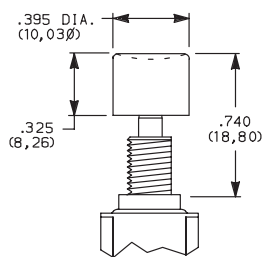


S, S1, S2 plunger dimensions.

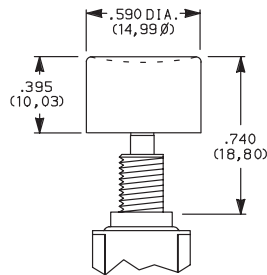


Plunger material: Glass filled nylon or glass filled polyester (UL 94V-0).

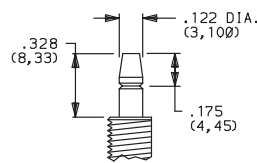
L PLUNGER WITH CAP P/N 8941



L1 PLUNGER WITH CAP P/N 8940



L, L1 plunger dimensions.



Plunger Material: Brass, chrome plated.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

Cap Finish: gloss. Cap supplied not installed. Other colors available, consult Customer Service Center.

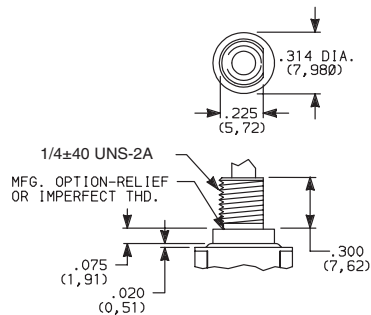
NOTE: When selecting plunger and cap option, bushing selection must also be made, see below.



H .300" HIGH THREADED, FLAT
H9 .300" HIGH UNTHREADED, FLAT

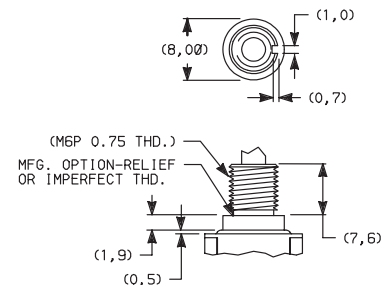
NONE NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

Y3 7.6mm THREADED, KEYWAY



H bushing standard with C, W, Z or Z3 terminations. H9 bushing standard with A, A3, AV2, AV3, or V3-V31 terminations.

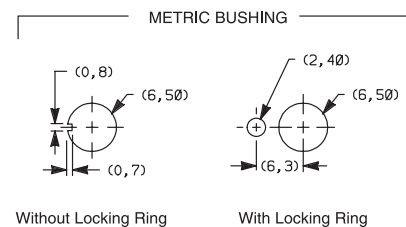
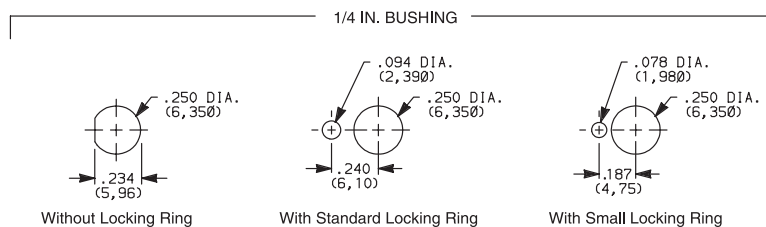
Withstands 12 in./lbs. of torque with no distortion.



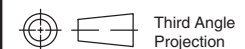
Withstands 12 in./lbs. of torque with no distortion.

NOTE: When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

PANEL MOUNTING



NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles and finishes available, see section "Technical Data and Additional Hardware".



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



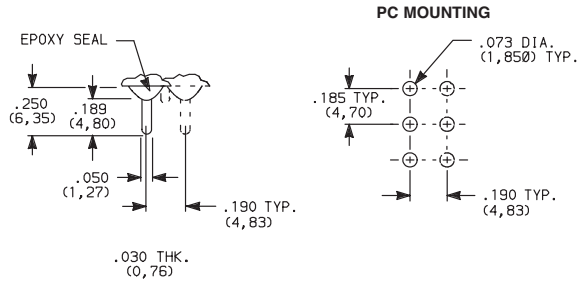


8060 Series Alternate Action and Momentary Pushbutton Switches

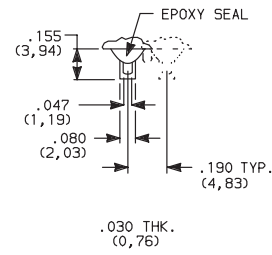
Pushbutton
A

TERMINATIONS

C PC THRU-HOLE



Z SOLDER LUG

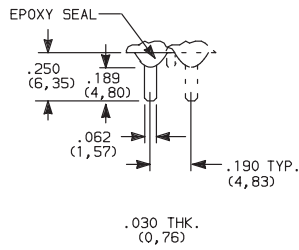


SPDT and DPDT

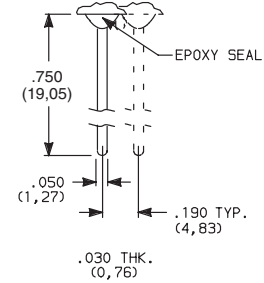
SPDT and DPDT

Not available with P, S or R contact material.

Z3 QUICK CONNECT



W WIRE WRAP



SPDT and DPDT

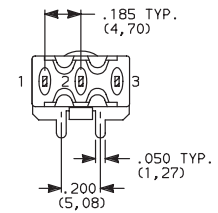
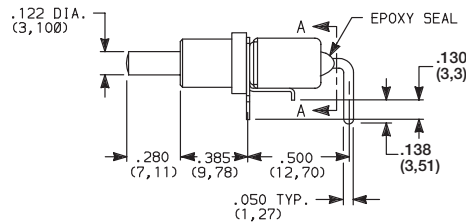
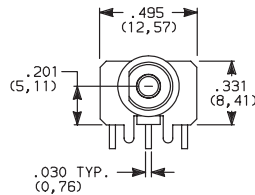
SPDT and DPDT

Not available with P, S or R contact material.
Mating quick connector available;
order part number 530100000, page A-61.

A RIGHT ANGLE, PC THRU-HOLE

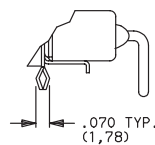
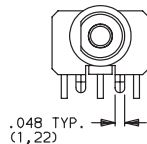


8161SH9ABE2
SPDT

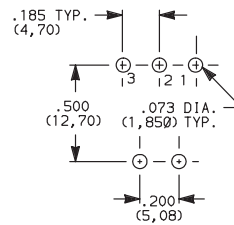


SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING



Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

NOTE: PC pattern must clear switch support leg.



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8060 Series Alternate Action and Momentary Pushbutton Switches

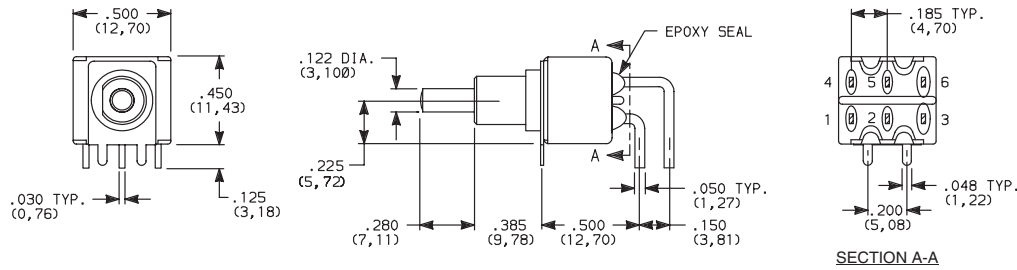


A

Pushbutton

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

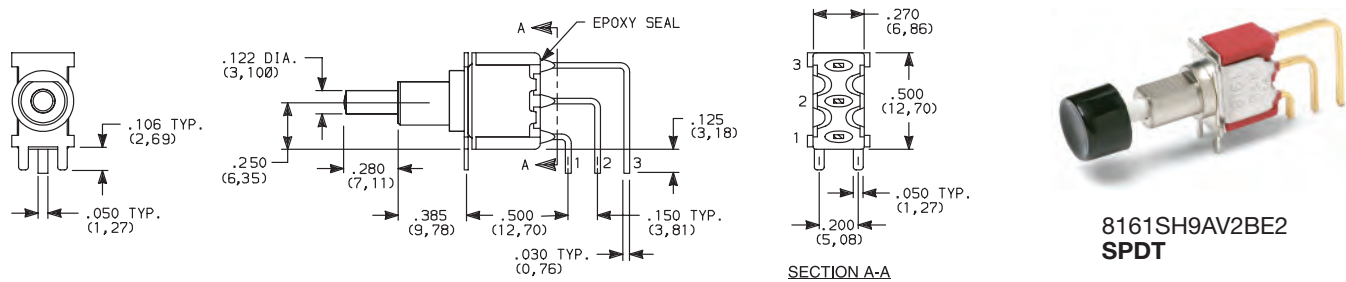


A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

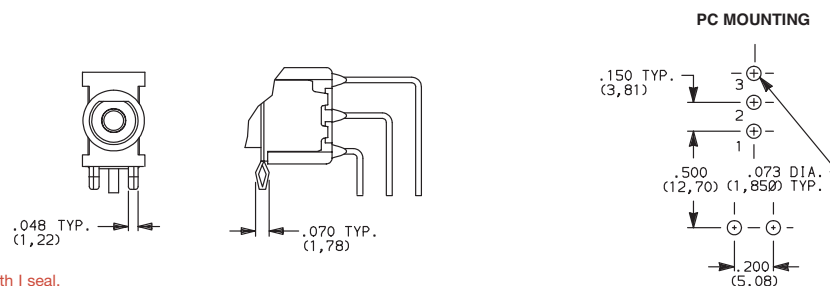


Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

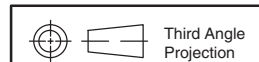
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150° PITCH



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150° PITCH



Not available with I seal.
Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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8060 Series Alternate Action and Momentary Pushbutton Switches

TERMINATIONS

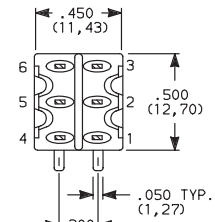
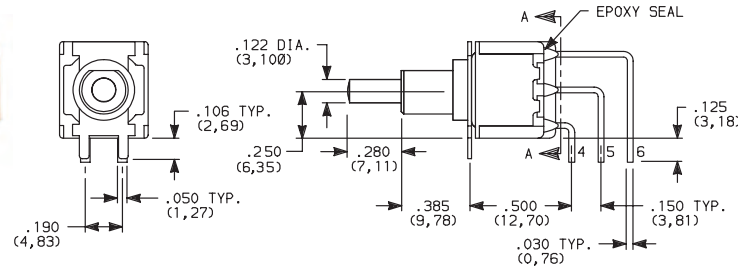


Pushbutton
A

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

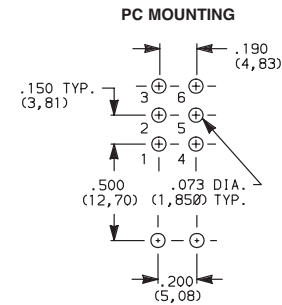
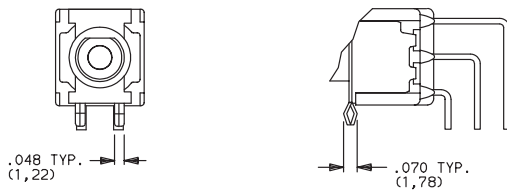


**8261SH9AV2BE2
DPDT**



SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



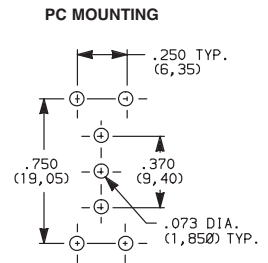
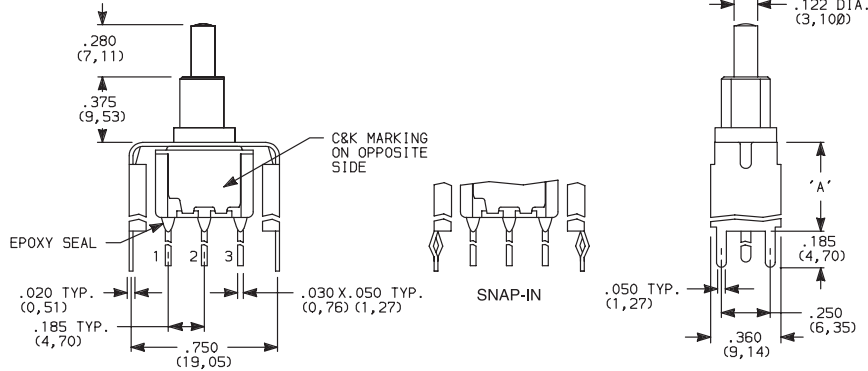
Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

V6 VERTICAL MOUNT, V-BRACKET

V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



**8161SH9_BE2
SPDT**



OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

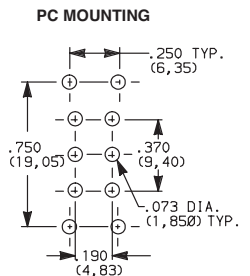
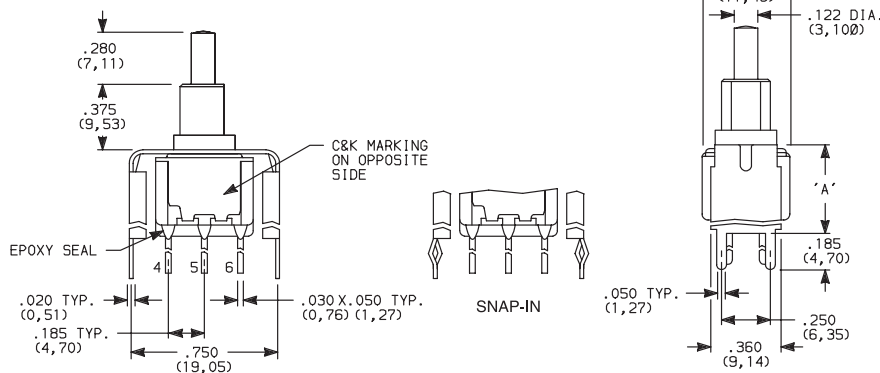
Not available with I seal.

V6 VERTICAL MOUNT, V-BRACKET

V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN

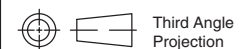


**8261SH9_BE2
DPDT**



OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

Not available with I seal.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8060 Series Alternate Action and Momentary Pushbutton Switches

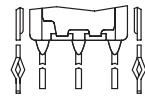
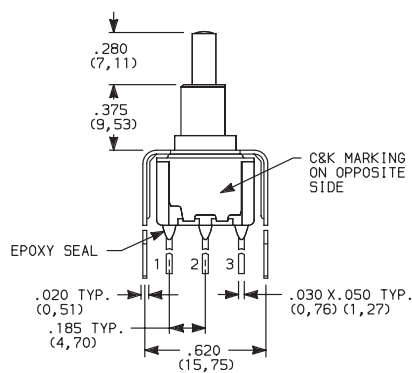


A
Pushbutton

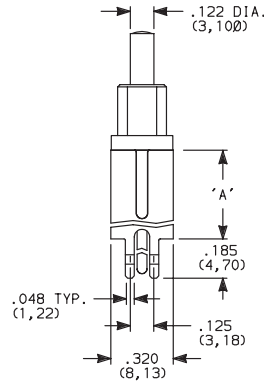
TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

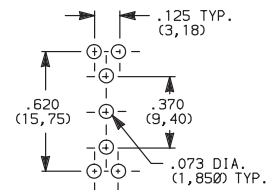
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



SNAP-IN



PC MOUNTING



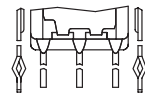
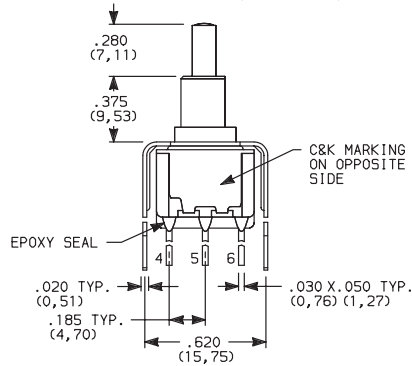
8161SH9_BE2
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

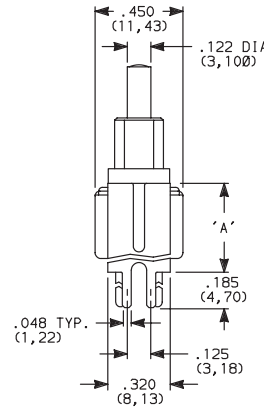
Not available with I seal.

V3, V4 VERTICAL MOUNT, V-BRACKET

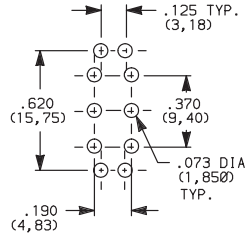
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



SNAP-IN



PC MOUNTING



8261SH9_BE2
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

Not available with I seal.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, with gold plate over nickel plate.
- CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, silver plated.
- CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
- TERMINALS: Copper alloy, with matte-tin over nickel plate.

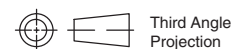
All models **CAUS** with all options when ordered with S, R, G, or Q contact material.

B contact material standard with all terminations except C, Z & Z3.

Q contact material standard with C, Z & Z3 terminations.

P, S & R contact materials not available with Z & Z3 terminations.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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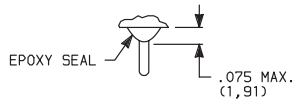


8060 Series Alternate Action and Momentary Pushbutton Switches

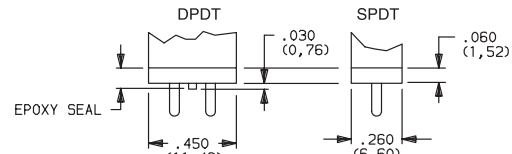
SEAL

Pushbutton
A

E EPOXY SEAL



I EPOXY POTTED BASE

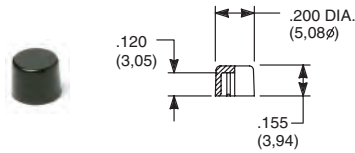


LENGTH IS SAME AS SWITCH BODY

NOTE: Available with C, W, Z, Z3 terminations only.

AVAILABLE HARDWARE

Cap

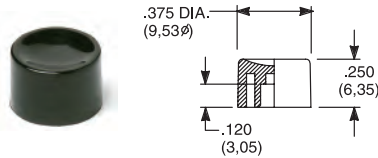


PART NO.

- 708901000 WHITE
- 708902000 BLACK
- 708903000 RED
- 708904000 ORANGE
- 708905000 YELLOW
- 708909000 GRAY

Material: Nylon
Finish: Gloss

Cap

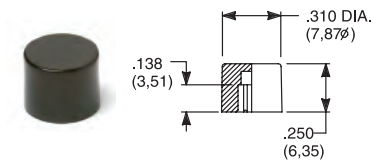


PART NO.

- 752701000 WHITE
- 752702000 BLACK
- 752703000 RED
- 752704000 ORANGE
- 752705000 YELLOW
- 752709000 GRAY

Material: Nylon
Finish: Gloss

Cap

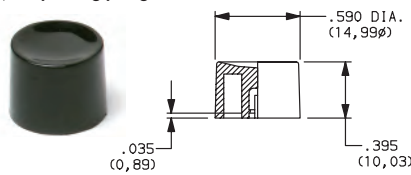


PART NO.

- 801801000 WHITE
- 801802000 BLACK
- 801803000 RED
- 801804000 ORANGE
- 801805000 YELLOW
- 801809000 GRAY

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

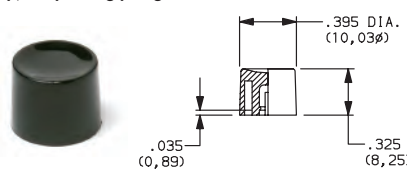


PART NO.

- 452D01000 WHITE
- 452D02000 BLACK
- 452D03000 RED
- 452D04000 ORANGE
- 452D05000 YELLOW
- 452D09000 GRAY

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

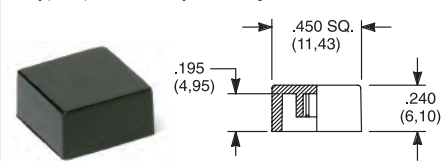


PART NO.

- 894101000 WHITE
- 894102000 BLACK
- 894103000 RED
- 894104000 ORANGE
- 894105000 YELLOW
- 894109000 GRAY

Material: Nylon
Finish: Gloss

Cap, J80, J81 & J82 options only



PART NO.

- 484601000 WHITE
- 484602000 BLACK
- 484603000 RED
- 484604000 ORANGE
- 484605000 YELLOW
- 484609000 GRAY

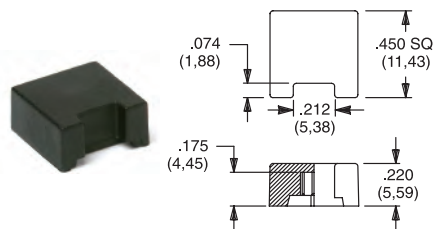
Material: Nylon
Finish: Gloss

PART NO.

- 798201000 WHITE
- 798202263 BLACK
- 798203000 RED
- 798204000 ORANGE
- 798205000 YELLOW
- 798209000 GRAY

Material: Nylon
Finish: Matte

Cap, J86 & J96 options only



PART NO.

- 459701000
- 459702000
- 459703000
- 459704000
- 459705000
- 459709000

Material: Nylon
Finish: Gloss

PART NO.

- 476801000 WHITE
- 476802000 BLACK
- 476803000 RED
- 476804000 ORANGE
- 476805000 YELLOW
- 476809000 GRAY

Material: Nylon
Finish: Matte

Frame



PART NO.

- 615602263 BLACK

Material: Nylon
Finish: Matte

Frame



PART NO.

- 613302263 BLACK

Material: Nylon
Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
Other cap & frame colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8060 Series Alternate Action and Momentary Pushbutton Switches



A

Pushbutton

AVAILABLE HARDWARE

Fits Z3 Termination female connector

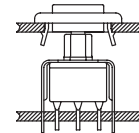
PART NO.
530100000

Available in loose pieces.



Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

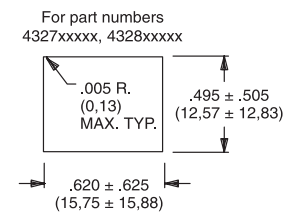
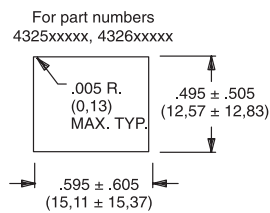
TYPICAL APPLICATION



.047" (1,19) PANEL THK. .062" (1,57) PANEL THK. .090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

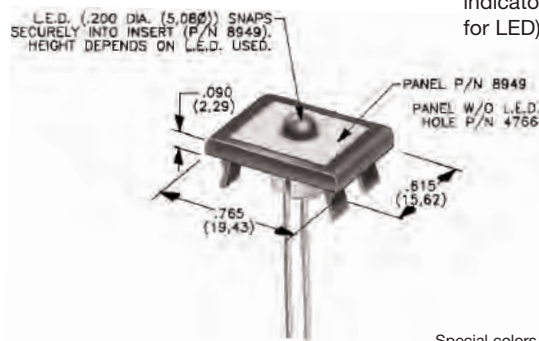
PART NO.	PART NO.	PART NO.	PART NO.
432502263	432602263	432702263	432802263 BLACK

PANEL MOUNTING



Panel Inserts

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

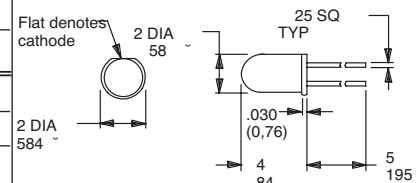
Special colors, custom markings available, consult Customer Service Center.

LED INFORMATION

SWITCHES WITH LED SUPPLIED: J86 OPTION:

Rectangular LEDs are supplied on 8060 Series pushbutton switches with J86 option. These LEDs are factory installed and are not replaceable. The following specifications apply:

OPTION CODE	COLOR	TYP. INTENSITY	TYP. FORWARD VOLTAGE	TYP. FORWARD CURRENT	MAX RATINGS AT 25°C AMBIENT TEMPERATURE		
					FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION
6	Green	1.0 mcd	2.1 V	20 mA	2.5 V	50 mA	125 mW
3	Red*	0.5 mcd		10 mA		30 mA	75 mW
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW



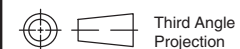
Suggested LED for J82 & J84 options
Dimensions for reference only

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

Caution: Circuit elements must limit forward current of LED to 50mA max. continuous.

* Extra-bright red LED available (typ. intensity 4.5 mcd), consult Customer Service Center.

LEDs are not supplied with J82 & J84 options. LED snaps into switch frame surrounding actuator and is wired externally.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change





A

Pushbutton

8500 Series Subminiature Pushbutton Switches



Features/Benefits

- Pre-travel or over-travel models available
- Ratings up to 3 AMPS
- Reliable contact design
- RoHS compliant

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: Q contact material (853X Models): 1 AMP @ 120 V AC or 28 V DC; (855X Models): 3 AMPS @ 120 V AC or 28 V DC. See page A-65 for additional ratings.

ELECTRICAL LIFE:
853X MODELS: 250,000 actuations at full load.
855X MODELS: 10,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

TORQUE SPECS: T, T1 15/32" bushings - 50 in. lbs max.
All other 1/4 -40 bushing types 12 in. lbs max.

Materials

CASE: Glass filled phenolic or diallyl phthalate (DAP) (UL 94V-0).

PLUNGER: Phenolic or glass filled polyester, black standard(UL94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated. See page A-65 for additional contact materials.

TERMINALS: Q contact material: Copper alloy, silver plated. See page A-65 for additional contact materials.

TERMINAL SEAL: Epoxy.

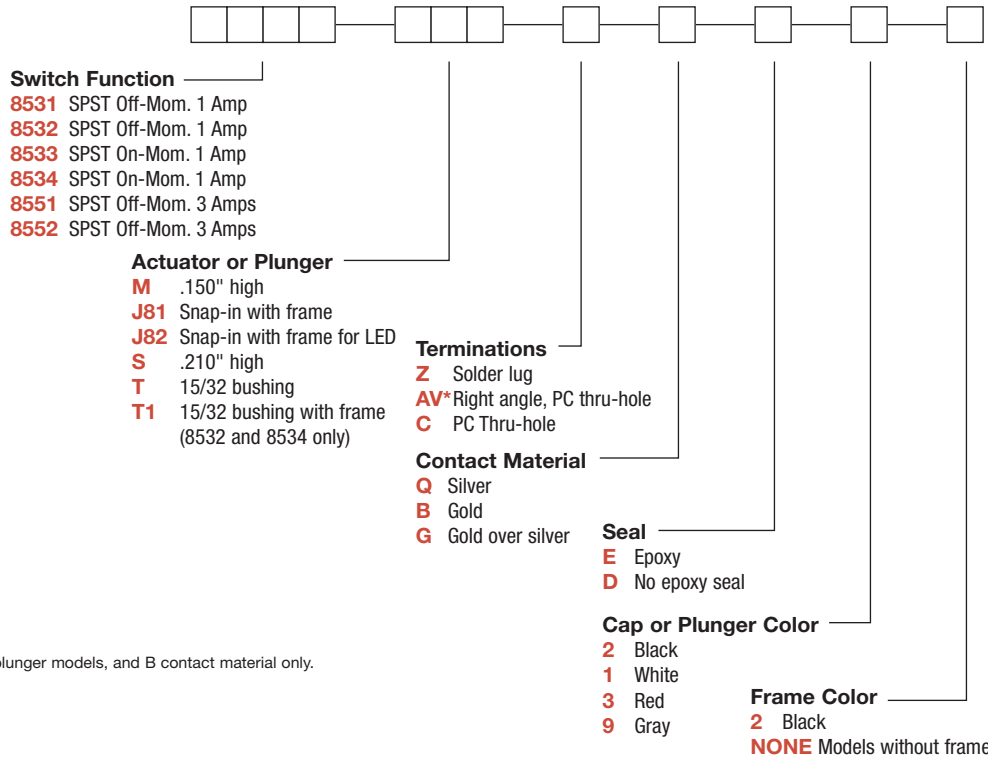
HARDWARE: Nut: Brass, nickel plated; Lockwasher: Steel, bright nickel plated.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-63 thru A-66. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



* Available with M or S plunger models, and B contact material only.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8500 Series Subminiature Pushbutton Switches



A

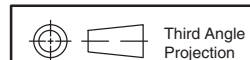
Pushbutton

SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
			POS. 1	POS. 2			
SP	8531	1 AMP	OFF	MOM.	.095 (2,41) TYP. with overtravel .042 (1,07) TYP.	7.7 oz (220g) TYP.	N.O. with overtravel
	8551	3 AMPS					
SPST <p>Part number shown: 8531MZQE2</p>							
SP	8532	1 AMP	OFF	MOM.	.050 (1,27) TYP.	6 oz (170g) TYP.	N.O.
	8552	3 AMPS					
SPST <p>Part number shown: 8532MZQE2</p>							
SP	8533	1 AMP	ON	MOM.	.080 (2,03) TYP. with pretravel .057 (1,45) TYP.	11.5 oz (456 g) TYP.	N.C. with pretravel
	8534	1 AMP					
SPST <p>Part number shown: 8533MZQE2</p>							

MOM. = Momentary

All models with all options when ordered with G or Q contact material.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

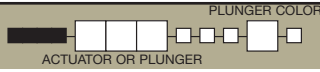
www.ck-components.com



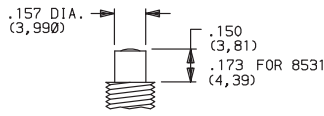
8500 Series Subminiature Pushbutton Switches

Pushbutton
A

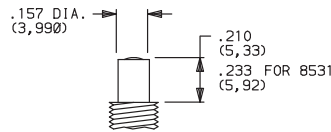
PLUNGER



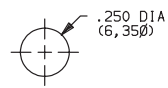
M .150" HIGH PLUNGER



S .210" HIGH PLUNGER



PANEL MOUNTING



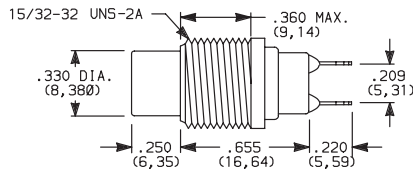
OPTION CODE	PLUNGER COLOR
2	BLACK
3	RED

NOTE: One mounting nut and lockwasher supplied with all actuators (except T actuator: two nuts supplied).

ACTUATOR

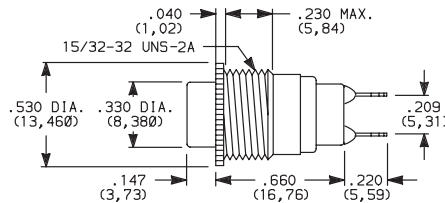


T 15/32 BUSHING



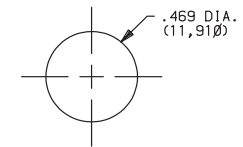
NOTE: No frame color choice required.

T1 15/32 BUSHING WITH FRAME



NOTE: No frame color choice required.
Available with 8532 and 8534 models only.

PANEL MOUNTING



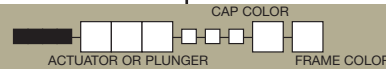
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
9	GRAY

Cap Finish: gloss. Other colors available, consult Customer Service Center.

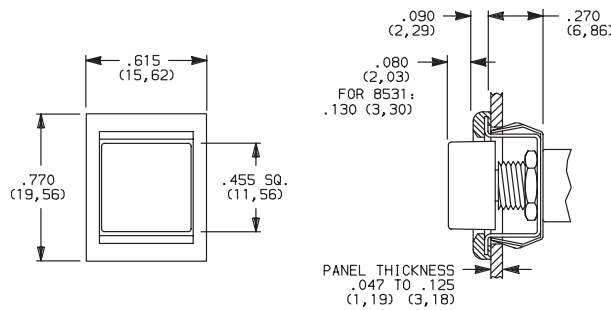
One mounting nut and lockwasher supplied with all actuators (except T actuator: two nuts supplied).

NOTE: Caps available for plunger options, see page A-65.

ACTUATOR—SNAP-IN FRONT MOUNT



J81 SNAP-IN WITH FRAME



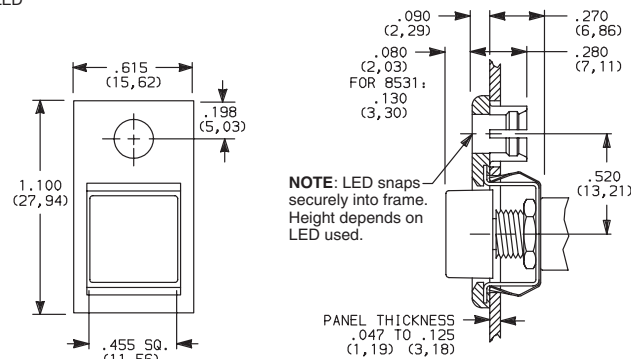
OPTION CODE	CAP AND FRAME COLOR
2	BLACK

Cap and Frame Finish: matte. Other colors available, consult Customer Service Center.

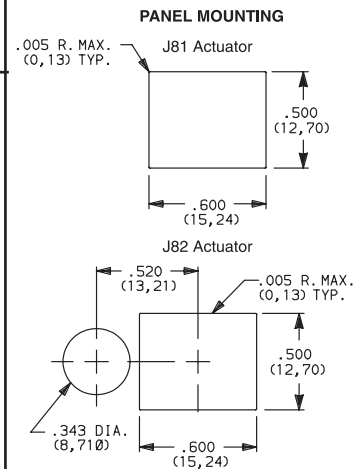
One mounting nut and lockwasher supplied with all actuators.

NOTE: Caps & frames available separately, see pages A-65 and A-66.

J82 SNAP-IN WITH FRAME FOR LED



LED not included.
For LED information, see page A-66.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8500 Series Subminiature Pushbutton Switches

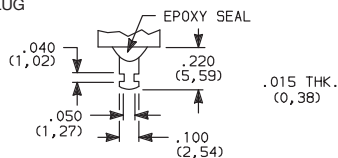


A

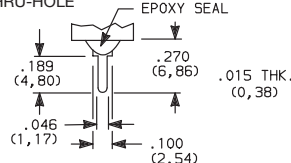
Pushbutton

TERMINATIONS

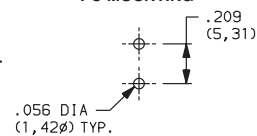
Z SOLDER LUG



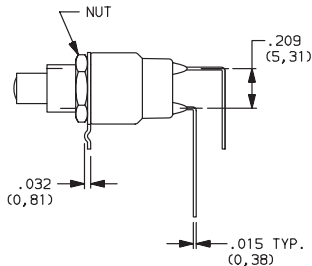
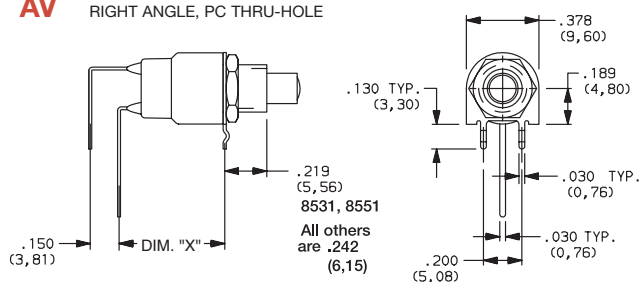
C PC THRU-HOLE



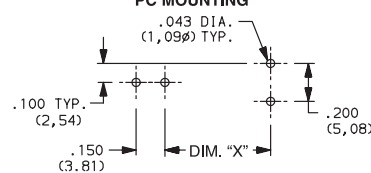
PC MOUNTING



AV RIGHT ANGLE, PC THRU-HOLE



PC MOUNTING



Available with

MODEL NO.	DIM "X"
8531, 8533	0.550
8532, 8534	0.438

NOTE: Available with M or S plunger models, and B contact material only.

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	TERMINAL PLATING	CONTACT MATERIAL	RATINGS	
B	YES	YES	GOLD ¹	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ⁴	SILVER ⁵	POWER	853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @ 120 V AC OR 28 V DC.
G	YES	YES	GOLD OVER SILVER ²	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 V MAX @ 20 V AC OR DC MAX. OR 853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @ 120 V AC OR 28 V DC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² CONTACTS: Coin silver, with gold plate over nickel plate.

³ TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ CONTACTS: Coin silver, silver plated.

⁵ TERMINALS: Copper alloy, silver plated.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

All models with all options when ordered with G or Q contact material.

Q contact material standard with C, Z terminations.

8551 & 8552 available with Q contact material only.

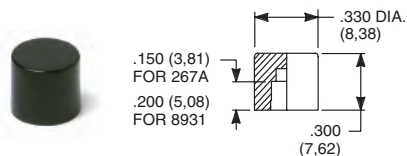
SEAL

E EPOXY SEAL



REPLACEMENT HARDWARE

Cap for 0.157" dia. plungers



PART NO.

267A01000 WHITE
267A02000 BLACK
267A03000 RED
267A09000 GRAY

85X2T, 8534T models only

Material: Nylon
Finish: Gloss

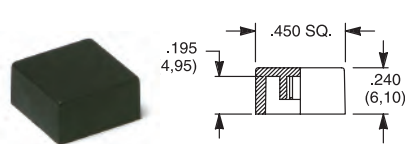
PART NO.

893101000 WHITE
893102000 BLACK
893103000 RED
893109000 GRAY

85X1T, 8532T1, 8533T, 8534T1 models only

Material: Nylon
Finish: Gloss

Cap, J80, J81 & J 82 options only



PART NO.

448901000 WHITE
448902000 BLACK
448903000 RED
448909000 GRAY

Material: Nylon
Finish: Gloss or matte

Other colors available, consult Customer Service Center.

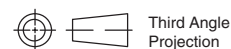
Frame



PART NO.

613302263 BLACK

Material: Nylon
Finish: Matte



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8500 Series Subminiature Pushbutton Switches

AVAILABLE HARDWARE

Pushbutton
A

Frame

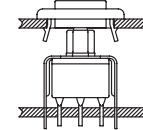


PART NO.
615602263 BLACK
Material: Nylon
Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
Other colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

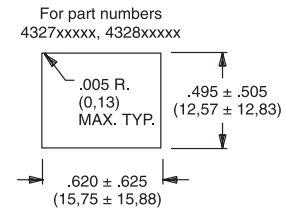
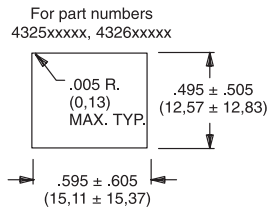
TYPICAL APPLICATION



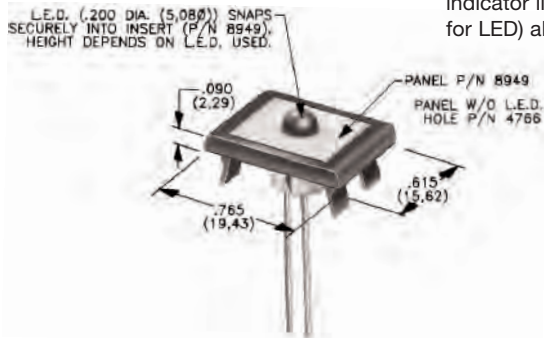
.047" (1,19) PANEL THK. .062" (1,57) PANEL THK. .090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

PART NO. 432502263	PART NO. 432602263	PART NO. 432702263	PART NO. 432802263 BLACK
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PANEL MOUNTING



Panel Inserts



Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**

PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

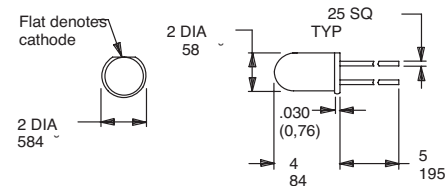
BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

Special colors, custom markings available, consult Customer Service Center.

LED INFORMATION

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum. LEDs are not supplied with J82 option. LED snaps into switch frame surrounding actuator and is wired externally.



Suggested LED for J82 option
Dimensions for reference only



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



KM Series Subminiature Pushbutton Switches



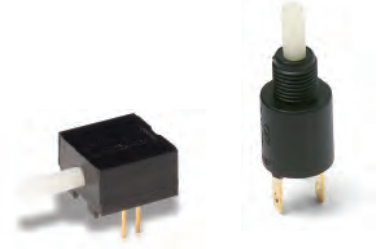
A
Pushbutton

Features/Benefits

- **Reliable contact design**
- **Available with pretravel and overtravel**
- **RoHS compliant**

Typical Applications

- **Alarm systems**
- **Computers**
- **Detector switch application**



Models Available

Specifications

CONTACT RATING: Q contact material (KM11, KM12 Models): 0.25 AMPS @ 125 V AC or DC (UL); (KM33 Model): 1 AMP @ 125 V AC or 28 V DC. See page A-69 for additional ratings.

ELECTRICAL LIFE: 10,000 actuations min. at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING & BUSHING: 6/6 nylon (UL94V-2), black.

ACTUATOR: 6/6 nylon (UL 94V-2), natural. Internal o-ring seal, available on KM11 & KM33 models.

MOVABLE CONTACT: B contact material: Bronze or copper, with gold plate over nickel plate. See page A-69 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: B contact material: Copper, with gold plate over nickel plate. See page A-69 for additional contact materials.

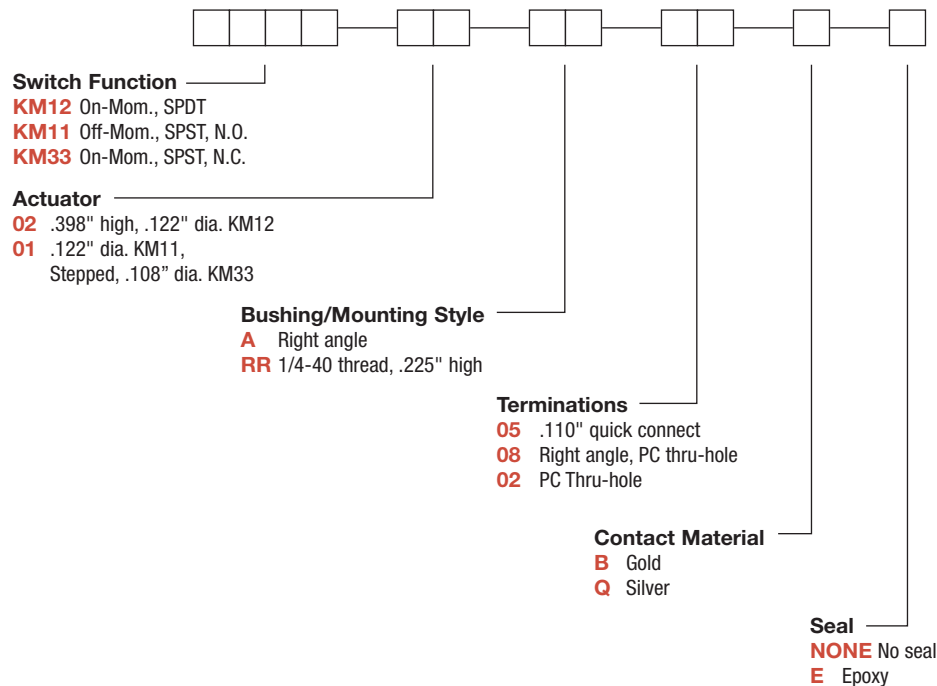
RETURN SPRING: Music wire, phosphor coated.

MOUNTING NUT: Brass, nickel plated.

TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-68 and A-70. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



KM Series Subminiature Pushbutton Switches

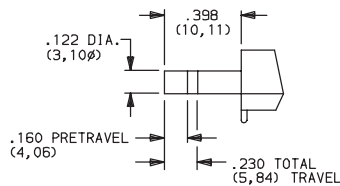
SWITCH FUNCTION

Pushbutton
A

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KM11	OFF	MOM.	OPEN	2-1	SPST N.O.
	KM33	ON	MOM.	2-1	OPEN	SPST N.C.
SPST <p>Part number shown: KM1101RR05BE</p>						
SP	KM12	ON	MOM.	2-1	4-3	SPDT
SPDT <p>Part number shown: KM1202A08BE</p>						

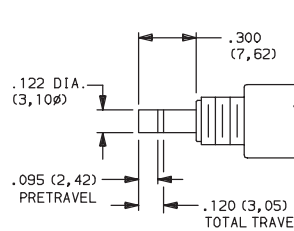
ACTUATOR

02 .398" HIGH, .122" DIA.

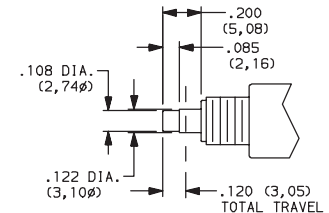


KM12 models only.

01 .122" DIA.



KM11 models only.



KM33 models only.

NOTE: Caps available for plunger options, see page A-70.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



KM Series Subminiature Pushbutton Switches



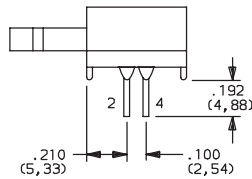
A

Pushbutton

BUSHING/ MOUNTING STYLE

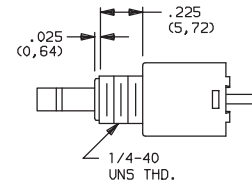


A RIGHT ANGLE



KM12 models only.

RR 1/4-40 THREAD, .225" HIGH



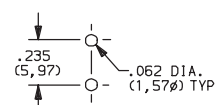
KM11 & KM33 models only.

PANEL MOUNTING

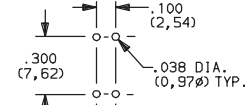


KM11 & KM33 models.

PC MOUNTING



KM11 models only.

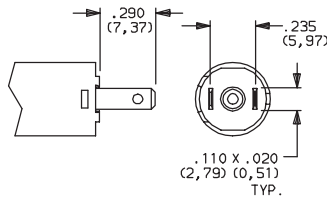


KM12 models only.

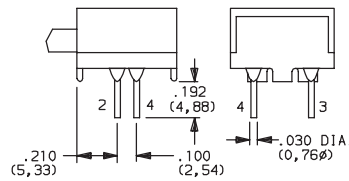
TERMINATIONS



05 .110" QUICK CONNECT

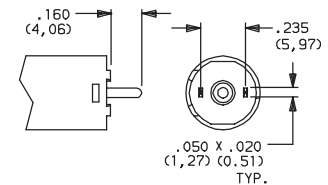


08 RIGHT ANGLE, PC THRU-HOLE



KM12 models only.

02 PC THRU-HOLE



KM11 models only.

CONTACT MATERIAL



OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT AND TERMINAL MATERIAL	RATINGS	
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ²	POWER	0.25 AMPS @ 125 V AC OR DC (KM11, KM12) (UL) 1 AMP @ 125 V AC OR 28 V DC (KM33).


* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate.

² STATIONARY CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).
MOVABLE CONTACT: Phosphor bronze or beryllium copper, silver plated.

³ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

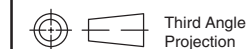
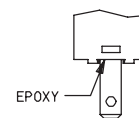
KM11, KM12 models  when ordered with 'Q' contact material.

SEAL



NONE NO SEAL

E EPOXY SEAL



Third Angle
Projection

C&K

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

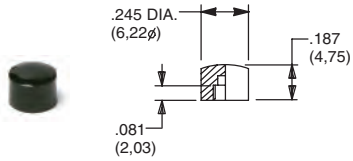


KM Series Subminiature Pushbutton Switches

Pushbutton
A

AVAILABLE HARDWARE

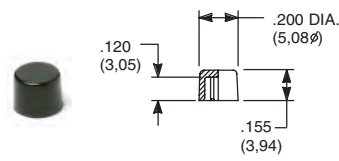
Cap, KM33 models



PART NO.
785101000 WHITE
785102000 BLACK
785103000 RED

Material: Nylon
 Finish: Gloss

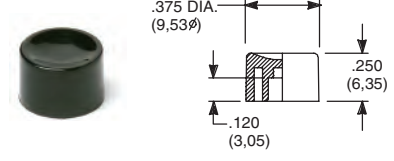
Cap, KM11 and KM12 models



PART NO.
708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
 Finish: Gloss

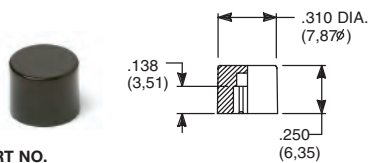
Cap, KM11 and KM12 models



PART NO.
752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
 Finish: Gloss

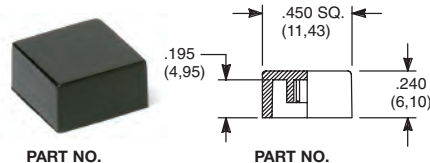
Cap, KM11 and KM12 models



PART NO.
801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
 Finish: Gloss

Cap, KM11 models



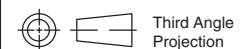
PART NO.
484601000 WHITE
484602000 BLACK
484603000 RED

PART NO.
798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
 Finish: Gloss

Material: Nylon
 Finish: Matte

NOTE: Other cap colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

8600 Series Microminiature Pushbutton Switches



A
Pushbutton

Features/Benefits

- Available with overtravel
- Normally closed models available
- Microminiature size ideal for applications where space is limited
- RoHS compliant

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: Q contact material (8631, 8632 Models):
500 mA @ 120 V AC or 28 V DC; 250 mA @ 250 V AC;
(8633 Model): 250 mA @ 120 V AC or 28 V DC; 125 mA
@ 250 V AC. See page A-73 for additional ratings.

ELECTRICAL LIFE:

8631 and 8633 MODELS: 250,000 actuations at full load.
8632 MODEL: 100,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @
2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 109 Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or
EIA RS-186E method 9.

Materials

CASE: Glass filled phenolic or diallyl phthalate (DAP), (UL94V-0).

PLUNGER: Glass filled nylon (UL94V-0), black standard.

BUSHING: Brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated.
See page A-73 for additional contact materials.

TERMINALS:

8631, 8632 MODELS: Copper alloy, silver plated.

8633 MODEL: Q contact material: Coin silver.

See page A-73 for additional contact materials.

TERMINAL SEAL:

8633 MODEL: Epoxy.

8631, 8632 MODELS: Terminals insert molded.

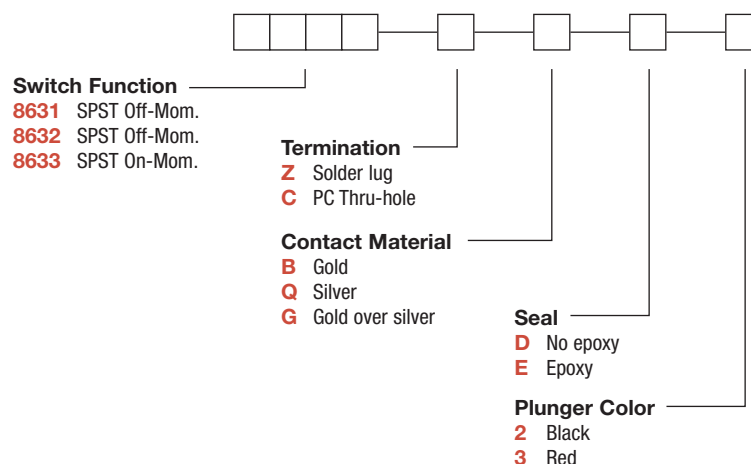
HARDWARE: Nut: Brass, nickel plated.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-72 and A-73. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8600 Series Microminiature Pushbutton Switches

Pushbutton

A

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
		POS. 1	POS. 2			
SP	8631	OFF	MOM.	.040 (1,02) TYP.	5 oz (140g) TYP.	N.O.
SPST <p>Part number shown: 8631ZQD2</p> <p>Terminals Insert Molded</p>						
SP	8632	OFF	MOM.	.106 (2,69) TYP. with overtravel .024 (0,61) TYP.	6.25 oz (177g) TYP.	N.O. with overtravel
SPST <p>Part number shown: 8632ZQD2</p> <p>Terminals Insert Molded</p>						
SP	8633	ON	MOM.	.048 (1,22) TYP.	5 oz (140g) TYP.	N.C.
SPST <p>Part number shown: 8633ZQE2</p>						

MOM. = Momentary

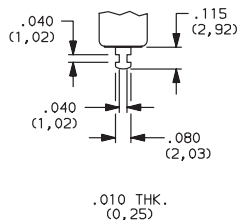
NOTE: Caps available for plunger options, see page A-73.

TERMINATIONS

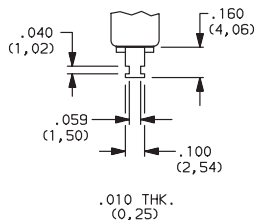
Z SOLDER LUG

C PC THRU-HOLE

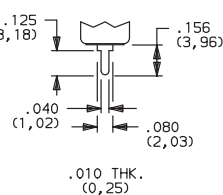
8631, 8632 models only.



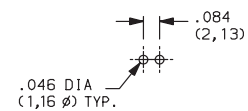
8633 models only.



8631, 8632 models only.



PC MOUNTING



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



8600 Series Microminiature Pushbutton Switches



A
Pushbutton

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	YES	YES	GOLD 1	GOLD 1	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER 4	SILVER 5	POWER	8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.
G	YES	YES	GOLD OVER SILVER 4	GOLD 3	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- 1 CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
 2 CONTACTS: Coin silver, with gold plate over nickel plate.
 3 TERMINALS: Copper alloy, with gold plate over nickel plate.
 8633 model only: Coin silver, with gold plate over nickel plate.
 4 CONTACTS: Coin silver, silver plated.
 5 TERMINALS: Copper alloy, silver plated. 8633 model only: coin silver.

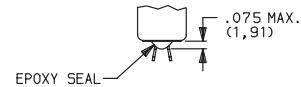
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

8631, 8632 models with all options when ordered with G or Q contact material.
 Q contact material standard with C, Z terminations.

SEAL

D NO EPOXY SEAL

E EPOXY SEAL



Not available on 8633 model.
 Standard on 8631, 8632 models.

Not available on 8631, 8632 models.
 Standard on 8633 model only.

PLUNGER COLOR

OPTION CODE	COLOR
2	BLACK
3	RED

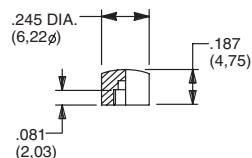
AVAILABLE HARDWARE

Cap

PART NO.

785101000 WHITE
785102000 BLACK
785103000 RED

Material: Nylon
 Finish: Gloss



NOTE: Other cap colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

C&K



A

Pushbutton

8700 Series Overtravel Pushbutton Switches



Features/Benefits

- **Extended pre-travel or over-travel**
- **Heavy-duty brass plunger**
- **Long electrical life – 100K cycles**
- **RoHS compliant**

Typical Applications

- **Telecommunications**
- **High end Instrumentation**
- **Medical & test equipment**
- **Detection**

Specifications

CONTACT RATING: Q contact material: 1 AMP @ 120 V AC or 28 V DC. See page A-76 for additional ratings.

ELECTRICAL LIFE: 100,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. Initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10³Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

NOTE: Any models supplied with Q, or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0).

PLUNGER:

8731 – .390" brass, nickel plated.

8732 – .390" PBT polyester, black.

BUSHING: brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated. See page A-76 for additional contact materials.

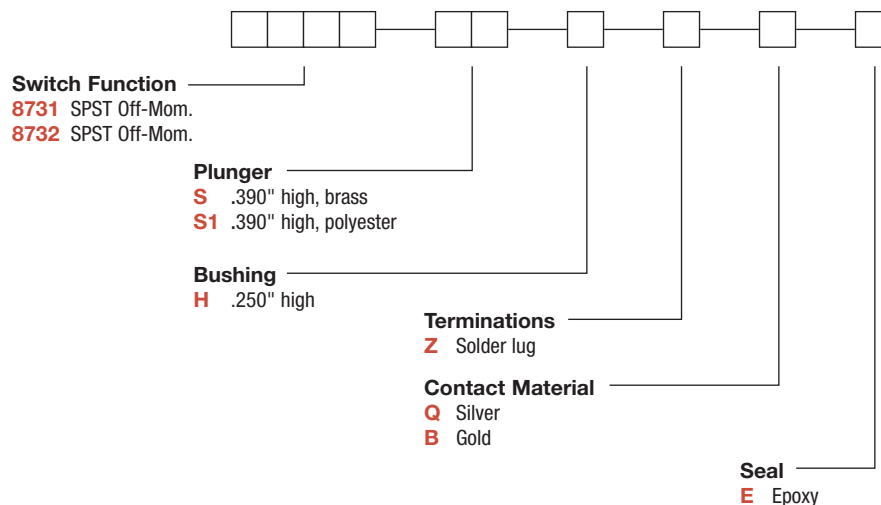
TERMINALS: Q contact material: Copper alloy, silver plated. See page A-76 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut: Brass, nickel plated; lockwasher: Steel, bright nickel plate. One mounting nut & lockwasher supplied with all switches.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-75 and A-76. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8700 Series Overtravel Pushbutton Switches



A

Pushbutton

SWITCH FUNCTION

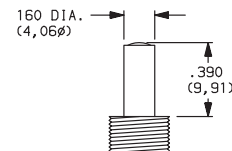
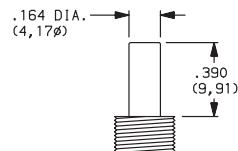
NO. POLES	MODEL NO.	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
		POS. 1	POS. 2			
SP	8731	OFF	MOM.	.390 (9,91) TYP. with overtravel .311 TYP.	4.7 oz TYP.	N.O. with overtravel SPST
SPST <p>Part number shown: 8731SHZQE</p>						
SP	8732	OFF	MOM.	.390 (9,91) TYP. with overtravel .350 TYP.	2.2 oz TYP.	N.O. with overtravel SPST
SPST <p>Part number shown: 8732S1HZQE</p>						

MOM. = Momentary

PLUNGER

S .390" HIGH, BRASS

S1 .390" HIGH, PBT POLYESTER

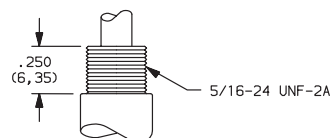


Available with 8731 model only.

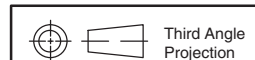
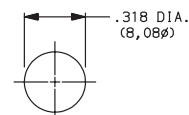
Available with 8732 model only.

BUSHING

H .250" HIGH



PANEL MOUNTING



Third Angle Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



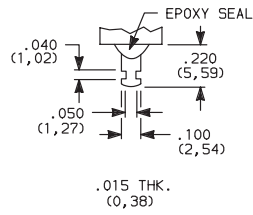
8700 Series Overtravel Pushbutton Switches

A

Pushbutton

TERMINATIONS

Z SOLDER LUG



CONTACT MATERIAL

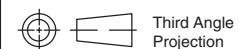
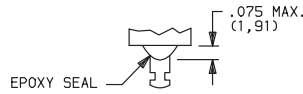
OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
					POWER	
Q	YES	YES	SILVER	SILVER		1 AMP @ 125 V AC OR 28 V DC.
B	YES	YES	GOLD	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

NOTE: Any models supplied with Q, or B contact material are RoHS compliant.

SEAL

E EPOXY SEAL



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

GP Series Sealed Ultraminiature Pushbutton Switches



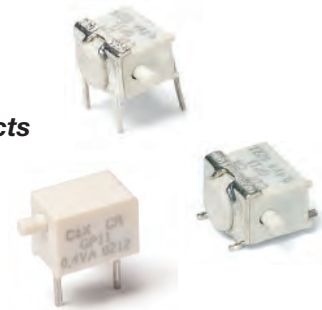
A
Pushbutton

Features/Benefits

- Ultraminiature design saves space
- Process compatible, withstands most soldering and washing processes
- Thru-hole and surface mount models available
- Sealed construction—internal o-ring and epoxy base
- RoHS compliant

Typical Applications

- Telecommunications and network equipment
- Computers and peripheral products
- Instrumentation
- Medical Applications



Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.

MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -40°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-80 for drawings and reel information. Thru-Hole parts are shipped in trays.

All models are RoHS compliant and compliant.

Materials

HOUSING & BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).

ACTUATOR: Glass filled nylon 4/6, flame retardant (UL 94V-0) with standard internal o-ring seal.

SWITCH SUPPORT: Brass, tin plated.

MOVABLE CONTACT: Copper alloy, with gold plate over nickel plate.

STATIONARY CONTACTS Copper alloy, with gold plate over nickel plate.

TERMINALS: Copper alloy, with gold flash over nickel plate.

TERMINAL SEAL: Epoxy/Urethane. All terminals insert molded.

NOTE: Any models supplied with B contact material are RoHS compliant and compatible.

NOTE: Materials listed above are general specifications. Specifications available for specific and custom switches, consult Customer Service Center.

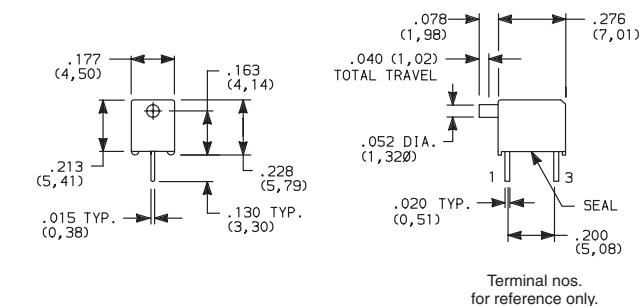
CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

How To Order

Complete part numbers for GP Series Sealed Ultraminiature Pushbutton Switches are shown on pages A-78 thru A-80.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MCBE	OFF	MOM.	
Conn. Terms.	OPEN	1-3	SPST
GP12MCBE	ON	MOM.	
Conn. Terms.	2-1	2-3	SPDT

MOM. = Momentary

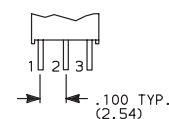


GP11MCBE
SPST

PC MOUNTING



GP11—omit center hole.



GP12 Model



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



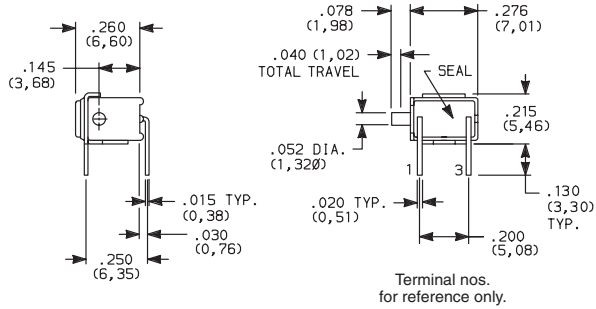
GP Series Sealed Ultraminiature Pushbutton Switches

A

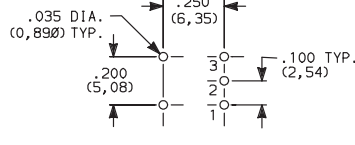
Pushbutton



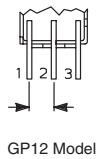
GP11MABE
SPST



PC MOUNTING



GP11- omit hole 2.



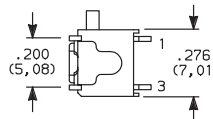
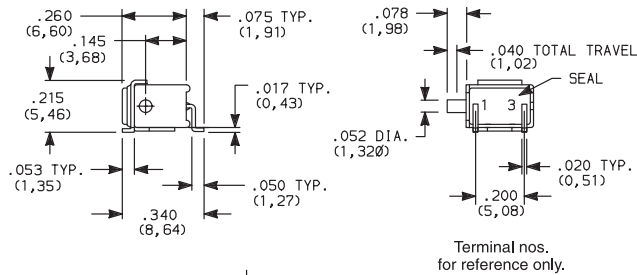
GP12 Model

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MABE	OFF	MOM.	 SPST
Conn. Terms.	OPEN	1-3	
GP12MABE	ON	MOM.	 SPDT
Conn. Terms.	2-1	2-3	

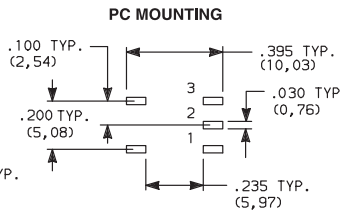
MOM. = Momentary



GP11MSABE
SPST



GP12 Model



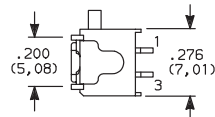
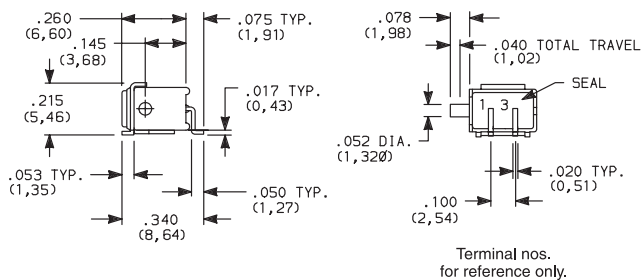
GP11- omit pad 2.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MSABE	OFF	MOM.	 SPST
Conn. Terms.	OPEN	1-3	
GP12MSABE	ON	MOM.	 SPDT
Conn. Terms.	2-1	2-3	

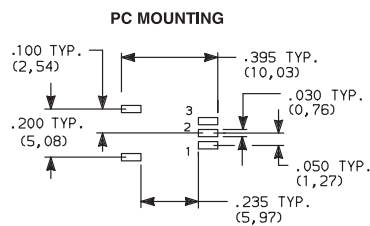
MOM. = Momentary



GP11MSA1BE
SPST



GP12 Model



GP11- omit pad 2.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MSA1BE	OFF	MOM.	 SPST
Conn. Terms.	OPEN	1-3	
GP12MSA1BE	ON	MOM.	 SPDT
Conn. Terms.	2-1	2-3	

MOM. = Momentary



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



GP Series Sealed Ultraminiature Pushbutton Switches

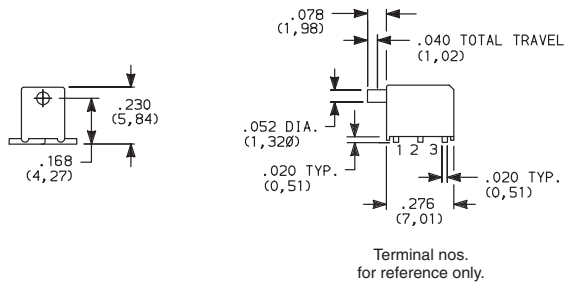


A

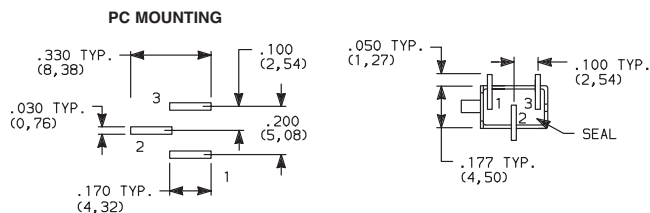
Pushbutton

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GP12MSCBE	ON	MOM.	 NC 1 2 (COMM) 3 NO
Conn. Terms.	2-1	2-3	
SPDT			

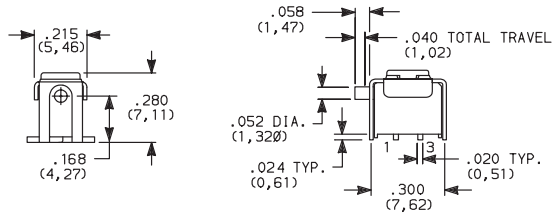
MOM. = Momentary



**GP12MSCBE
SPDT**



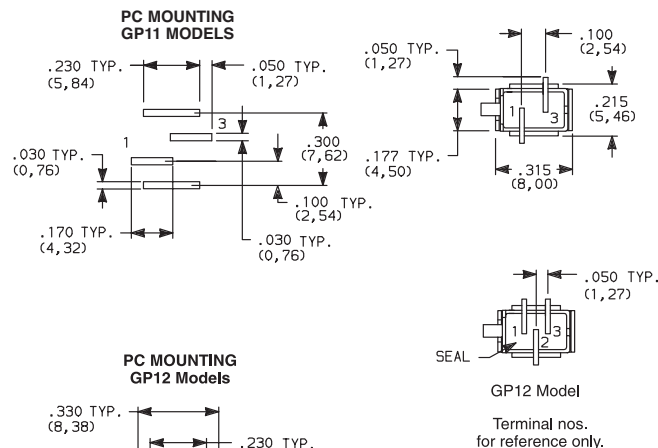
NOTE: Recommended for infrequent use applications only
For increased switch mounting strength, order, SV1 termination style with support bracket (see below).



**GP11MSV1BE
SPST**

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GP11MSV1BE	OFF	MOM.	 1 2 3
Conn. Terms.	OPEN	1-3	
SPST			
GP12MSV1BE	ON	MOM.	 NC 1 2 (COMM) 3 NO
Conn. Terms.	2-1	2-3	
SPDT			

MOM. = Momentary



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



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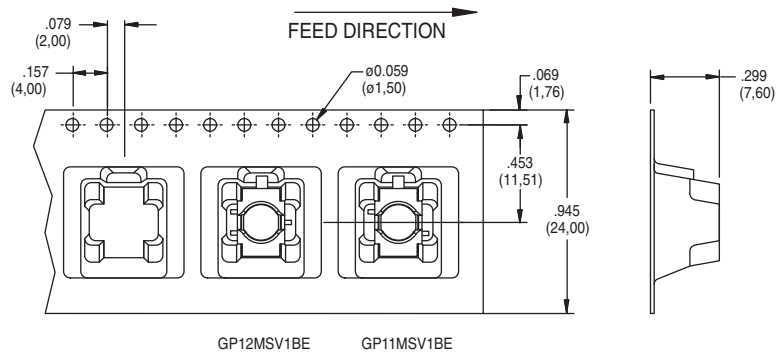
GP Series Sealed Ultraminiature Pushbutton Switches

TAPE & REEL

Pushbutton
A

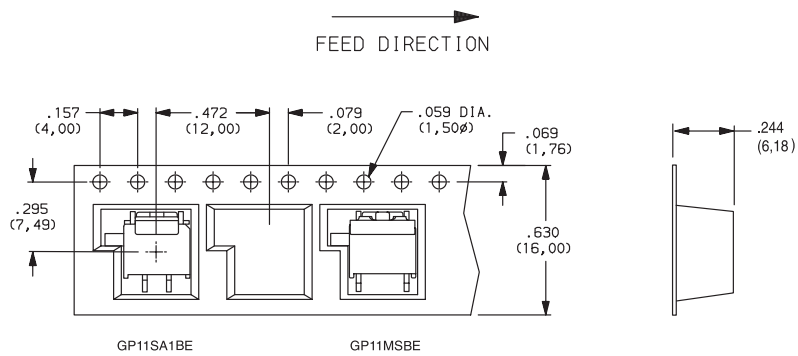
For part numbers GP11MSV1BE, GP12MSV1BE

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600



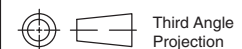
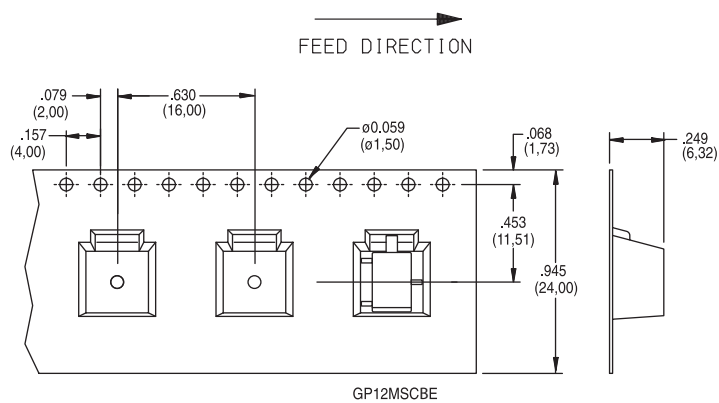
For part numbers GPXXSA1BE, GPXXMSABE

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600



For part numbers GP12MSCBE

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



PN Series Alternate & Momentary Action Pushbutton Switches



A

Pushbutton

Features/Benefits

- **Momentary or locking action**
- **Different actuation forces for customized feel**
- **Low cost, reliable contact design**
- **Single and double pole options**
- **RoHS compliant**

Typical Applications

- **Computers and peripherals**
- **Instrumentation and measurement equipment**
- **Non-power, on-off switch applications**



Specifications

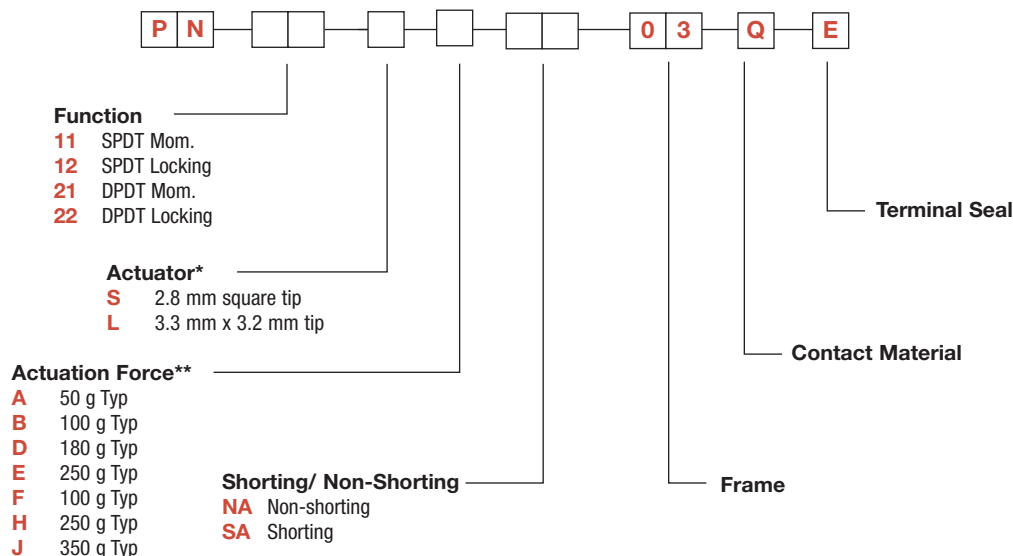
CONTACT RATING: 0.2 AMP @ 30 V DC max.
 ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.
 MECHANICAL LIFE: 10,000 on/off cycles.
 CONTACT RESISTANCE: 30 mΩ max. initial
 INSULATION RESISTANCE: 100 MΩ min.
 DIELECTRIC STRENGTH: 500 V AC min.
 OPERATING/STORAGE TEMPERATURES: -10°C to 60°C.
 PACKAGING: Switches are supplied in anti-static trays.

Materials

FRAME: Tin plated steel.
 ACTUATOR: PA 66 black.
 BASE: Phenolic resin.
 TERMINALS: Silver plated brass.
 MOVABLE CONTACTS: Silver plated phosphor bronze.
 RETURN SPRING: SWC
 DETENT SPRING: Phosphor bronze.
 DETENT SPRING PLATE: Phosphor bronze.
 RETURN SPRING RETAINER RING: Nickel plated steel.
 TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.



* Note - The switch body style dimensions differ for each of these 3 groupings

"S" actuator available for PN 11 & PN 12 options

"S" actuator available for PN 21 & PN 22 options

"L" actuator available for PN 21 & PN 22 options

** Actuation Force "A" only available with PN11 with "S" actuator

PN 11 & PN 21 available with Actuation Force "B", "D", "E", "F", "H", "J"

PN 12 & PN 22 available with Actuation Force "D", "E", "H", "J"

Full travel



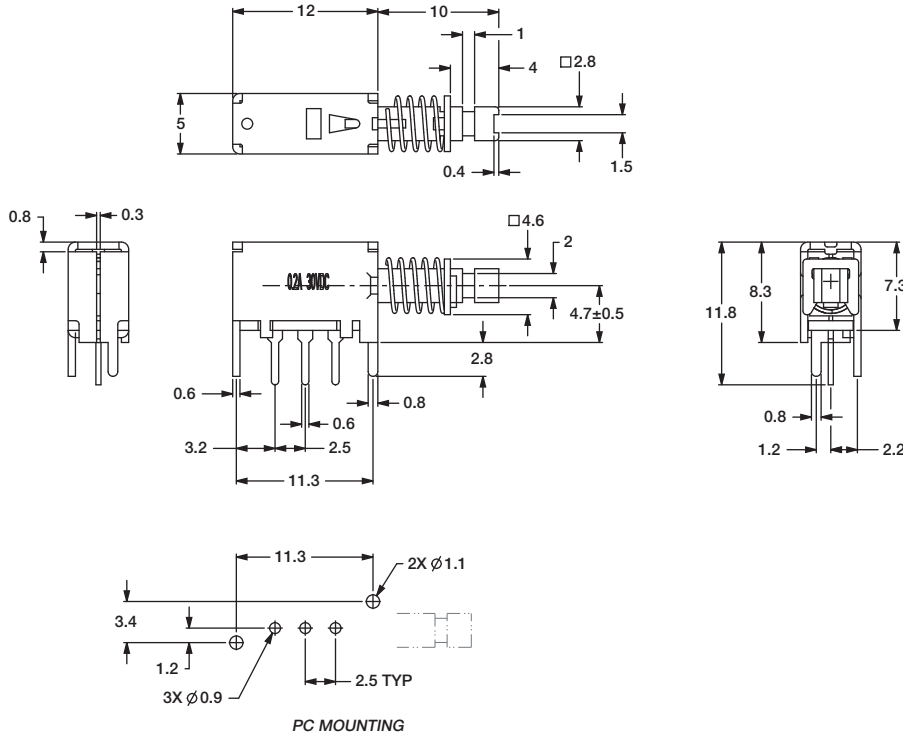
Specifications and dimensions subject to change



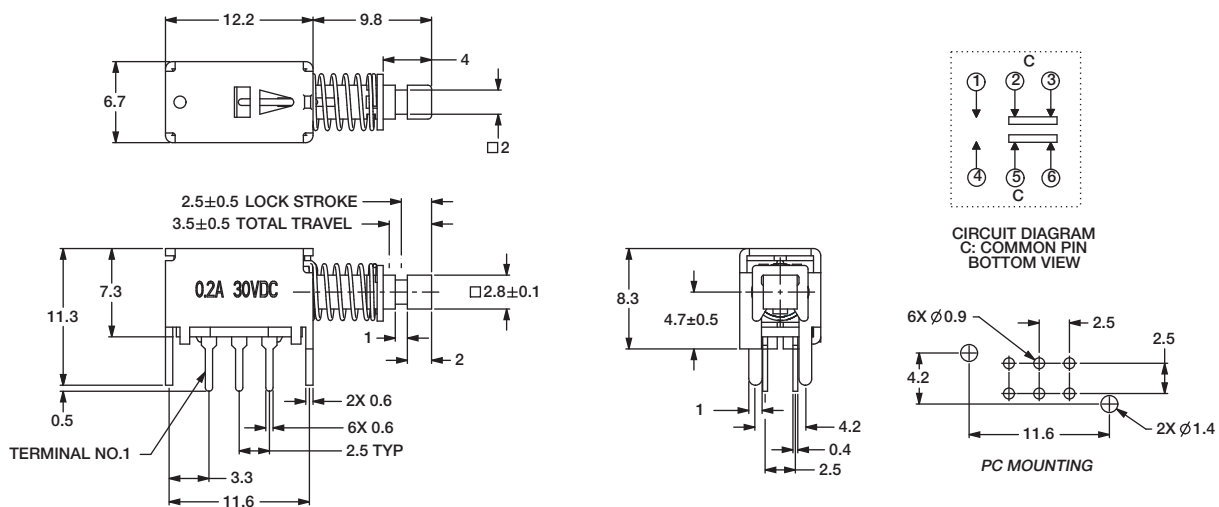
PN Series Alternate & Momentary Action Pushbutton Switches

Pushbutton
A

PN 11 SPDT Mom.
PN 12 SPDT Locking



PN 21 DPDT Mom. with "S" Actuator
PN 22 DPDT Locking with "S" Actuator



Dimensions are shown: mm
Specifications and dimensions subject to change

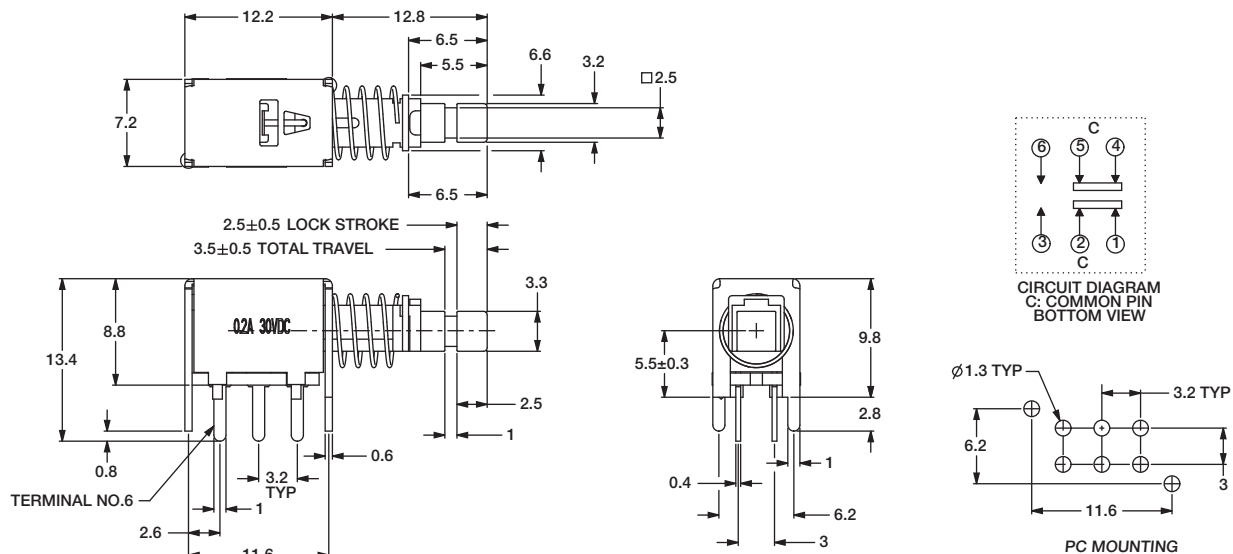
PN Series Alternate & Momentary Action Pushbutton Switches



A

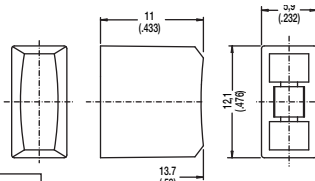
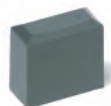
Pushbutton

PN 21 DPDT Mom. with "L" Actuator
PN 22 DPDT Locking with "L" Actuator



BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

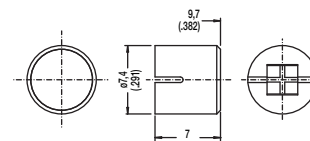
PE



OPTION CODE	COLOR
RD	Red
GY	Gray
BK	Black
WH	White

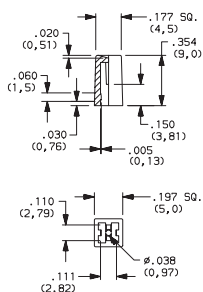
PE and PV buttons fit "L" actuators

PV



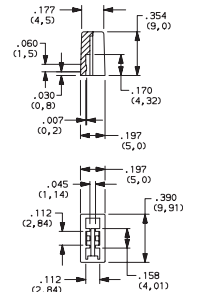
Indexed

G001A Black
G001G Gray
G001I Ivory
G001R Red



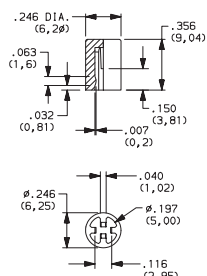
Rectangular

G002A Black
G002G Gray
G002I Ivory
G002R Red



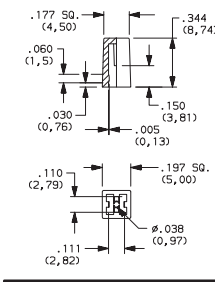
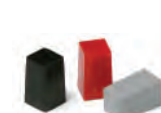
Round

G003A Black
G003G Gray
G003I Ivory
G003R Red



Square

G004A Black
G004G Gray
G004I Ivory
G004R Red



G001, G002, G003 and G004 buttons fit "S" actuators



Third Angle Projection



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

www.ck-components.com



PHB Series Short Stroke Pushbutton Switches

A

Pushbutton



Features/Benefits

- Momentary or latching action
- Low cost, reliable contact design
- 2 & 4 pole configurations
- Sealed contacts
- Optional buttons
- RoHS compliant

Typical Applications

- Computers and peripherals
- Instrumentation and measurement equipment
- Non-power, on-off switch applications

Specifications

RATING: 1 A @ 15 V DC
 DIELECTRIC STRENGTH (50 Hz/1 min.): 500 V DC between terminals or between terminals and frame for 1 minute
 OPERATING LIFE: 10,000 cycles at rated load
 CONTACT RESISTANCE: 20 m Ω ohms initial
 INSULATION RESISTANCE: 100 M Ω ohms
 TOTAL TRAVEL/LATCHING TRAVEL: 2.5mm (\pm 0.5 mm) / 1.5mm (\pm 0.5 mm) to latch EE option (push-push)
 OPERATING FORCE:
 2U option: 170 grams \pm 100 grams (1.67 \pm 0.98N)
 4U option: 230 grams \pm 100 grams (2.26 \pm 0.98N)
 OPERATING TEMPERATURE: -10°C to 60°C
 BOUNCE TIME: \leq 10 ms
 SEALING: Sealed contacts.
 PACKAGING: Switches; PHB2 models: 84 pcs per tray; PHB4 models 72 pcs per tray
 Optional Caps; Bulk bag - 100 caps per bag

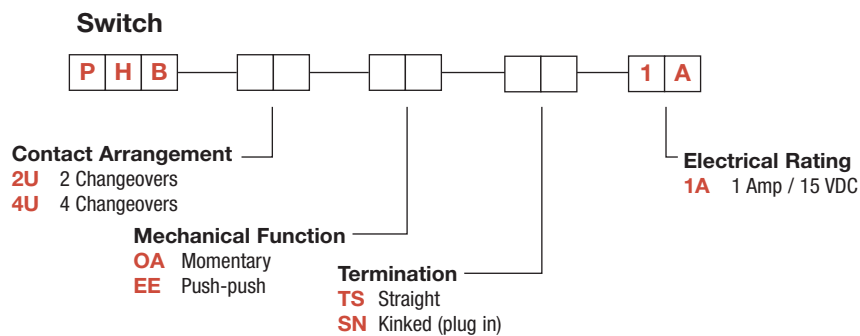
Materials

FIXED TERMINAL: Brass, silver plated
 MOVABLE CONTACT: Phosphor bronze, silver plated
 COVER: PA 66 Black
 COVER TO BASE RETAINING CLIP: POM
 ACTUATOR: POM
 RETURN SPRING: Stainless steel
 SPRING RETAINING RING: Steel, nickel plate
 BASE: Phenolic resin
 TERMINAL SEAL: Epoxy.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.



Caps (order separately)



INDEXED	COLOR	RECTANGULAR	COLOR	ROUND	COLOR	SQUARE	COLOR
G001A	BLACK	G002A	BLACK	G003A	BLACK	G004A	BLACK
G001G	GRAY	G002G	GRAY	G003G	GRAY	G004G	GRAY
G001I	IVORY	G002I	IVORY	G003I	IVORY	G004I	IVORY
G001R	RED	G002R	RED	G003R	RED	G004R	RED



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

PHB Series Short Stroke Pushbutton Switches

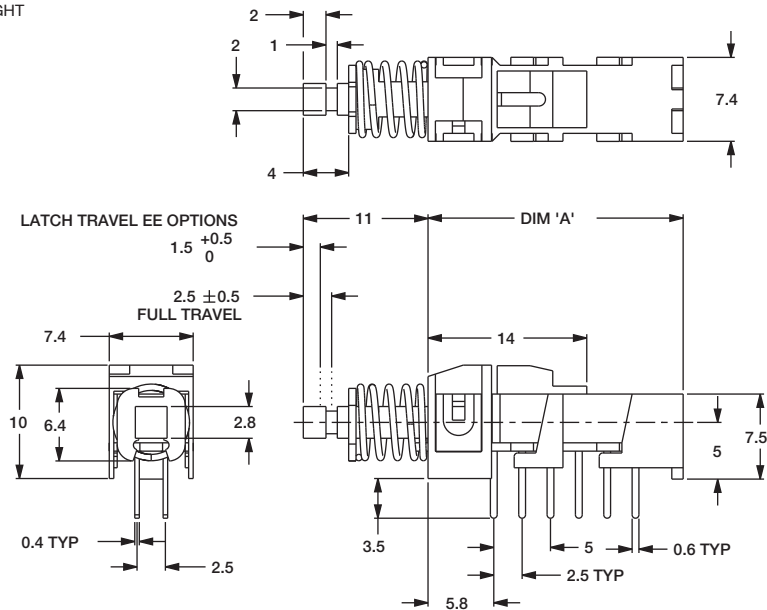


A

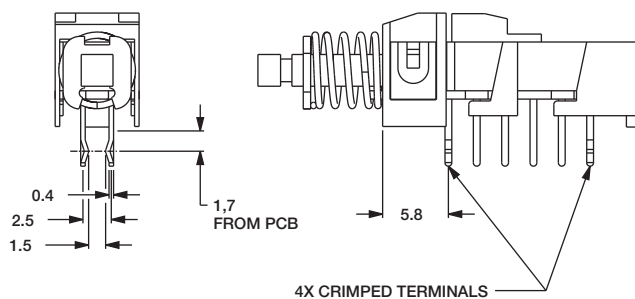
Pushbutton

TERMINATION

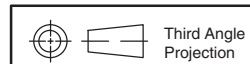
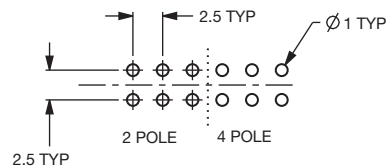
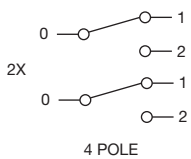
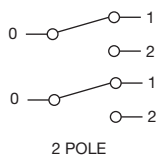
TS STRAIGHT



SN KINKED (PLUG IN)



POLES	MODEL NO.	DIM 'A'	ACTION
4	PHB4UEE1A	22,5	PUSH/PUSH
	PHB4U0A1A	22,5	MOMENTARY
2	PHB2UEE1A	15,0	PUSH/PUSH
	PHB2U0A1A	15,0	MOMENTARY



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



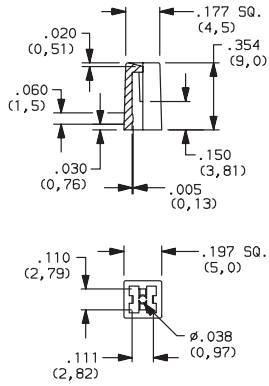
PHB Series Short Stroke Pushbutton Switches

CAPS

Pushbutton
A

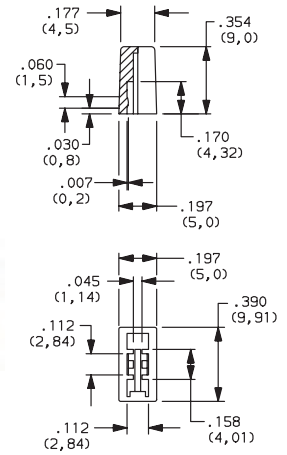
Indexed

- G001A** Black
- G001G** Gray
- G001I** Ivory
- G001R** Red



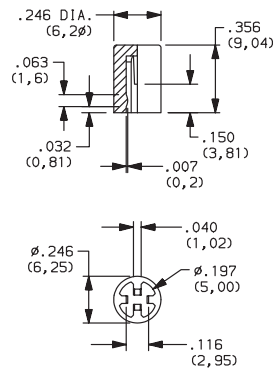
Rectangular

- G002A** Black
- G002G** Gray
- G002I** Ivory
- G002R** Red



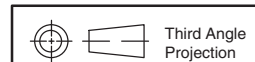
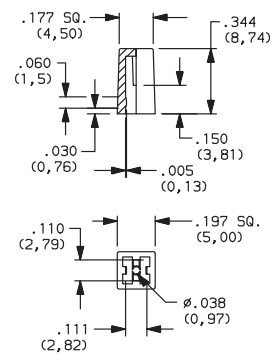
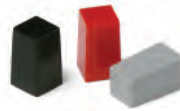
Round

- G003A** Black
- G003G** Gray
- G003I** Ivory
- G003R** Red



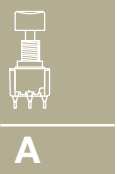
Square

- G004A** Black
- G004G** Gray
- G004I** Ivory
- G004R** Red



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

F Series Pushbutton Switches



A Pushbutton

Features/Benefits

- Up to 10 poles per module
- Various contact terminals
- Various mounting & switch ganging configurations
- Mechanical indicator buttons
- RoHS compliant

Typical Applications

- Audio selection
- Digital equipment interface
- Medical equipment interface



Specifications

SWITCHING POWER: F module max. AC/DC: Silver: 50 VA/15W, Gold: 1 VA/300 mW.

SWITCHING VOLTAGE: F module max. AC/DC: Silver: 125/30V, Gold: 50/30 V.

SWITCHING CURRENT: F module max. AC/DC: Silver: 0.5A/0.5A, Gold: 0.04A/0.01A.

CARRYING CURRENT: Max at du = 20C: Silver: < 2A, Gold: <0.5A.

DIELECTRIC STRENGTH (50 Hz, 1 min.): Chassis/contact: \wedge 1500V Between contacts: \wedge 1500V.

OPERATING LIFE "O/A/E" (24V/200mA): $>10^5$ operations "GR": $>3.5 \times 10^4$ operations.

CONTACT RESISTANCE: Initial: Typical %10 m Ω , max. 20 m Ω After operating life: %100 m Ω

INSULATION RESISTANCE: $\wedge 10^9 \Omega$ between open contacts, $\wedge 10^9 \Omega$ between chassis and contacts.

CAPACITANCE (at f = 10 kHz): %0.7 pF between 2 contacts.

TOTAL TRAVEL/LATCHING TRAVEL: 4.7mm/3.3mm (.185 inch/.130 inch).

All models and options are RoHS compliant and compatible.

NOTE: All models and options are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

TYPICAL F OPERATING FORCE: 2U: 6.5N (650 grams); 4U: 6.5N (650 grams); 6U: 7.5N (750 grams); 8U: 9.0N (900 grams); 10U: 9.0N (900 grams).

EUROPEAN TYPICAL SF OPERATING FORCE:
2U: 3.5N \pm 0.5N (350 grams \pm 100 grams); 4U: 5N \pm 1N (500 grams \pm 100 grams); 6U: 6.5N \pm 1N (650 grams \pm 100 grams); 8U: 9.0N \pm 1N (900 grams \pm 100 grams).

OPERATING TEMPERATURE RANGE: -40°C to 70°C.

Materials

HOUSING: Polycarbonate UL 94V-0 or polyester UL 94V-0.

ACTUATOR: Polyester UL 94V-0.

MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate over nickel.

STATIONARY CONTACTS & TERMINALS: Brass, silver plated, gold plated.

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

CHASSIS: Steel.

LOCKOUT PIN: Steel.

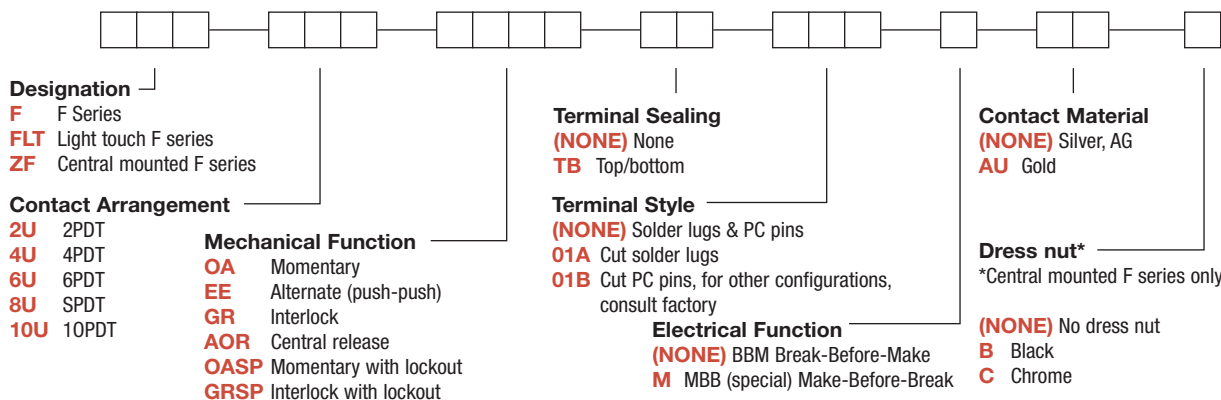
BLOCKERS: Steel.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-88 thru A-95. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

North American Order Code - Switch Only



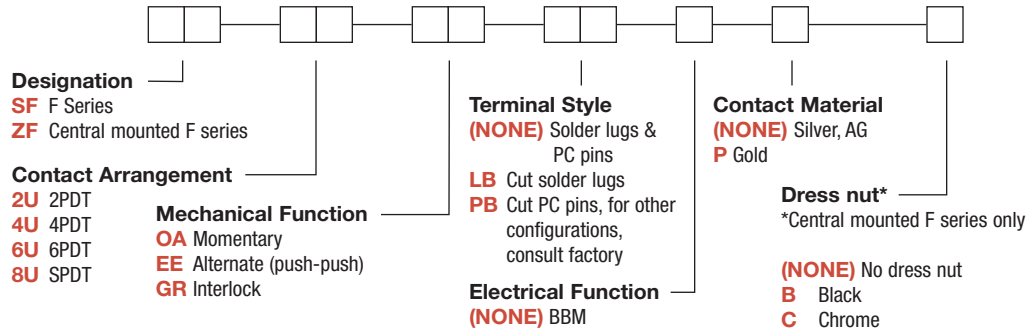
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



F Series Pushbutton Switches

Pushbutton A

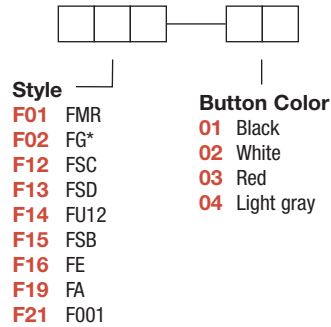
European Order Code - Switch Only



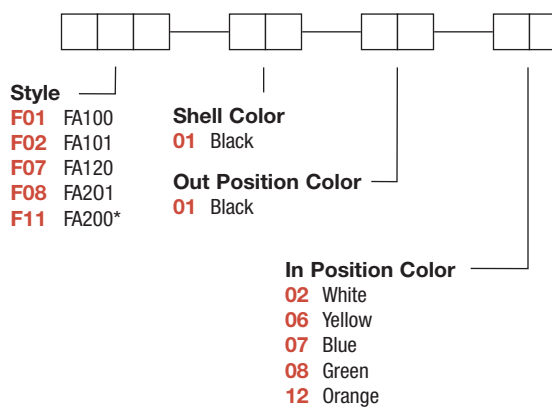
*Minimum order quantities apply.

Order Code - Buttons

Solid Buttons



Mechanical Indicator Buttons



*Button options for central mounting configurations, use 'FG' for central mount with chrome dress nut, use 'FA200' for central mount with black dress nut.

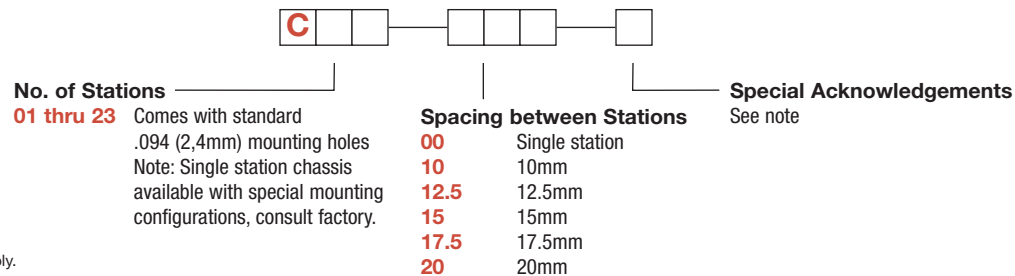
BUTTON REMOVAL

A button of a push-push switch should only be removed in the "OFF" non-latching position.

Order Code - Chassis

To order a switch with chassis, create the switch part number listed above and add the Chassis part number configurator information at the end of the part number.

Note: We do not guarantee or recommend interlocking beyond 10 stations.



*Minimum order quantities apply.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

F Series Pushbutton Switches



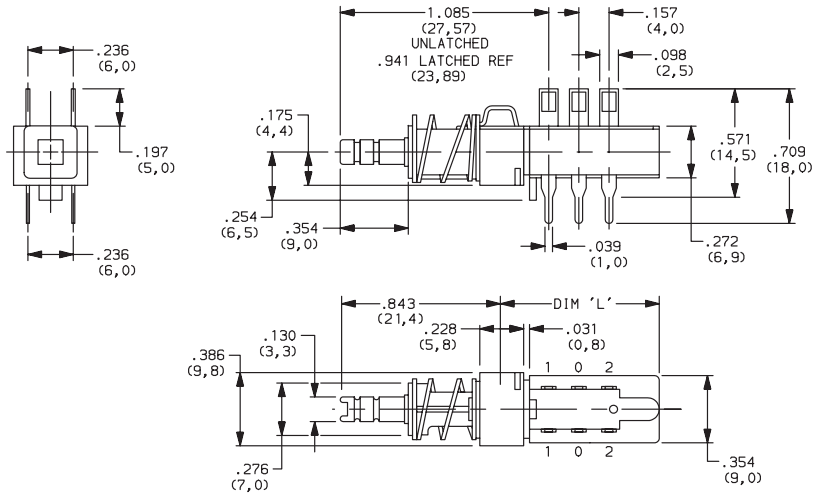
A

Pushbutton

SWITCHES WITH STANDARD OPTIONS

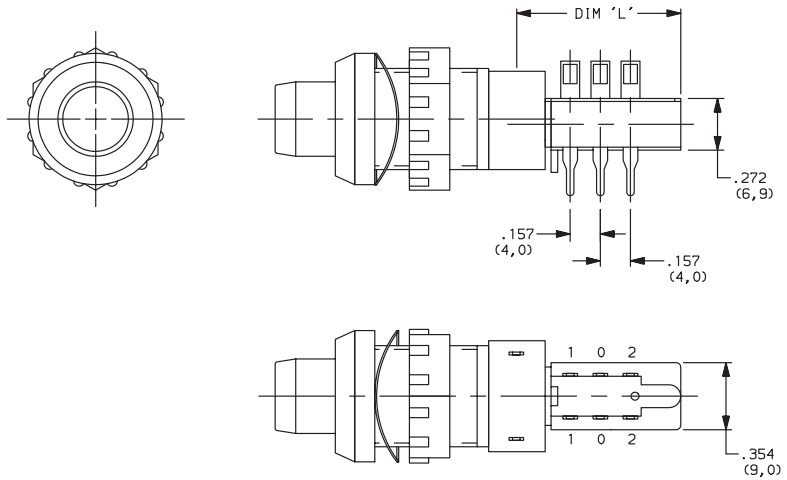
F2UEE

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



ZF2UEEBF11010108

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



DESIGNATION

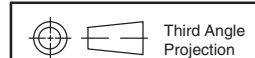


Designation, North America

- F** F Series
- FLT** Light touch F series
- ZF** Central mounted F series

Designation, Europe

- SF** F Series
- ZF** Central mounted F series



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



F Series Pushbutton Switches

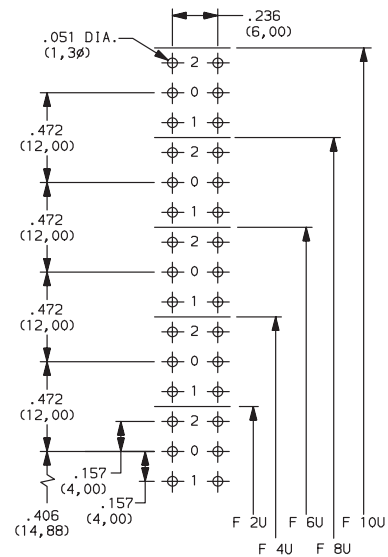
Pushbutton
A

CONTACT ARRANGEMENT



OPTION CODE	NO. OF POLES	SCHEMATIC
2U	2PDT	
4U	4PDT	2X
6U	6PDT	3X
8U	8PDT	4X
10U	10PDT	5X

PC MOUNTING



MECHANICAL FUNCTION



North America

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)
GR	Interlock
AOR	Central release
OASP	Momentary with lockout
GRSP	Interlock with lockout

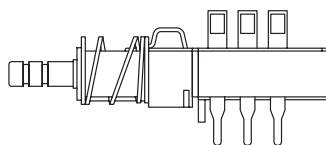
Europe

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)
GR	Interlock

TERMINAL SEALING

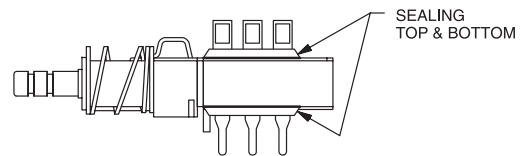


(NONE) NO SEAL



F2UEE shown in example above.

TB TOP & BOTTOM



NOTE: Available for North America only



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

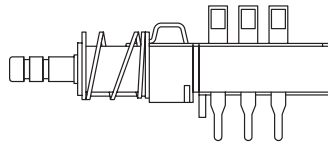
F Series Pushbutton Switches



A
Pushbutton

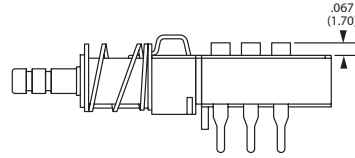
TERMINAL STYLE

(NONE) SOLDER LUGS & PC PINS



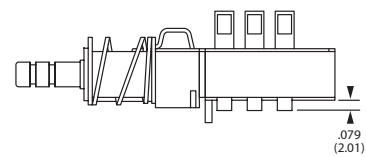
01A CUT SOLDER LUGS (North America)

LB CUT SOLDER LUGS (Europe)



01B CUT PC PINS (North America)

PB CUT PC PINS (Europe)



ELECTRICAL FUNCTION

OPTION CODE	FUNCTION
(NONE)	BBM Non-shorting
M	MBB Shorting (North America only)

CONTACT MATERIAL

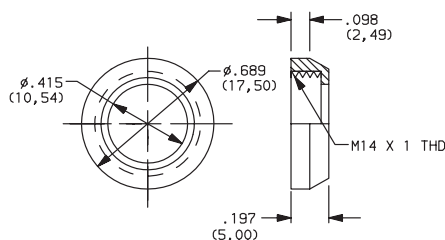
NORTH AMERICA OPTION CODE	EUROPE OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	MATERIAL	RATING
(NONE)	(NONE)	YES	YES	SILVER, AG	50 VA/15 W; 125/30 V; 0.5/0.5 A
AU	P	YES	YES	GOLD	1 VA/300mW; 50/30 V; 0.04 A/0.01 A

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

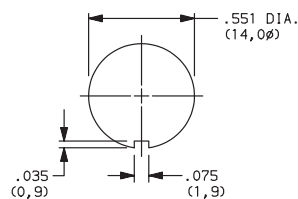
DRESS NUT

(NONE) NO DRESS NUT FOR F & F/LT DESIGNATIONS

B BLACK

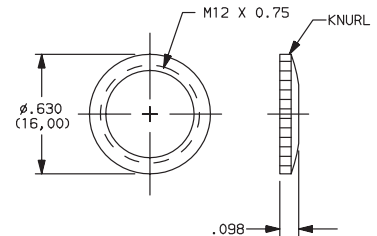


PANEL CUTOUT

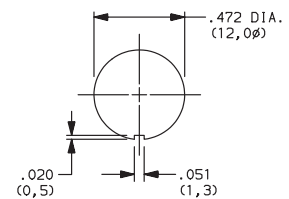


NOTE: Available with ZF designation and FA200 buttons.

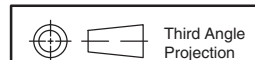
C CHROME



PANEL CUTOUT



NOTE: Available with ZF designation and FG button.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change





F Series Pushbutton Switches

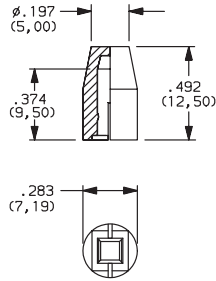
Pushbutton
A

SOLID BUTTON

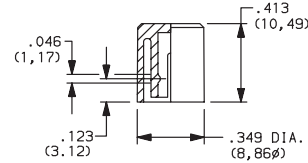


STYLE

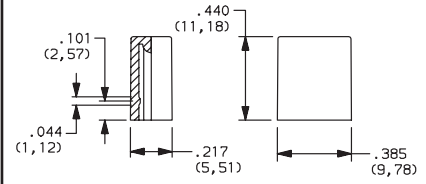
F01 FMR



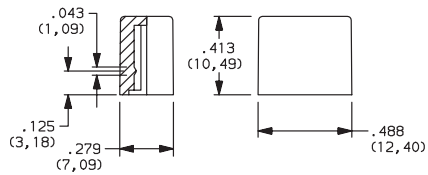
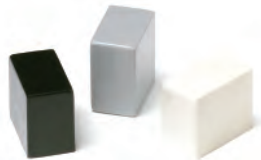
F02 FG



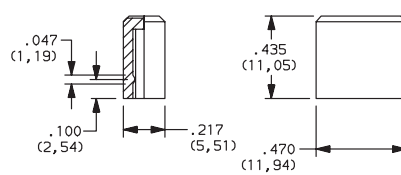
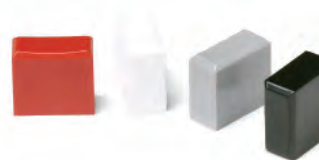
F12 FSC



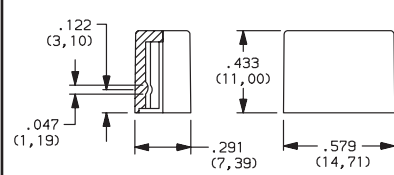
F13 FSD



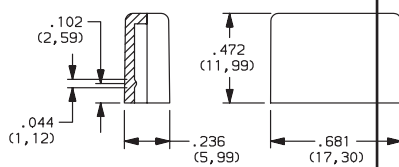
F14 FU12



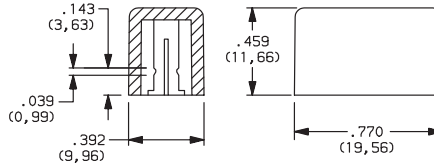
F15 FSB



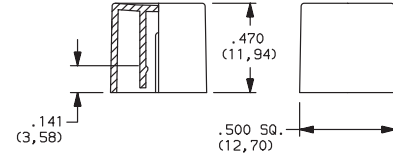
F16 FE



F19 FA



F21 F001



OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

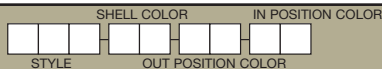
F Series Pushbutton Switches



A

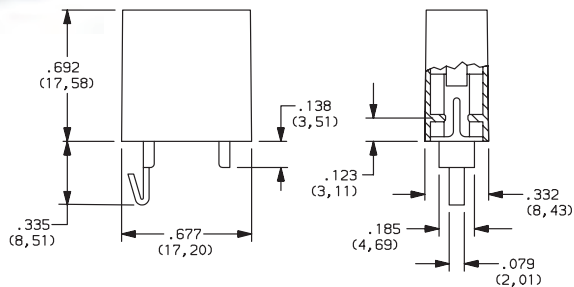
Pushbutton

MECHANICAL BUTTON

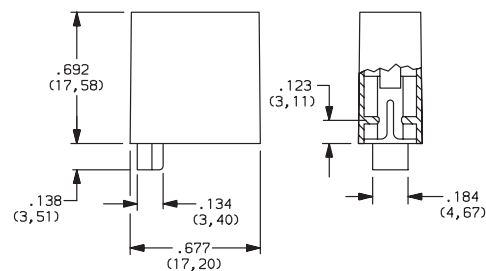


STYLE

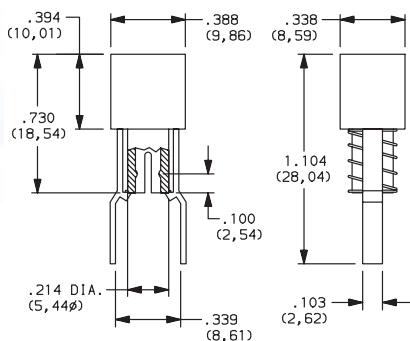
F01 FA100



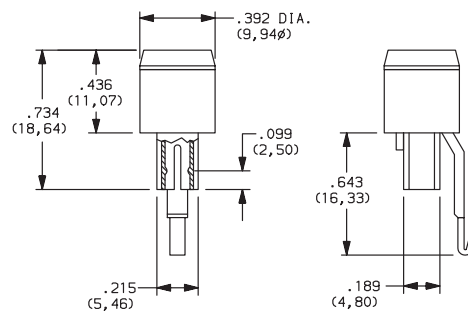
F02 FA101



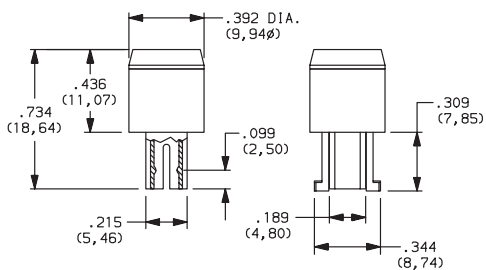
F07 FA120



F08 FA201



F11 FA200



SHELL COLOR

01 BLACK

OUT POSITION COLOR

01 BLACK

IN POSITION COLOR

OPTION CODE	COLOR
02	WHITE
06	YELLOW
07	BLUE
08	GREEN
12	ORANGE



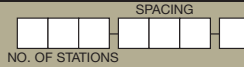
Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



F Series Pushbutton Switches

Pushbutton A

CHASSIS



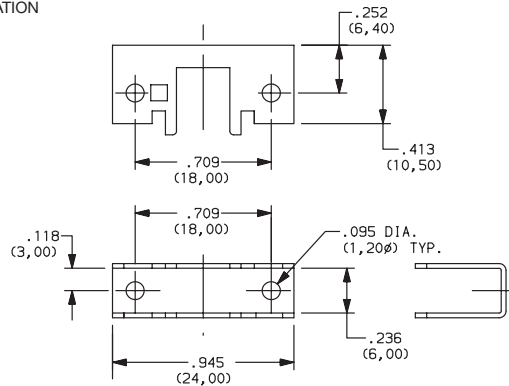
NUMBER OF STATIONS

C00 Thru C10 Comes with standard 0.094 (2,44mm) mounting holes

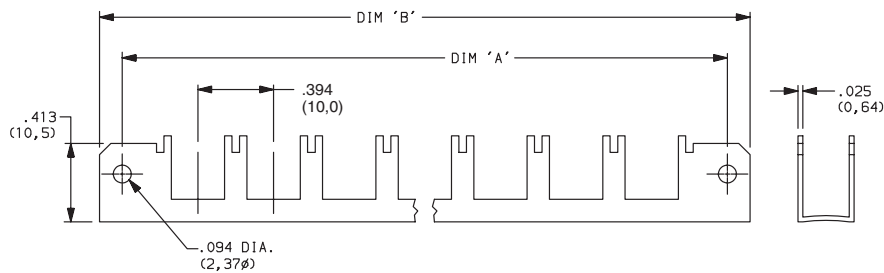
NOTE: Single station chassis available with mounting configurations, consult factory.

SPACING

00 SINGLE STATION

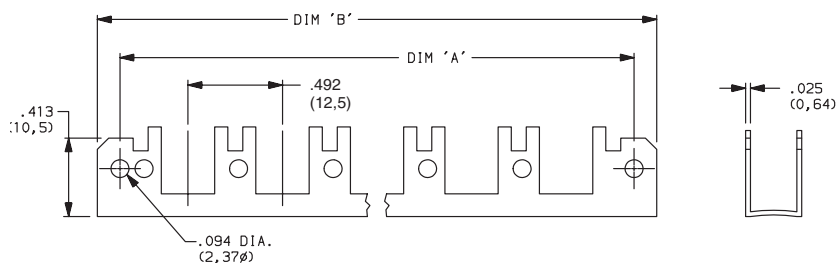


10 10mm



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.182 (30,02)	1.418 (36,02)	0.005
3	1.575 (40,01)	1.811 (46,00)	0.010
4	1.969 (50,01)	2.205 (56,01)	0.010
5	2.363 (60,02)	2.599 (66,01)	0.010
6	2.757 (70,03)	2.993 (76,02)	0.015
7	3.150 (80,01)	3.386 (86,00)	0.015
8	3.544 (90,02)	3.780 (96,01)	0.015
9	3.938 (100,03)	4.174 (106,02)	0.015
10	4.331 (110,01)	4.567 (116,00)	0.015

12.5 12.5mm



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.200 (30,48)	1.436 (36,47)	0.005
3	1.692 (42,98)	1.928 (48,97)	0.010
4	2.184 (55,47)	2.420 (61,47)	0.010
5	2.676 (67,97)	2.912 (73,96)	0.010
6	3.169 (80,49)	3.405 (86,49)	0.015
7	3.661 (92,99)	3.897 (98,98)	0.015
8	4.153 (105,49)	4.389 (111,48)	0.015
9	4.645 (117,98)	4.881 (123,98)	0.015
10	5.137 (130,48)	5.373 (136,47)	0.015



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



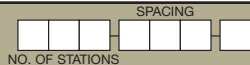
F Series Pushbutton Switches



A

Pushbutton

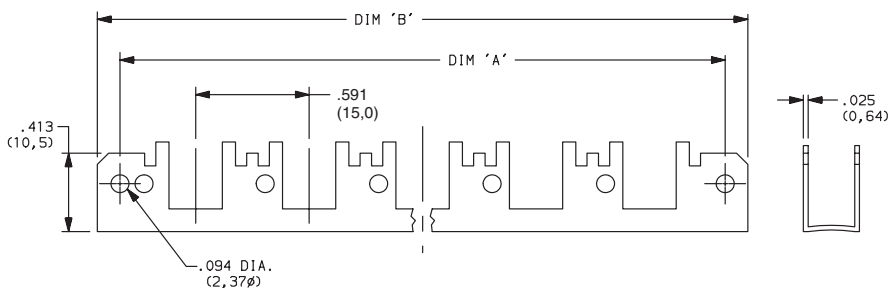
CHASSIS



SPACING

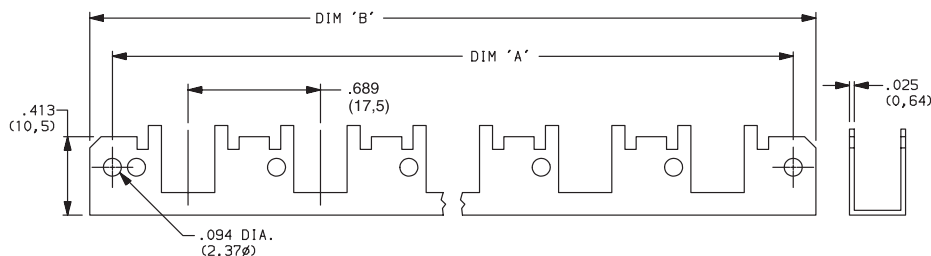
15 15mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.374 (34,90)	1.615 (41,02)	0.005
3	1.969 (50,01)	2.205 (56,01)	0.010
4	2.560 (65,02)	2.796 (71,02)	0.010
5	3.150 (80,01)	3.386 (86,00)	0.010
6	3.741 (95,02)	3.977 (101,02)	0.015
7	4.332 (110,03)	4.568 (116,03)	0.015
8	4.922 (125,02)	5.158 (131,01)	0.015
9	5.513 (140,03)	5.749 (146,02)	0.015
10	6.103 (155,02)	6.339 (161,01)	0.015



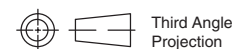
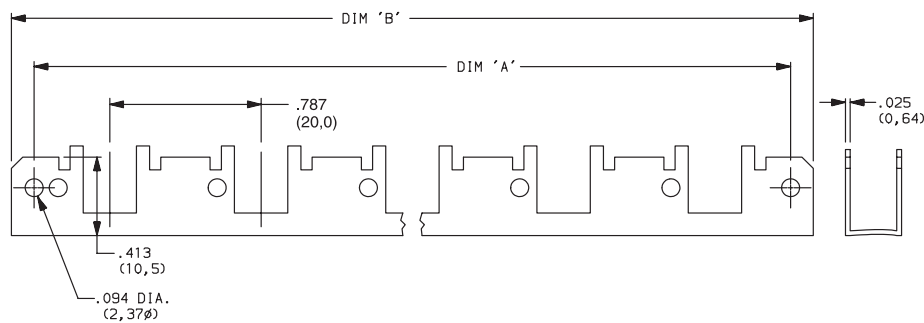
17.5 17.5mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.477 (37,52)	1.713 (43,51)	0.005
3	2.166 (55,02)	2.402 (61,01)	0.010
4	2.855 (75,52)	3.091 (78,51)	0.010
5	3.544 (90,02)	3.780 (96,01)	0.010
6	4.233 (107,52)	4.469 (113,51)	0.015
7	4.922 (125,02)	5.158 (131,01)	0.015
8	5.611 (142,52)	5.847 (148,51)	0.015
9	6.300 (160,02)	6.536 (166,01)	0.015
10	6.989 (177,52)	7.225 (183,52)	0.015



20 20mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.575 (40,01)	1.811 (46,00)	0.005
3	2.363 (60,02)	2.599 (66,01)	0.010
4	3.150 (80,01)	3.386 (86,00)	0.010
5	3.938 (100,03)	4.174 (106,02)	0.010
6	4.725 (120,02)	4.961 (126,01)	0.015
7	5.512 (140,00)	5.748 (146,00)	0.015
8	6.300 (160,02)	6.536 (166,01)	0.015
9	7.087 (180,01)	7.323 (186,00)	0.015
10	7.875 (200,03)	8.111 (206,02)	0.015



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change





Pushbutton
A

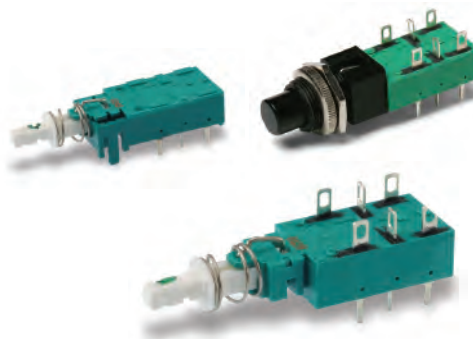
NE-18 Series Mains / Power Switches

Features/Benefits

- Chassis or panel mount
- Various buttons
- Various contact configurations
- RoHS compliant

Typical Applications

- Mains/power switching
- Consumer electronics
- Audio equipment
- Digital products



UL61058-1



Specifications

ELECTRICAL RATING:

NE18 Series:

- 8A GP, 125 VAC, 50/60 Hz, 1E4, T70
- 6A GP, 250 VAC, 50/60 Hz, 1E4, T70
- 6(4)A RM, 250 VAC, 50/60 Hz, 1E4, T70
- 6/48A RC, 250 VAC, 50/60 Hz, 1E4, T70
- 1RA, 100 VDC, 1E4, T70
- 8RA, 30VDC, 1E4, T70

NE18CTII Series:

- 4A GP, 250 VAC, 50/60 Hz, 1E4, T70
- 4/48A RC, 250 VAC, 50/60 Hz, 1E4, T70
- 1RA, 100 VDC, 1E4, T70
- 4RA, 30VDC, 1E4, T70

DIELECTRIC STRENGTH (50 Hz, 1 min.): 2000 V

OPERATING LIFE AT MAX. LOAD AND AT MAX. INRUSH CURRENT: $\wedge 10^4$ operations⁵⁾

CONTACT RESISTANCE: Initial: 50m Ω ; After 10^4 operations: 70m Ω .

INSULATION RESISTANCE: $\wedge 10^{12}$ Ω chassis – nearest contact; $\wedge 10^{12}$ Ω mains contact – mains contact; $\wedge 10^{12}$ Ω mains contact – mains contact after 10^4 operations.

LOW VOLTAGE CONTACT:

SWITCHING POWER MAX.: 12W

SWITCHING VOLTAGE MAX.: 24V

SWITCHING CURRENT MAX.: 0.5A

TOTAL TRAVEL: 4.7mm (.185 inch)

LATCHING TRAVEL: 3.3mm (.130 inch)

OPERATING FORCE: Without auxiliary low voltage contacts: NE18: 7N (700 grams); NE18CTII: 9.5N (950 grams).

With auxiliary low voltage contacts: NE18: 8N (800 grams); NE18CTII: 11N (1100 grams).

SEALING: Dust proof.

Materials

HOUSING, ACTUATOR & TERMINAL BOARD: Thermoplastic polyester (UL 94V-0).

MOVABLE CONTACT: Silver nickel alloy, silver plated.

FIXED CONTACTS: Silver nickel alloy, silver plated.

COMMON CONTACTS & TERMINALS: Copper alloy, silver plated.

RETURN SPRING: Music wire.

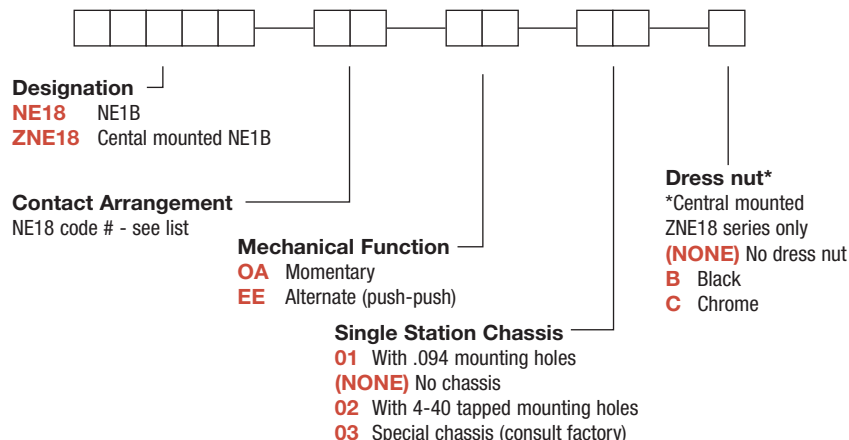
NOTE: All models are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-97 thru A-104. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select the switch as noted below. Buttons are sold separately.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

NE-18 Series Mains / Power Switches



A

Pushbutton

Order Code - Buttons

Solid Buttons

<p>Style</p> <p>F01 FMR</p> <p>F02 FG*</p> <p>F12 FSC</p> <p>F13 FSD</p> <p>F14 FU12</p> <p>F15 FSB</p> <p>F16 FE</p> <p>F19 FA</p> <p>F21 F001</p>	<p>Button Color</p> <p>01 Black</p> <p>02 White</p> <p>03 Red</p> <p>04 Light gray</p>

Mechanical Indicator Buttons

<p>Style</p> <p>F01 FA100</p> <p>F02 FA101</p> <p>F07 FA120</p> <p>F08 FA201</p> <p>F11 FA200*</p>	<p>Shell Color</p> <p>01 Black</p>	<p>Out Position Color</p> <p>01 Black</p>	<p>In Position Color</p> <p>02 White</p> <p>06 Yellow</p> <p>07 Blue</p> <p>08 Green</p> <p>12 Orange</p>

*Button options for central mounting configurations, use 'FG' for central mount with chrome dress nut, use 'FA200' for central mount with black dress nut.

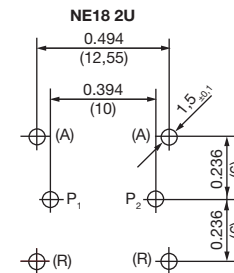
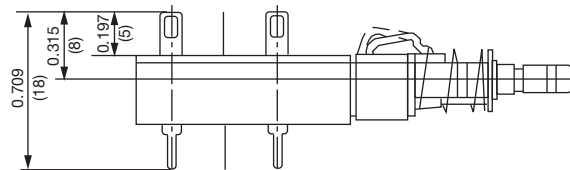
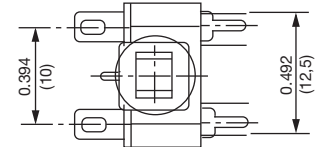
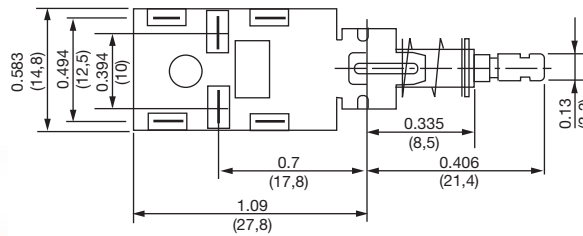
BUTTON REMOVAL

A button of a push-push switch should only be removed in the "OFF" non-latching position.

DESIGNATION & SWITCHES WITH STANDARD OPTIONS



NE1838EE



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



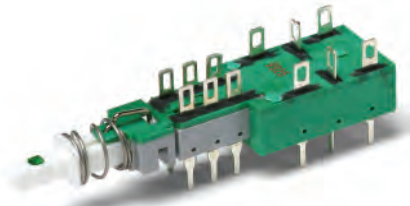
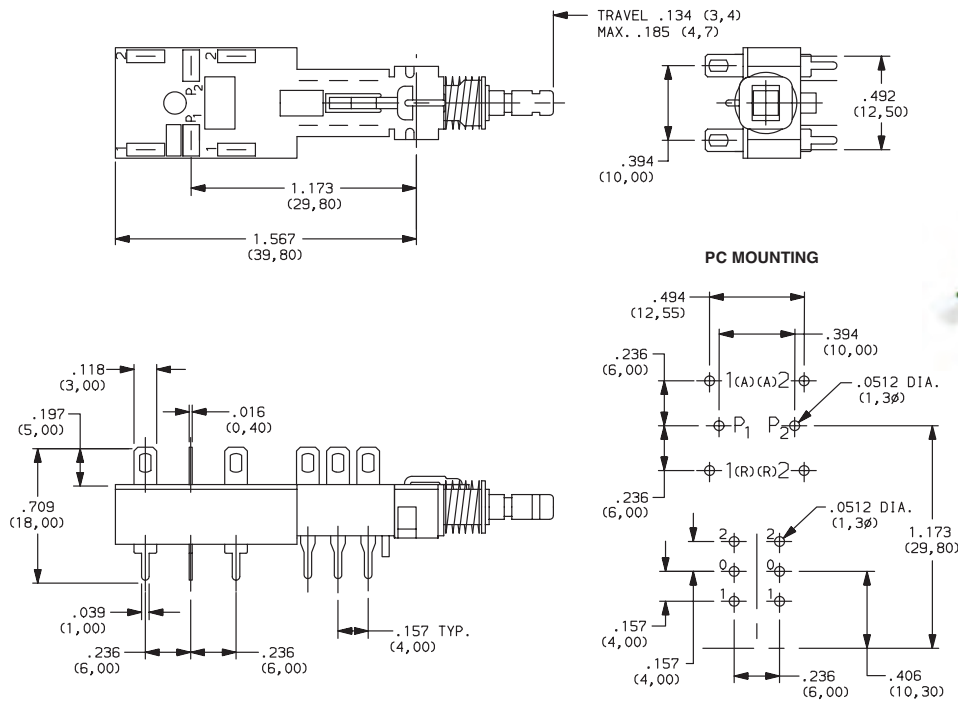
NE-18 Series Mains / Power Switches

DESIGNATION & SWITCHES WITH STANDARD OPTIONS

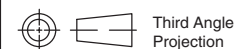
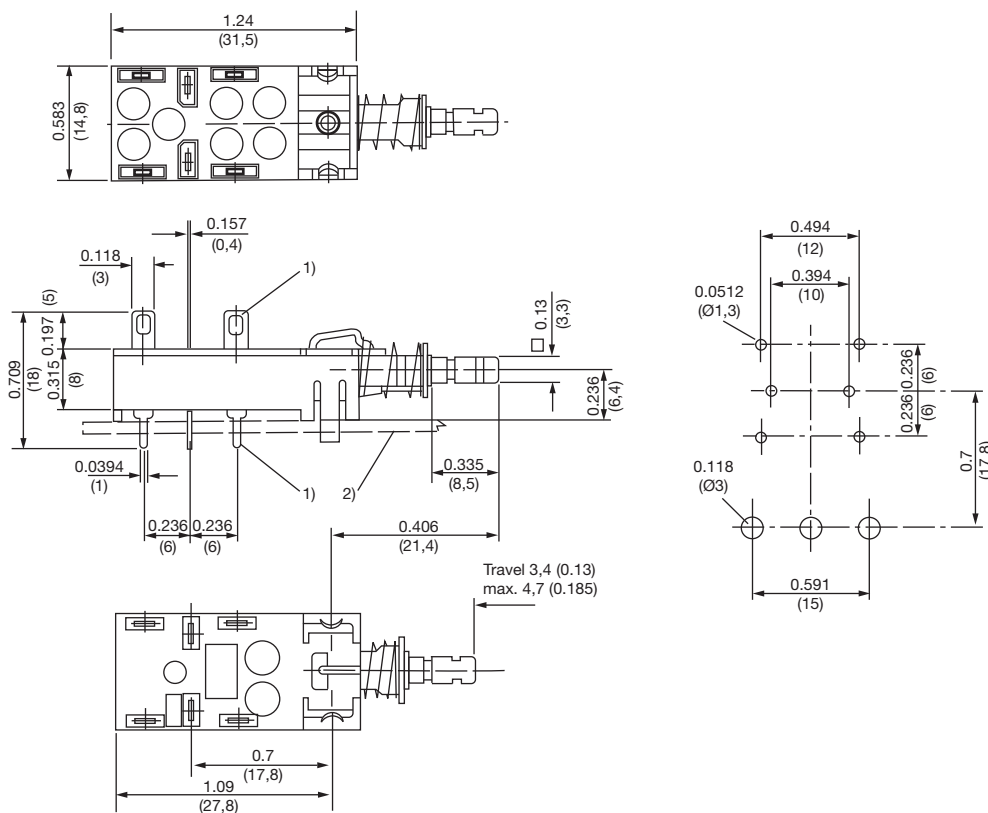


Pushbutton
A

NE1839EE



NE1846EE



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NE-18 Series Mains / Power Switches



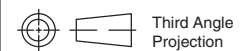
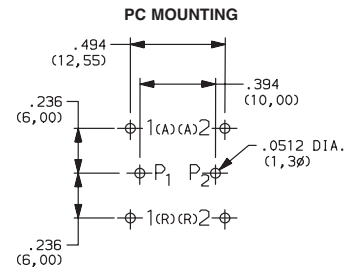
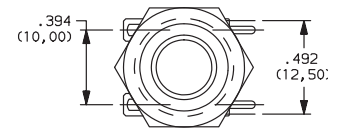
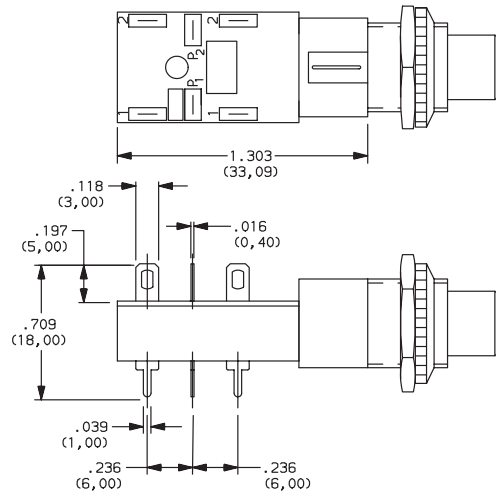
DESIGNATION & SWITCHES WITH STANDARD OPTIONS



ZNE1838EECF0201

A

Pushbutton



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NE-18 Series Mains / Power Switches

CONTACT ARRANGEMENT



Pushbutton
A

OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
37	NE18 – 2AX	DPST
38	NE18 – 2UX	DPDT
51	2U + NE18 – 2AX	DPST*
52 (4A/64)	NE18CTII – 2AX	DPST
39	2U + NE18 – 2UX	DPDT*
41	NE18 – 2AP	DPST
42	NE18 – 2UP	DPDT
43	NE18 – 2AW	DPST
44	NE18 – 2UW	DPDT
45	NE18 – 2ASX	DPST

OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
46	NE18 – 2USX	DPDT
47	NE18 – 2ASP	DPST
48	NE18 – 2USP	DPDT
49	NE18 – 2ASW	DPST
50	NE18 – 2USW	DPDT
53 (4A/64)	2U + NE18CTII – 2AX	DPST
54	2U + NE18 – 2AW	DPST
55	2U + NE18 – 2AP	DPST
56	2U + NE18 – 2UW	DPDT
57	2U + NE18 – 2UP	DPDT

* 2U + Denotes auxiliary set of low current contacts DPDT
 2A = DPST
 2U = DPDT
 S = Snap-in mounting
 X = Solder lug/PC pins
 W = Solder lugs only
 P = PC pins only

NOTES

- Contact plating is silver on all Power Switches.
- The electrical function is Break Before Make (BBM) on all Power Switches.
- The terminals will be epoxy sealed.

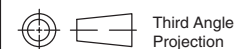
TYPE	POSSIBLE CONTACT ARRANGEMENT		CONTACT SPACING	PROTECTION CLASS (CEE 24)	APPROVALS
	POWER CONTACTS ¹	AUXILIARY CONTACTS			
NE18	2A ²	2U	> 3mm (.118 inch)	II	 UL61058-1
NE18	2A ² 2U	2U	> 3mm (.118 inch)	I	 UL61058-1
NE18CTII	2A ²	2U	> 3mm (.118 inch)	II	 UL61058-1

- A = make contact, U = changeover contact
- With 2A mains contacts: Mounting only by PC pins is not sufficient.

MECHANICAL FUNCTION



OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

NE-18 Series Mains / Power Switches



A

Pushbutton

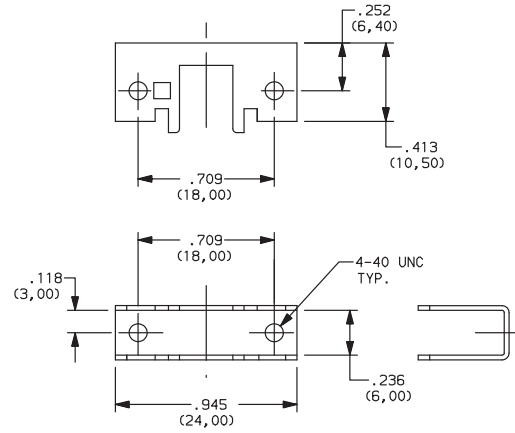
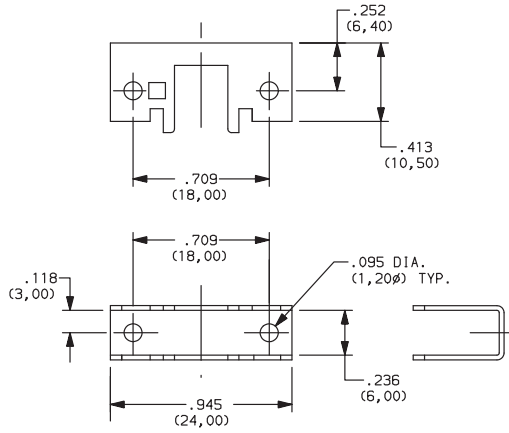
SINGLE STATION CHASSIS



01 WITH .094 MOUNTING HOLES

(NONE) NO CHASSIS

02 WITH 4-40 TAPPED MOUNTING HOLES



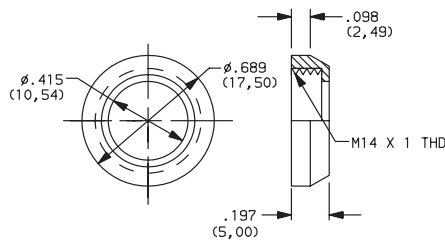
03 SPECIAL CHASSIS (CONSULT FACTORY)

DRESS NUT

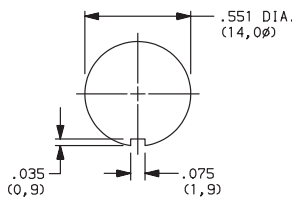


(NONE) NO DRESS NUT

B BLACK

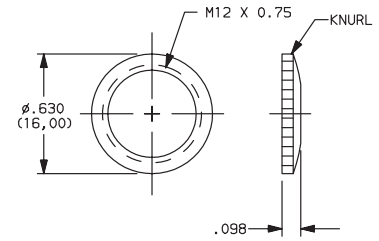


PANEL CUTOUT

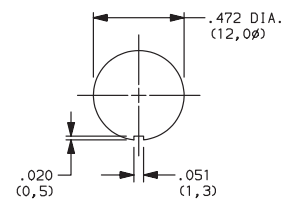


NOTE: Available with ZNE18 designation and FA200 buttons.

C CHROME



PANEL CUTOUT



NOTE: Available with ZNE18 designation and FG button.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NE-18 Series Mains / Power Switches

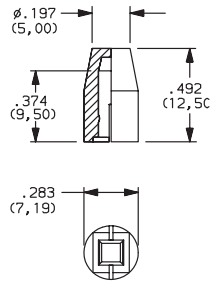
SOLID BUTTON

Pushbutton

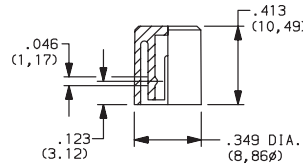
A

STYLE

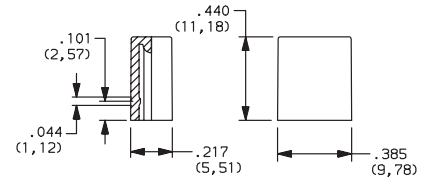
F01 FMR



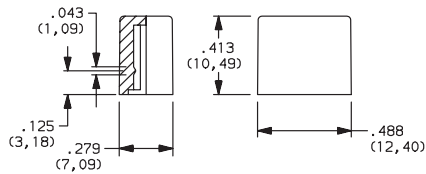
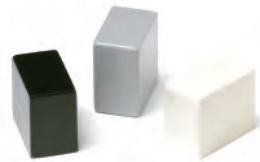
F02 FG



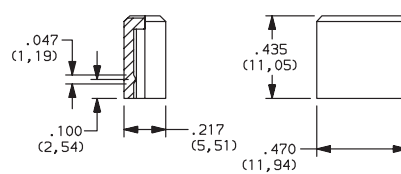
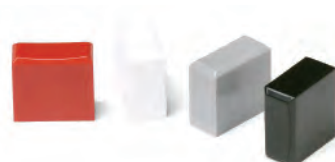
F12 FSC



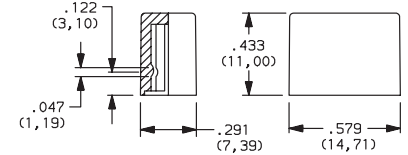
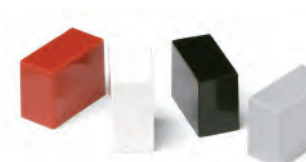
F13 FSD



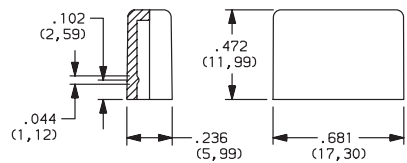
F14 FU12



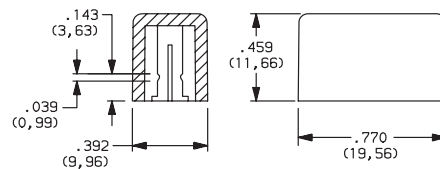
F15 FSB



F16 FE



F19 FA



OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NE-18 Series Mains / Power Switches



A

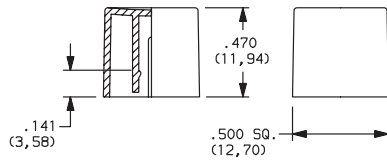
Pushbutton

SOLID BUTTON



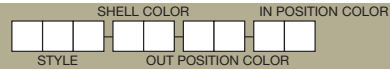
STYLE

F21 F001



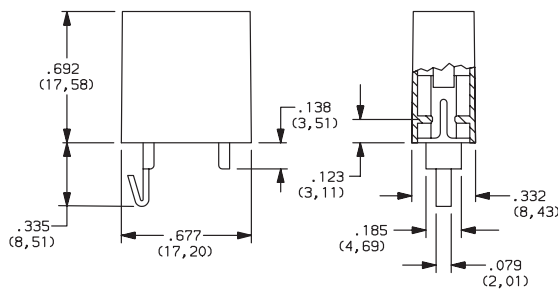
OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY
09	BLACK/CHROME (F03, F06 & F07 buttons only)

MECHANICAL BUTTON

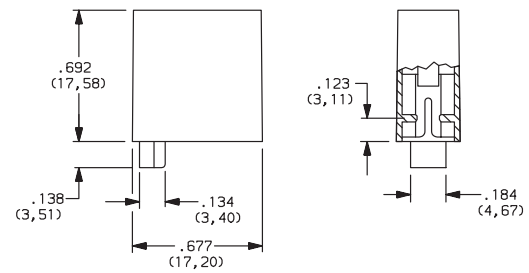


STYLE

F01 FA100



F02 FA101



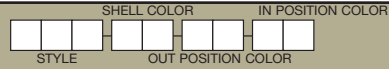
Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NE-18 Series Mains / Power Switches

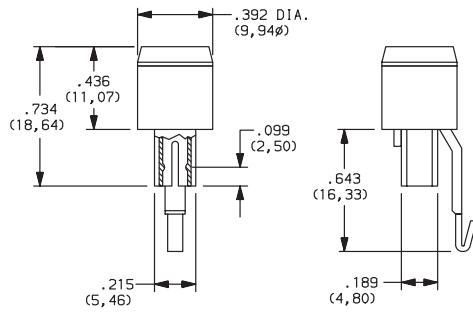
MECHANICAL BUTTON



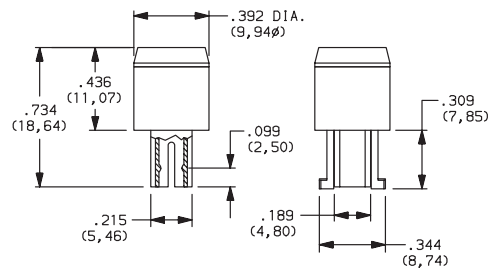
Pushbutton
A

STYLE

F08 FA201



F11 FA200



SHELL COLOR

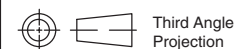
01 BLACK

OUT POSITION COLOR

01 BLACK

IN POSITION COLOR

OPTION CODE	COLOR
02	WHITE
06	YELLOW
07	BLUE
08	GREEN
12	ORANGE



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

FP Series Sealed Ultra Miniature Pushbutton Switches



A

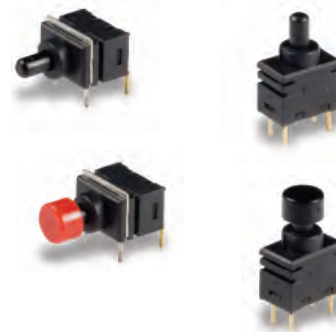
Pushbutton

Features/Benefits

- Vertical and right angle mount
- Extended operating life 50,000 cycles
- Optional caps
- Sealed against soldering and cleaning processes
- RoHS compliant

Typical Applications

- Networking equipment
- Modems
- Reset functions
- Instrumentation



Specifications

CONTACT RATING: Max. 0.4 VA (28 V DC or V AC).
 ELECTRICAL LIFE: 50,000 cycles.
 CONTACT RESISTANCE: (10mA @ 2 V DC) 80 mΩ max. initial.
 INSULATION RESISTANCE: 500MΩ min. @ 500 V DC - 1 minute.
 OPERATING TEMPERATURE: -20°C to 80°C.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9.
 PACKAGING:
 Tray pack - 100 switches per tray.
 Caps (optional) - Bulk bag; 100 caps per bag.

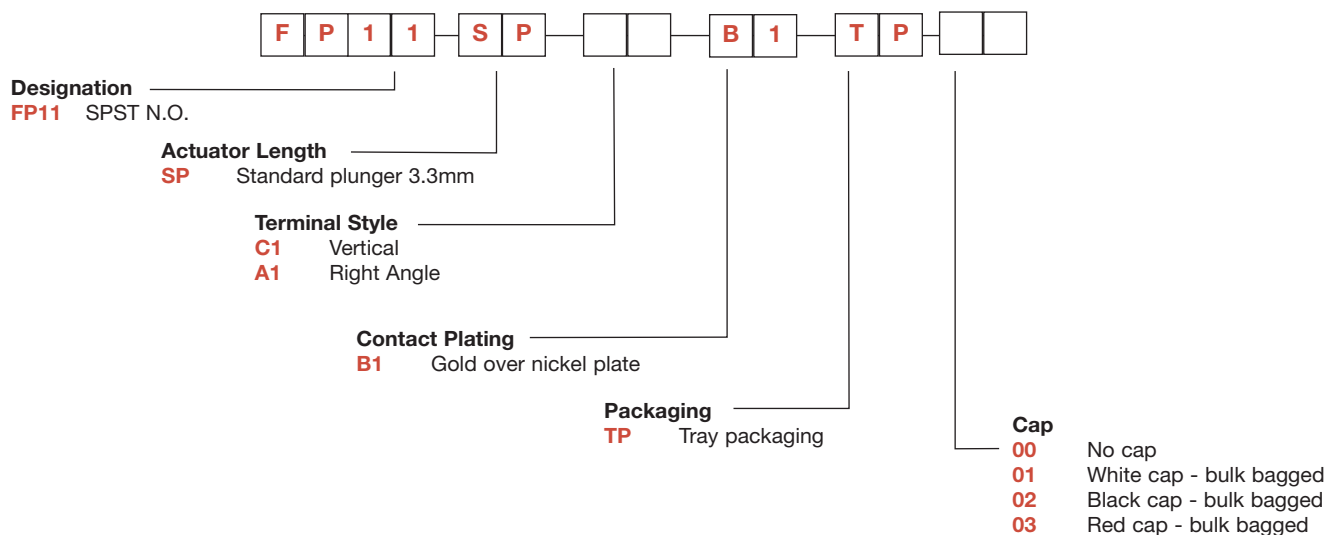
Materials

MOVABLE CONTACTS:
 Base metal: Phosphor bronze
 Plating: Gold over nickel plate
 FIXED CONTACTS:
 Base metal: Brass
 Plating: Gold over nickel plate
 COVER: PA66 - Black
 ACTUATOR: PPS - Black
 BASE: PPS - Black
 SUPPORT BRACKET (A1 Terminal Style only): Steel with tin plate

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-106 thru A-107. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

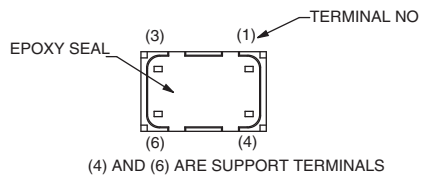
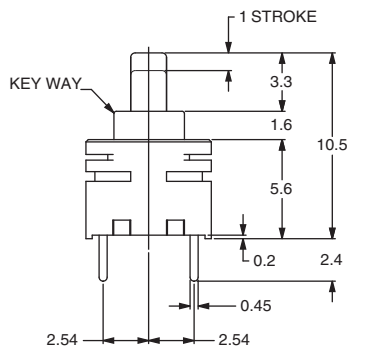
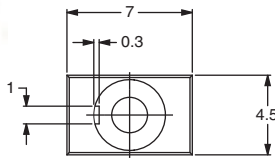


FP Series Sealed Ultra Miniature Pushbutton Switches

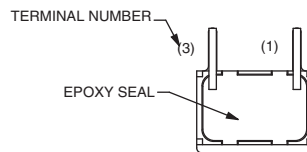
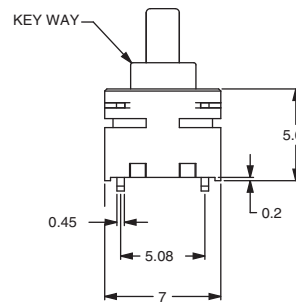
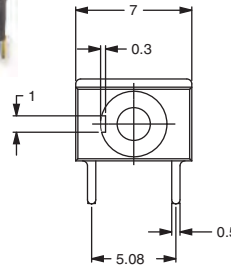
SWITCH FUNCTION

Pushbutton
A

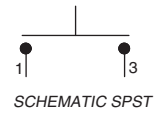
C1 VERTICAL



A1 RIGHT ANGLE

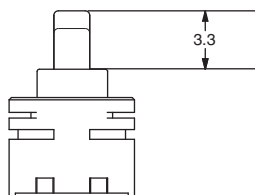


MODEL NO.	SWITCH FUNCTION	
	POS. 1	POS. 2
FP11		
	CONNECTED TERMINALS	
	OPEN	1-3



ACTUATOR LENGTH

SP STANDARD PLUNGER 3.3MM



Dimensions are shown: mm
Specifications and dimensions subject to change

FP Series Sealed Ultra Miniature Pushbutton Switches

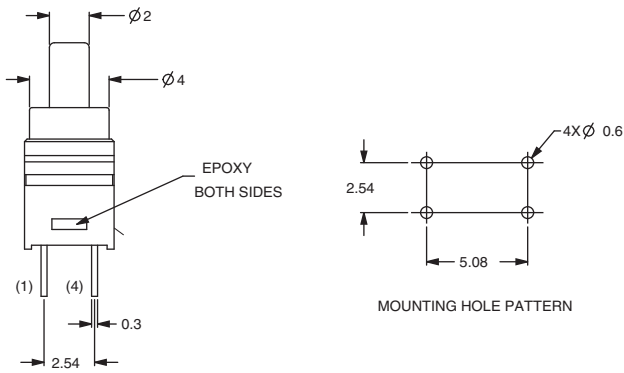


A

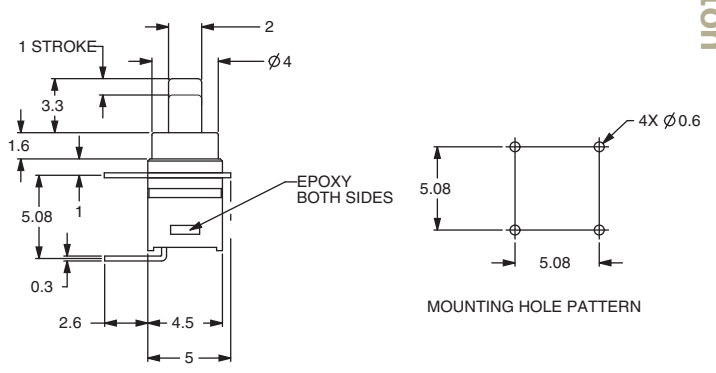
Pushbutton

TERMINAL STYLE

C1 VERTICAL



A1 RIGHT ANGLE



CONTACT PLATING

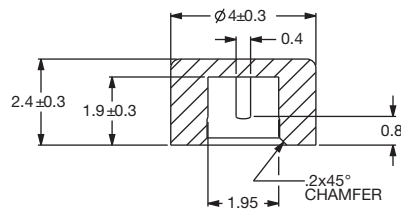
B1 GOLD OVER NICKEL PLATE

PACKAGING

TP TRAY PACKAGING

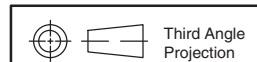
CAPS

OPTION CODE	DESCRIPTION
00	NO CAP
01	WHITE CAP, BULK BAGGED
02	BLACK CAP, BULK BAGGED
03	RED CAP, BULK BAGGED



To purchase Caps separately without switch,
please use these part numbers

PART #	COLOR
798D01000	WHITE
798D02000	BLACK
798D03000	RED



Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com



Pushbutton
A

AP Series Industrial Pushbutton Switch

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination / non-illumination
- Multiple colored caps
- Threaded or snap-in mounting
- Caps available separately
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
 CONTACT ARRANGEMENT: N.O.
 MOUNTING TYPE:
 Snap-in (no panel seal)
 Threaded body (hex nut, lock washer, and panel seal gasket provided)
 Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
 TOTAL TRAVEL: 2.1 ± 0.2 mm
 OPERATING POINT 1.55 ± 0.25 mm
 OVER TRAVEL: 0.6 min.
 OPERATING FORCE: 4N ± 1N standard configuration; other force option 2N ± 0.5N
 VIBRATION: 10-500 Hz 10g Max
 SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
 200mA @ 24 V DC resistive (500,000 cycles)
 100mA @ 50 V DC resistive (500,000 cycles)
 400mA @ 32 V AC resistive (500,000 cycles)
 125mA @ 125 V AC resistive (1,000,000 cycles)
 DIELECTRIC STRENGTH: 1000 V AC min.
 INSULATION RESISTANCE: 1 G Ω @ 500 VDC
 INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads)
 BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
 BASE: PBT
 CAP: PBT
 ACTUATOR:
 Illuminated: Clear polycarbonate
 Non-illuminated: PBT
 INTERNAL SEAL: Silicone rubber
 TERMINALS: Copper alloy, gold over silver plating
 MOVABLE CONTACT: Copper alloy, gold over silver plating
 TERMINAL SEAL: Epoxy
 WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C (+105°C non-illuminated)
 ESD PROTECTION: 20 KV min.

Process Environment

SEALING: IP67 for threaded body
 IP65 for snap-in version (no panel seal)

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Designation

AP AP Series

Operating Force

2 2 Newtons
4 4 Newtons

Actuator Style

D Dome / Convex
C Concave
E Extended Dome
N None

Actuator Color

0 No Cap
2 Black
3 Red
4 Orange
5 Yellow
6 Green
7 Blue
9 Gray

Illumination

00 No LED*
01 Super White
02 Bi-color; Red (Green)
03 Red
05 Amber
06 Green
07 Super Blue
08 Bi-color; Amber (Green)

Please contact Customer Service for additional colors and paint / laser etched button options.

Terminal Seal

E Epoxy
 All models are epoxy sealed

Contact Material

B Gold

Termination

Z Solder Lug
W 12" Wire Leads 22 AWG
C*** PC Terminals

Bushing Style**

S** Snap-in plastic
T Threaded plastic

** No panel seal option

*** PC terminals not available with illumination

Contact Customer Service for additional hardware options.

* No LED available in short body only



Specifications and dimensions subject to change

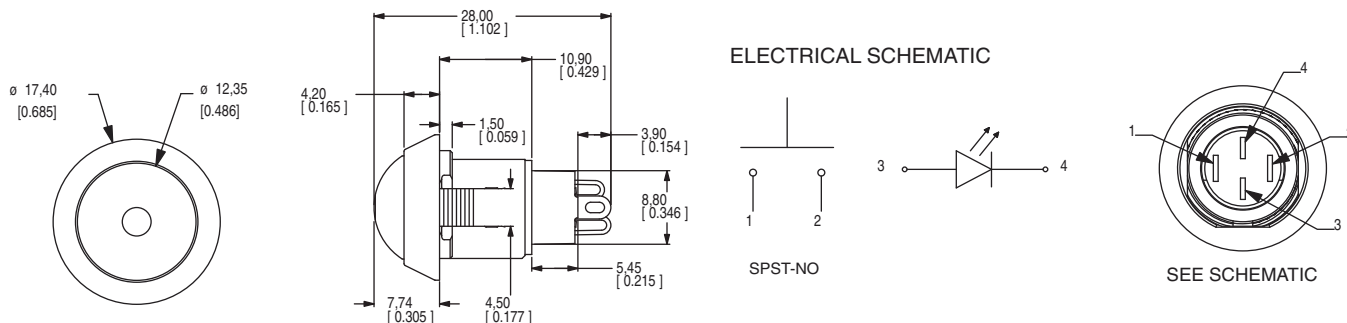
AP Series Industrial Pushbutton Switch



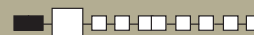
A

Pushbutton

STANDARD VIEW

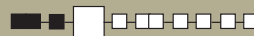


OPERATING FORCE

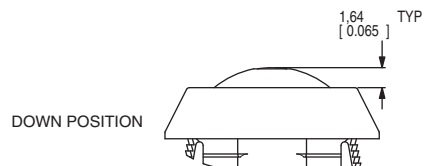
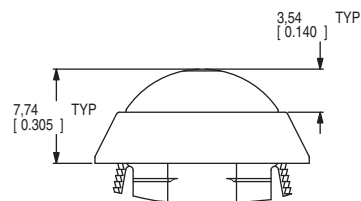


OPTION CODE	OPERATING FORCE
2	2 N, 200 g
4	4 N, 400 g

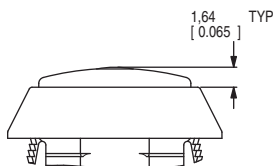
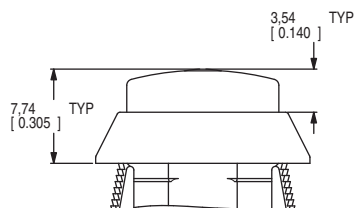
ACTUATOR STYLE



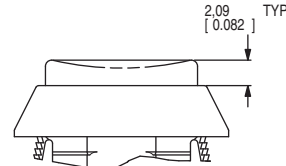
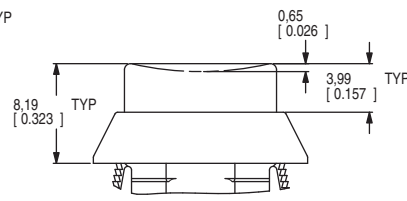
D DOME / CONVEX



E EXTENDED DOME



C CONCAVE

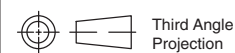


ACTUATOR COLOR



OPTION CODE	ACTUATOR COLOR
0	No Cap
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

For additional colors please contact Customer Service.



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change



AP Series Industrial Pushbutton Switch

Pushbutton
A

ILLUMINATION

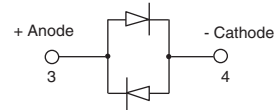


OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY*		PEAK WAVELENGTH	Vf Forward Voltage
		MIN	MAX		
		(mcd)		(nm)	
00	Model without illumination	N/A		N/A	
01	LED Super White	4,000	5,000	N/A	3.5
02	LED Bi-Color – Red (Green)	10	20	635/565	2.0
03	LED Red	4	8	700	2.0
05	LED Amber	35	50	610	2.0
06	LED Green	35	50	565	2.0
07	LED Super Blue	800	1,500	470	3.8
08	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA
LED FORWARD VOLTAGE: see chart above
LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.

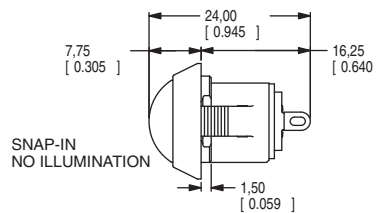
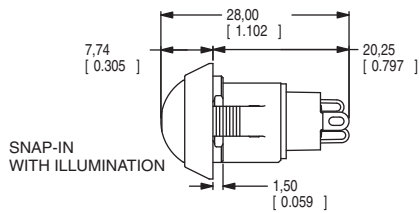
NOTE:
For bi-color LED's the polarity must be reversed to alternate the color



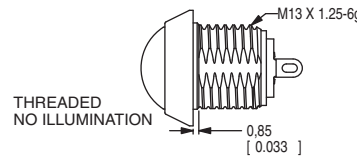
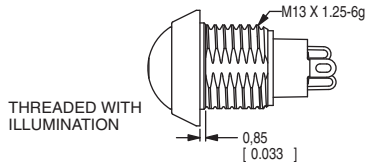
BUSHING STYLE



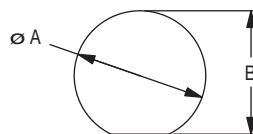
S SNAP-IN



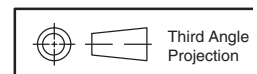
T THREADED PLASTIC



PANEL CUTOUT



PANEL THICKNESS	DIM A (± 0.05 mm)	DIM B (± 0.05 mm)
1 mm [0.039 in]	13.70 mm [0.539 in]	13.00 mm [0.512 in]
2 mm [0.079 in]	13.80 mm [0.539 in]	13.00 mm [0.512 in]
3 mm [0.118 in]	13.90 mm [0.547 in]	13.10 mm [0.516 in]
THREADED BODY MIN PANEL THICKNESS 1 mm	13.70 mm [0.539 in]	13.00 mm [0.512 in]



A 0.1mm min. chamfer on the leading edge of the mounting hole is recommended for snap-in version.

Dimensions are shown: mm (inches)
Specifications and dimensions subject to change

AP Series Industrial Pushbutton Switch



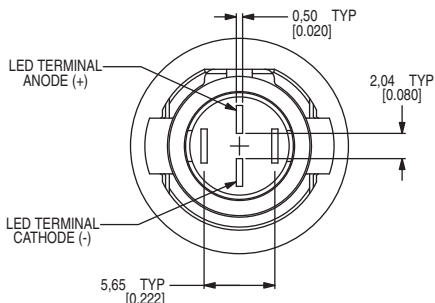
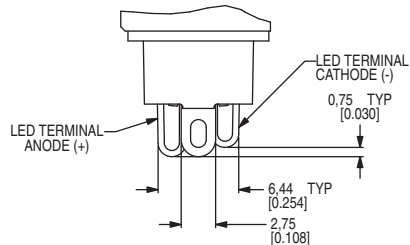
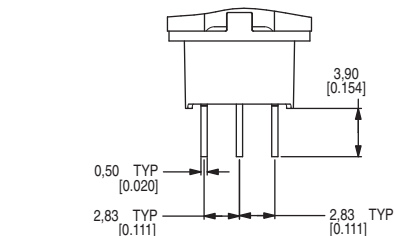
A

Pushbutton

TERMINATION



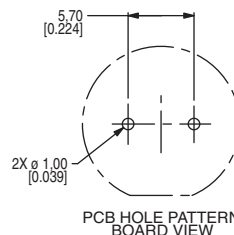
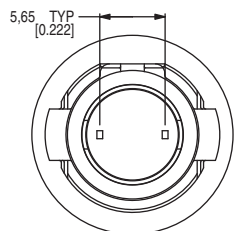
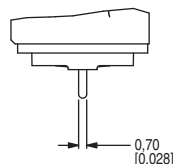
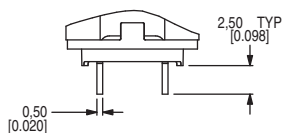
Z SOLDER LUG



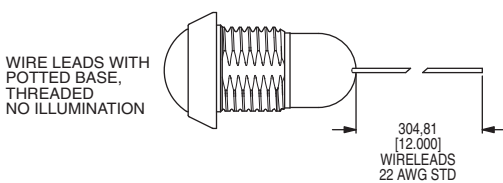
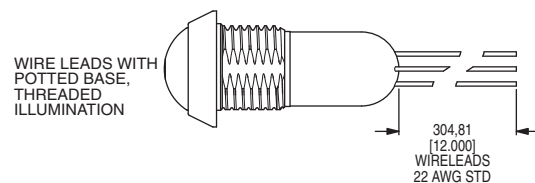
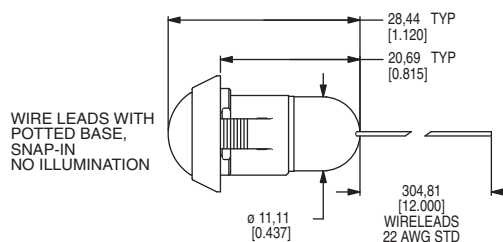
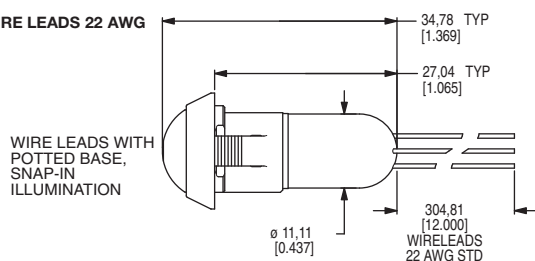
* Switching terminals are gold and LED terminals are silver

C PC TERMINALS

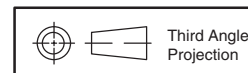
*** Illumination not available with PC Terminals



W 12" WIRE LEADS 22 AWG



Wires: Black wires - Terminals
Red wires - LED (+) Positive
White wire - LED (-) Negative



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change

www.ck-components.com



AP Series Industrial Pushbutton Switch

A

Pushbutton

CONTACT MATERIAL



B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL



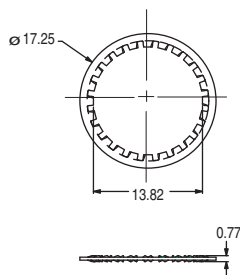
E EPOXY

All models are epoxy sealed

HARDWARE

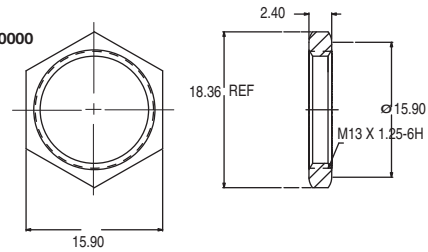
LOCK WASHER

Part Number 647D00000



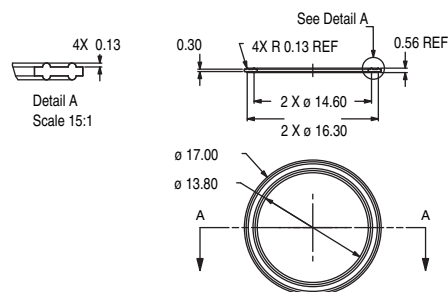
HEX NUT

Part number 515D00000

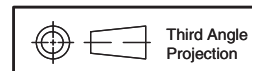


PANEL SEAL

Part Number 655D00000



Caps available on next page



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change



AVAILABLE CAPS



481D XX XXX

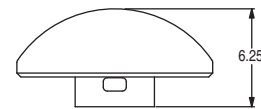
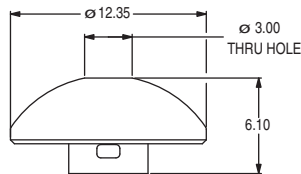
Cap Color
Style

OPTION	CAP COLOR
01	WHITE
02	BLACK
03	RED
04	ORANGE
05	YELLOW
06	GREEN
07	BLUE
08	BROWN
09	GRAY

PART NUMBER	HOLE	STYLE
481DXX000	NO	DOME
481DXX001	YES	DOME
481DXX002	NO	EXTENDED DOME
481DXX003	YES	EXTENDED DOME
481DXX004	NO	CONCAVE
481DXX005	YES	CONCAVE

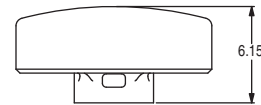
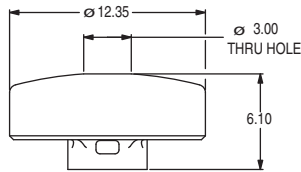
DOME

481DXX000 = NO HOLE
481DXX001 = HOLE



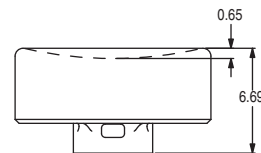
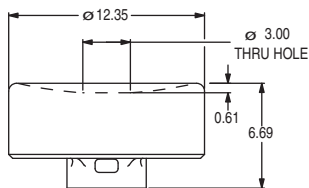
EXTENDED DOME

481DXX002 = NO HOLE
481DXX003 = HOLE



CONCAVE

481DXX004 = NO HOLE
481DXX005 = HOLE





APB Series Backlit Pushbutton Switch

Pushbutton
A

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination
- Threaded or snap-in mounting
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
 CONTACT ARRANGEMENT: N.O.
 MOUNTING TYPE:
 Snap-in (no panel seal)
 Threaded body (hex nut, lock washer, and panel seal gasket provided)
 Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
 TOTAL TRAVEL: 2.1 ± 0.2 mm
 OPERATING POINT 1.55 ± 0.25 mm
 OVER TRAVEL: 0.6 min.
 OPERATING FORCE: 4N ± 1N standard configuration; other force
 option 2N ± 0.5N
 VIBRATION: 10-500 Hz 10g Max
 SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
 200mA @ 24 V DC resistive (500,000 cycles)
 100mA @ 50 V DC resistive (500,000 cycles)
 400mA @ 32 V AC resistive (500,000 cycles)
 125mA @ 125 V AC resistive (1,000,000 cycles)
 DIELECTRIC STRENGTH: 1000 V AC min.
 INSULATION RESISTANCE: 1 G Ω @ 500 VDC
 INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads)
 BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
 BASE: PBT
 CAP: Painted polycarbonate
 ACTUATOR:
 Illuminated: Clear polycarbonate
 INTERNAL SEAL: Silicone rubber
 TERMINALS: Copper alloy, gold over silver plating
 MOVABLE CONTACT: Copper alloy, gold over silver plating
 TERMINAL SEAL: Epoxy
 WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C
 ESD PROTECTION: 20 KV min.

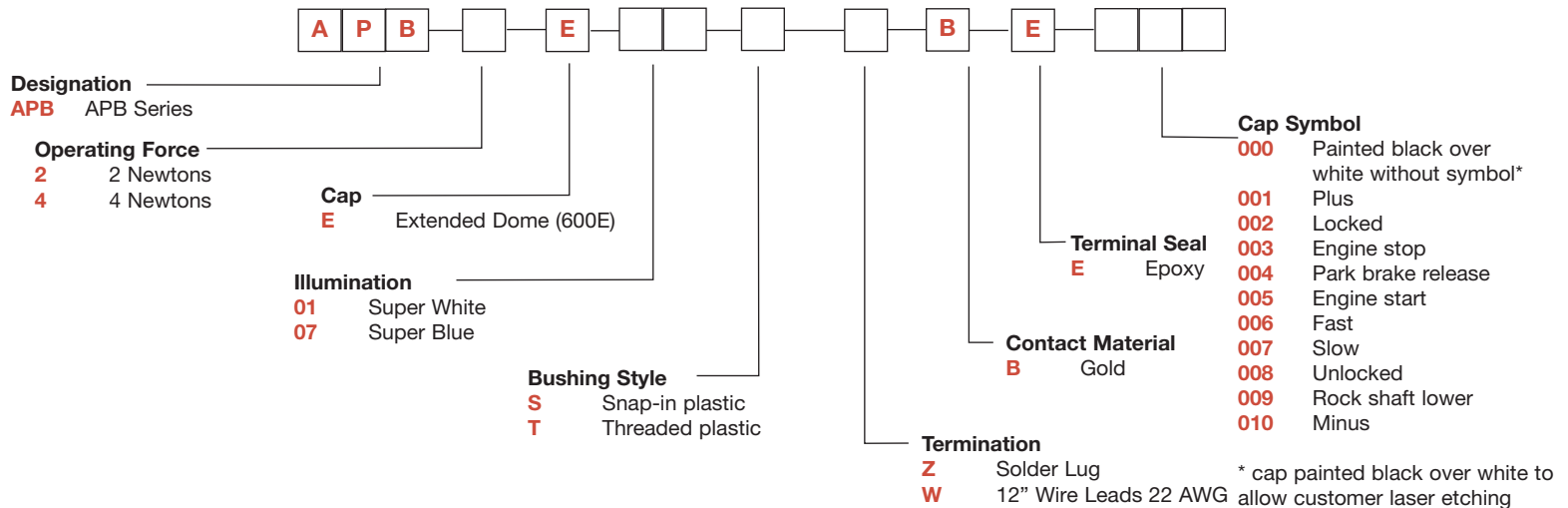
Process Environment

SEALING: IP67 for threaded body
 IP65 for snap-in version (no panel seal)

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

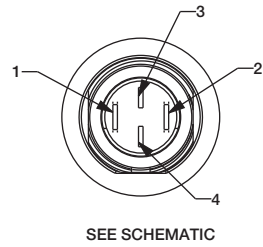
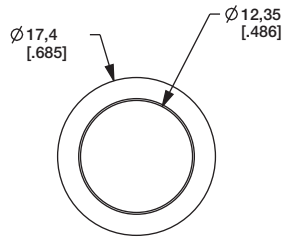
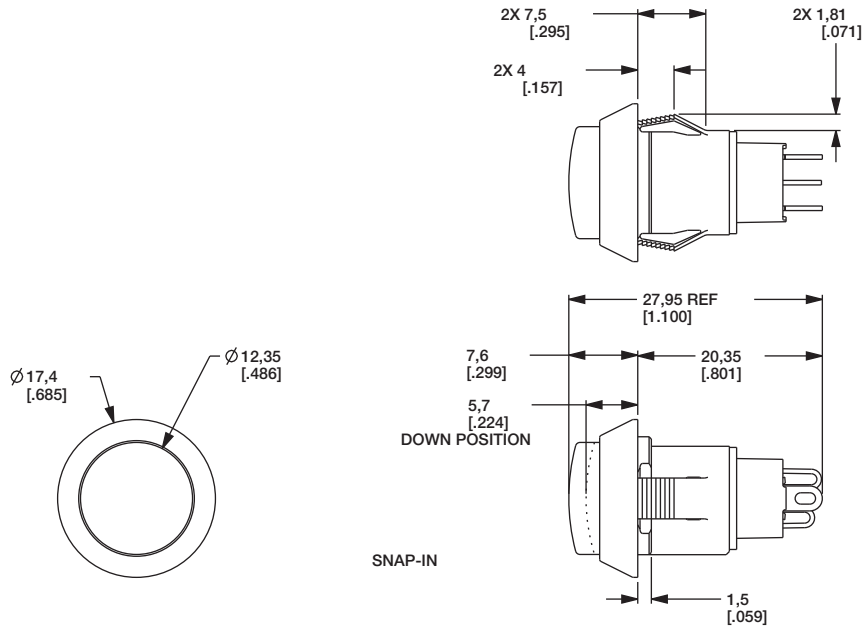


APB Series Backlit Pushbutton Switch

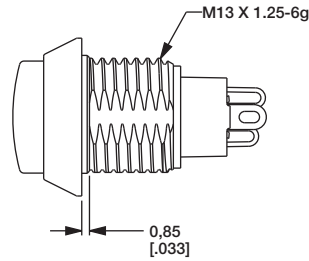


A

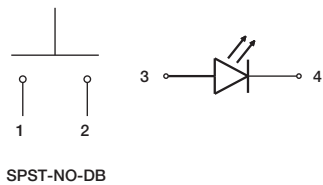
Pushbutton



THREADED

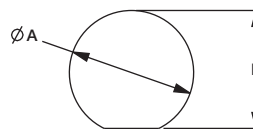


ELECTRICAL SCHEMATIC



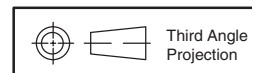
SPST-NO-DB

PANEL CUTOUT



PANEL THICKNESS	DIM A (±0.05 MM)	DIM B (±0.05 MM)
1 MM [0.039 IN]	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]
2 MM [0.079 IN]	13.80 MM [0.539 IN]	13.00 MM [0.512 IN]
3 MM [0.118 IN]	13.90 MM [0.547 IN]	13.10 MM [0.516 IN]
THREADED BODY MIN PANEL THICKNESS 1 MM	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]

A 0.1 MM MIN CHAMFER ON THE LEADING EDGE OF MOUNTING HOLE IS RECOMMENDED FOR SNAP-IN VERSION.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



12 Oct 16

A-115

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APB Series Backlit Pushbutton Switch

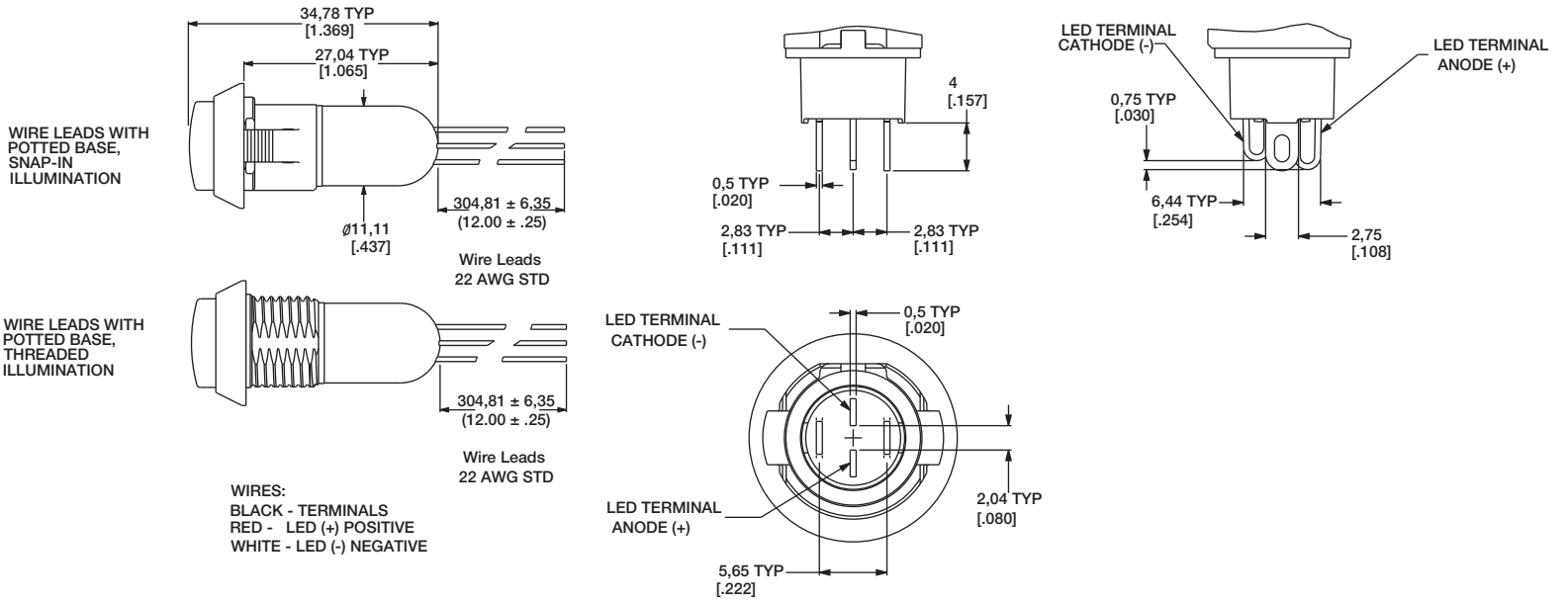
TERMINATION

Pushbutton

A

W 12" WIRE LEADS

Z SOLDER LUG



CONTACT MATERIAL

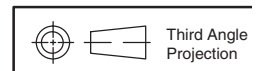
B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL

E EPOXY

All models are epoxy sealed



12 Oct 16

A-116

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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APB Series Backlit Pushbutton Switch



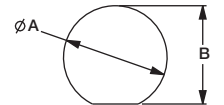
A

CAP SYMBOLS

	-000		NO SYMBOL
	-001		PLUS
	-002		LOCKED
	-003		ENGINE STOP
	-004		PARK BRAKE RELEASE
	-005		ENGINE START

	-006		FAST
	-007		SLOW
	-008		UNLOCKED
	-009		ROCK SHAFT LOWER
	-010		MINUS

PANEL CUTOUT



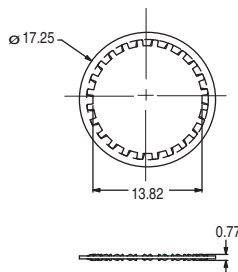
Panel Orientation
Flat indicates bottom

See chart on previous page
for dimensions

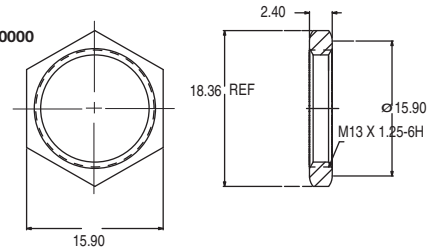
NOTES:
1. ALL GRAPHICS MUST BE POSITIONED AS SHOWN, PERPENDICULAR TO ALIGNMENT FEATURE ON UNDERSIDE OF CAP.
2. GRAPHIC MARKING MUST BE ALIGNED WITH THE FLAT FEATURE ON THE UNDERSIDE OF THE CAP AS SHOWN, TOLERANCE $\pm 3^\circ$

HARDWARE

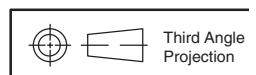
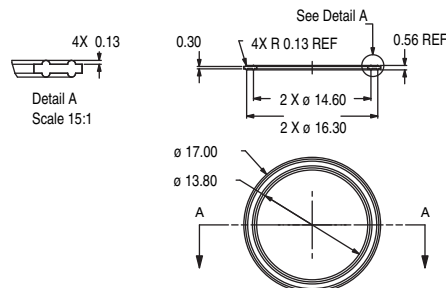
LOCK WASHER
Part Number 647D00000



HEX NUT
Part number 515D00000



PANEL SEAL
Part Number 655D00000



12 Oct 16

A-117

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



HP Series Hall Effect Pushbutton Switch

Pushbutton
A

Features/Benefits

- IP68 sealed
- 10,000,000 life cycle
- Multiple colored caps
- Redundant output available

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: Linear output (See chart on next page)
MOUNTING TYPE: Front mount, Rear mount

Mechanical

MECHANICAL TRAVEL: 0.150 (3.81mm)
SHOCK: 60g 11ms sawtooth wave
VIBRATION: 10-500Hz 10g max.

Electrical

SUPPLY VOLTAGE: 5 ± 0.5 VDC
SUPPLY CURRENT: 10mA max.
OUTPUT CURRENT: 1mA max.
OUTPUT VOLTAGE: Programable from 0.5 -4.5V
ESD PROTECTION: 16kV per EIA-545

Materials

CASE / BUSHING: Anodized Aluminum
INSIDE HOUSING: PBT
CAP: PBT
ACTUATOR: PBT

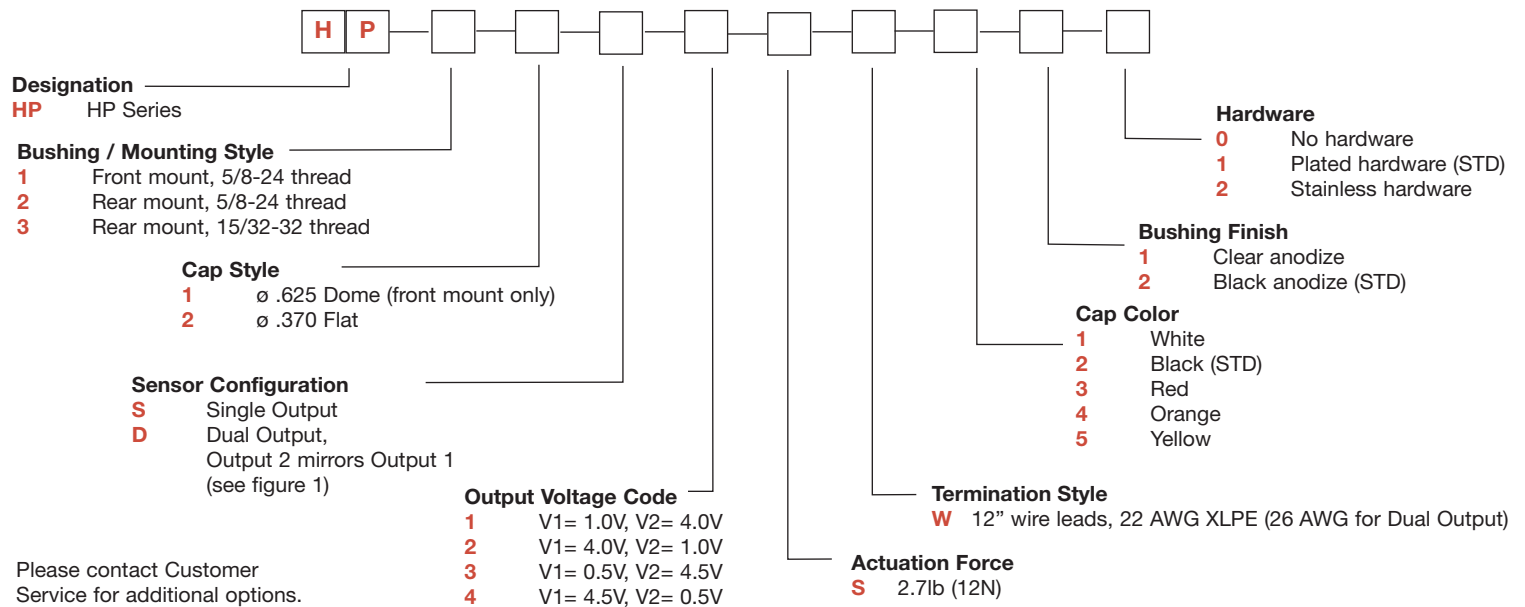
Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C
OPERATING LIFE: 10,000,000 cycles
SEALING: IP68S

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Specifications and dimensions subject to change

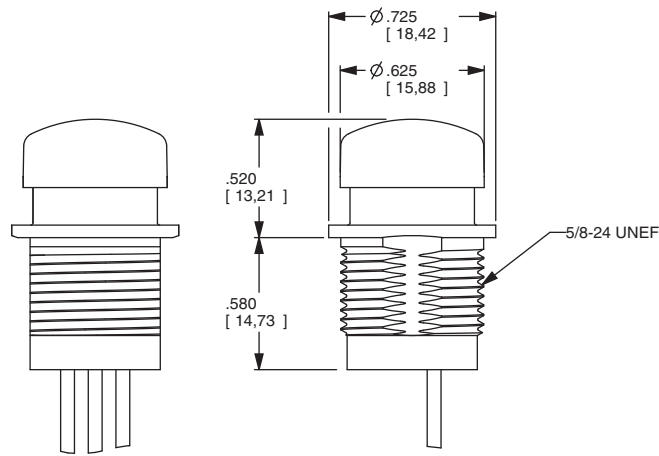
HP Series Hall Effect Pushbutton Switch



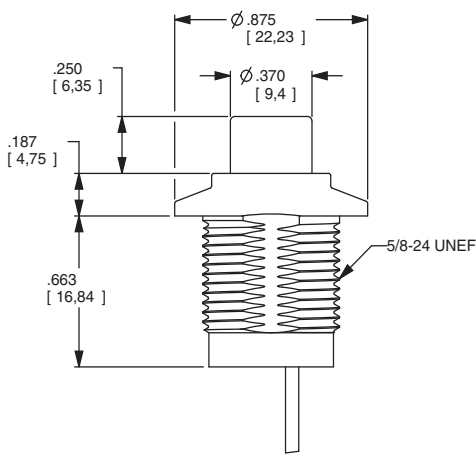
A

Pushbutton

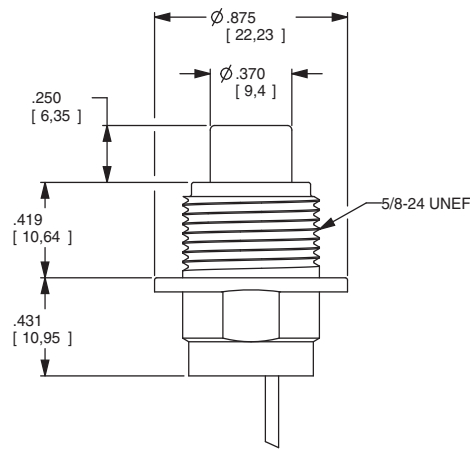
STANDARD VIEW



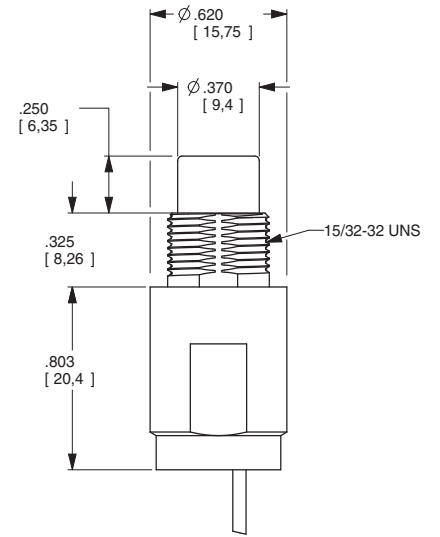
HP11



HP12



HP22



HP32

FIGURE 1: OUTPUT VOLTAGE

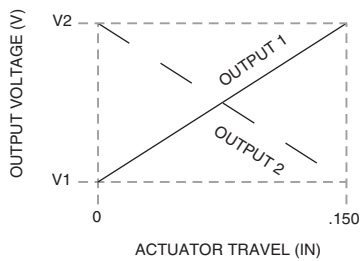
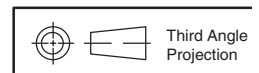
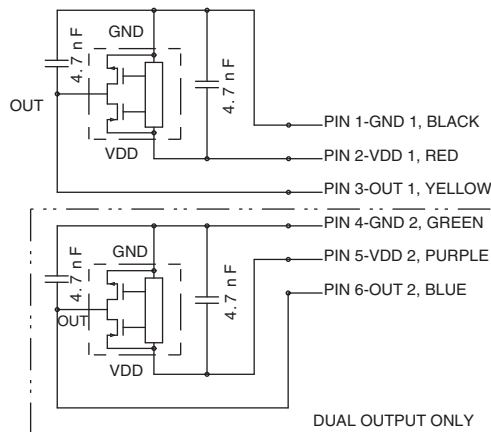


FIGURE 2- SCHEMATIC



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NP Series Sealed Industrial Pushbutton Switch

Pushbutton
A

Features/Benefits

- IP68 sealed
- 1,000,000 life cycle
- Multiple housing styles
- Capable of up to 5A resistive load
- Wirelead options available
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Transportation
- Military



Specifications

FUNCTION: SPDT Double Break (Form Z) Momentary
CONTACT ARRANGEMENT: N.O. and N.C.
MOUNTING TYPE: Threaded front or rear mount and slot mount
TORQUE SPEC FOR THREADED BODY: Do not exceed 50 in-lbs (5.65 N-m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 1.6 ± 0.15 mm
OPERATING POINT 0.9 ± 0.25 mm
OVER TRAVEL: 0.45 min.
OPERATING FORCE: 8N ± 1.5N
VIBRATION: 10-500 Hz 10g Max
SHOCK: 50g 11ms sawtooth wave

Electrical

CONTACT RATING:
Option G - Gold over Silver
10mA/5 VDC (1,000,000 cycles)
Option Q - Silver
1A/32 VDC resistive (100,000 cycles)
5A/32 VDC resistive (25,000 cycles)
3A/32 VDC resistive (25,000 cycles)

Electrical (cont.)

DIELECTRIC STRENGTH: 1000 V AC for 1 min.
INSULATION RESISTANCE: 1 G Ω @ 500 VDC
INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: 6061-T6 Aluminum, black or clear anodized
BASE: PBT
CAP: PBT
ACTUATOR: PBT
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper with silver nickel inlay, silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy

Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C
ESD PROTECTION: 15KV min.

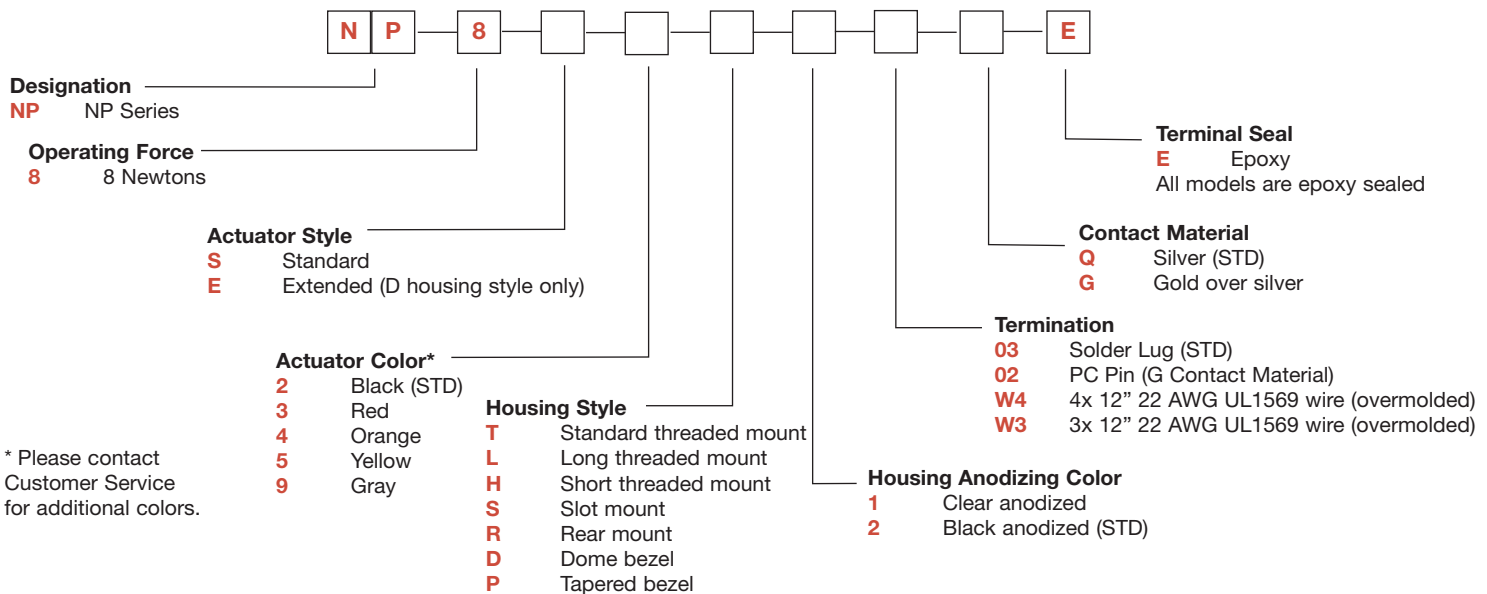
Process Environment

SEALING: IP68

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Specifications and dimensions subject to change

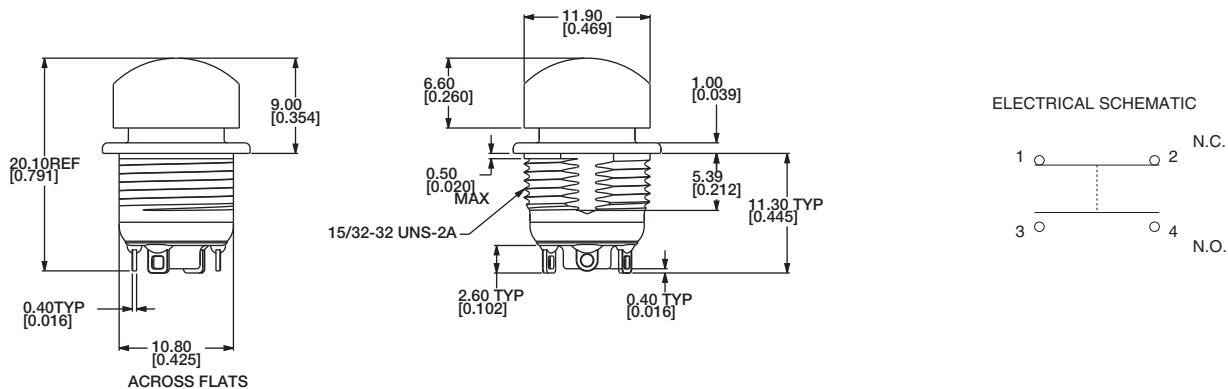
NP Series Sealed Industrial Pushbutton Switch



A

Pushbutton

STANDARD VIEW



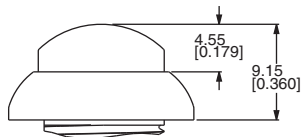
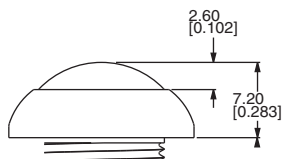
OPERATING FORCE

OPTION CODE	OPERATING FORCE
8	8 N

ACTUATOR STYLE

S STANDARD

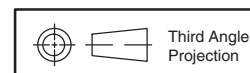
E EXTENDED (D HOUSING STYLE ONLY)



ACTUATOR COLOR

OPTION CODE	ACTUATOR COLOR
2	Black
3	Red
4	Orange
5	Yellow
9	Gray

For additional colors please contact Customer Service.



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change



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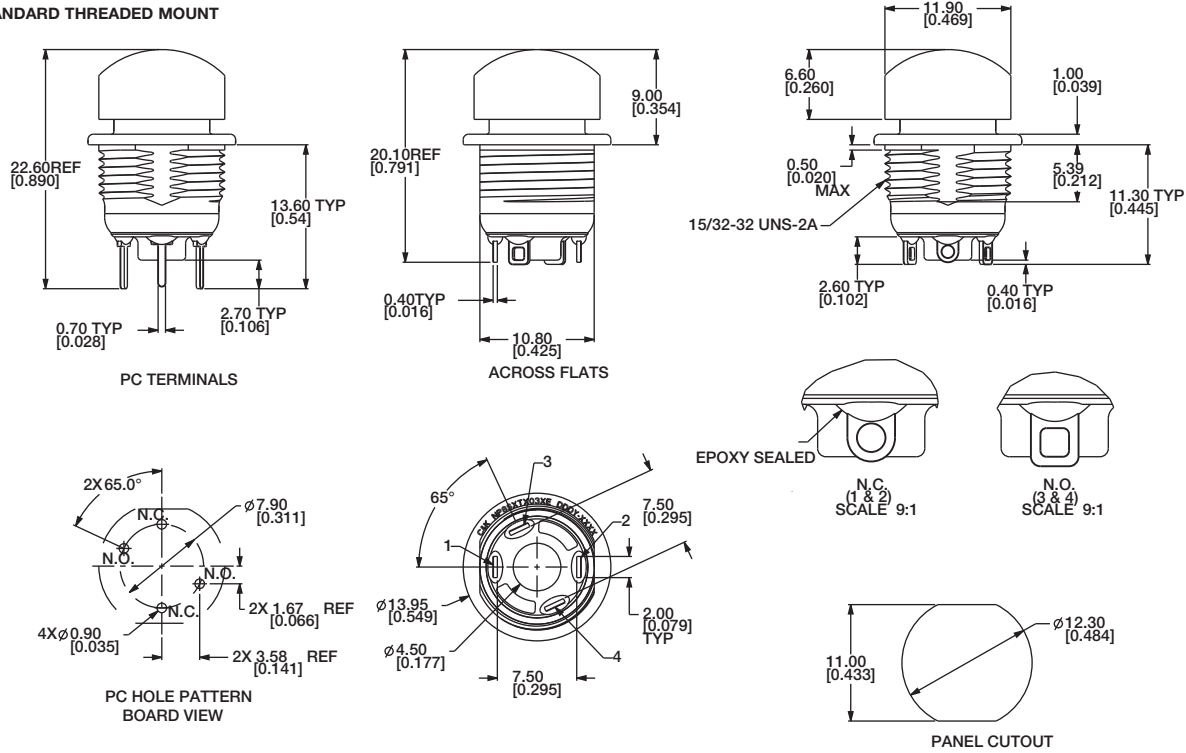


NP Series Sealed Industrial Pushbutton Switch

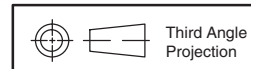
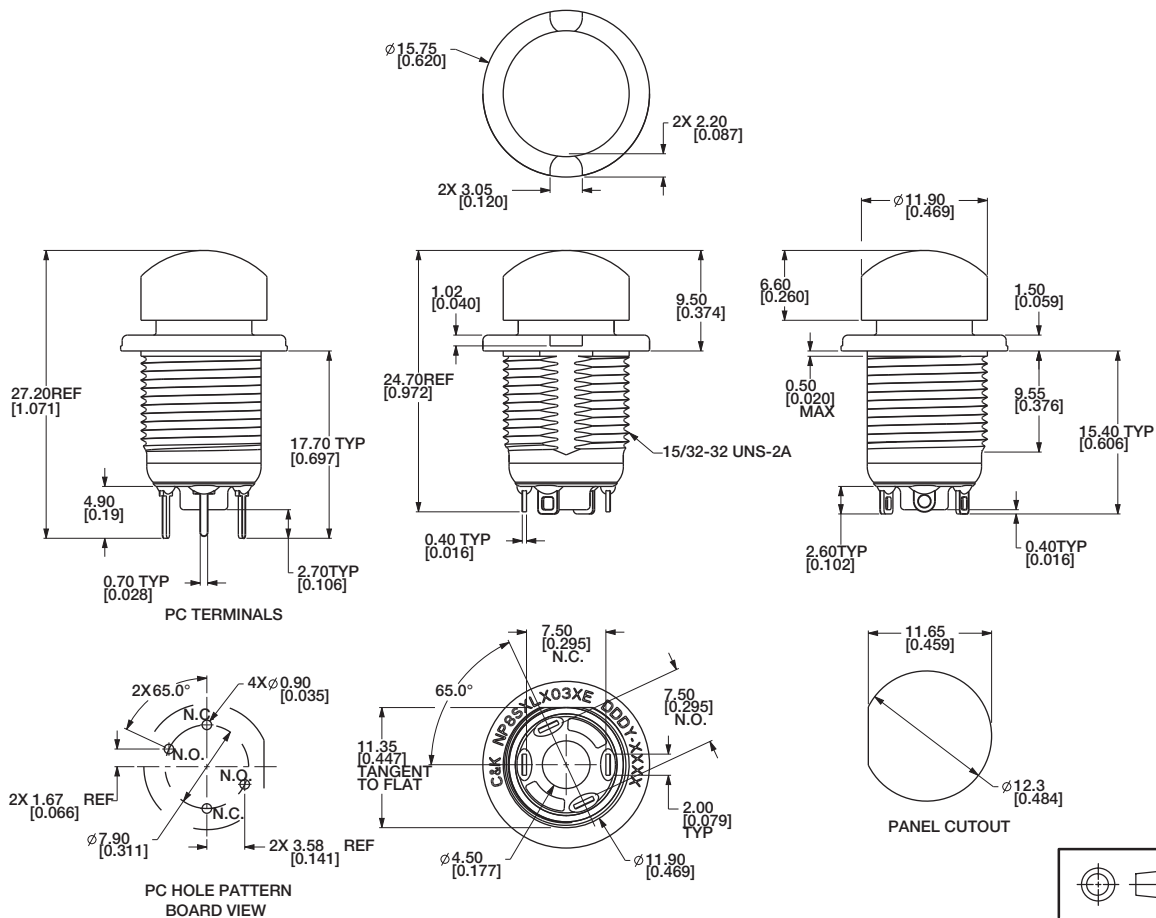
HOUSING STYLE

Pushbutton
A

T STANDARD THREADED MOUNT



L LONG THREADED MOUNT



Dimensions are shown: mm (inches)
 Specifications and dimensions subject to change

NP Series Sealed Industrial Pushbutton Switch

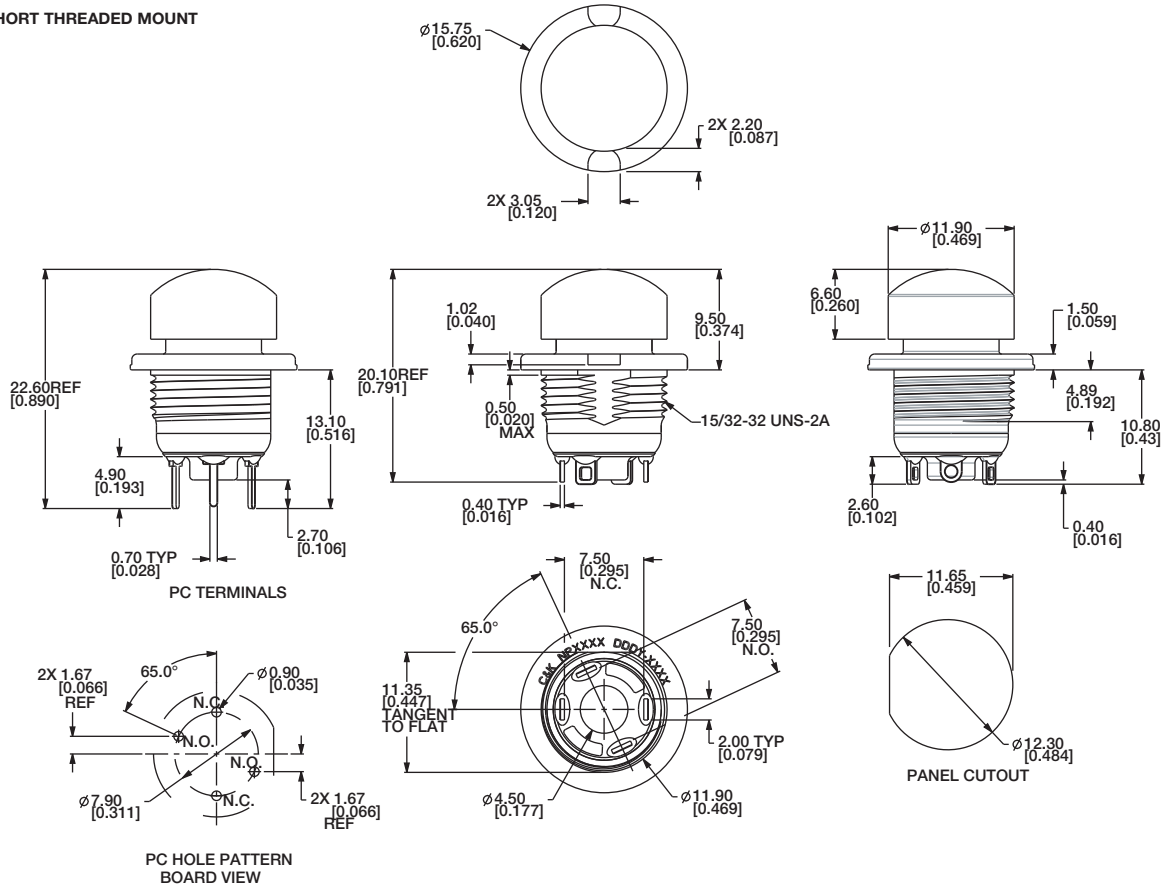


A

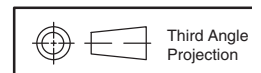
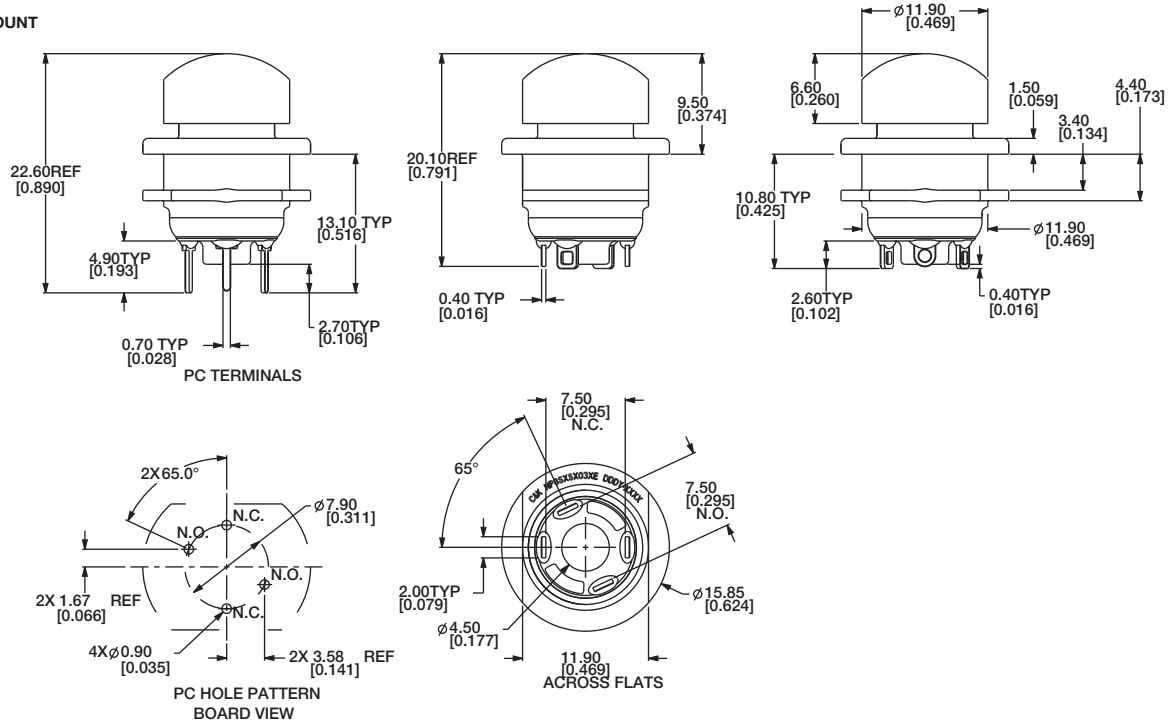
Pushbutton

HOUSING STYLE

H SHORT THREADED MOUNT



S SLOT MOUNT



Third Angle
Projection



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change



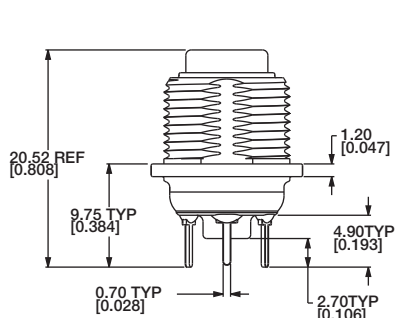
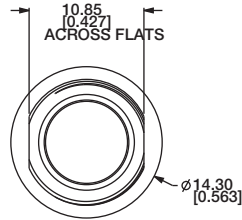
NP Series Sealed Industrial Pushbutton Switch

HOUSING STYLE

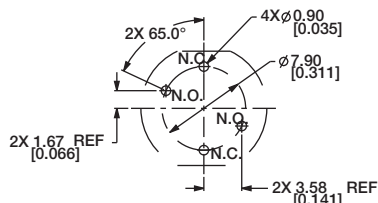
Pushbutton

A

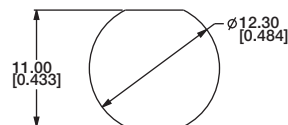
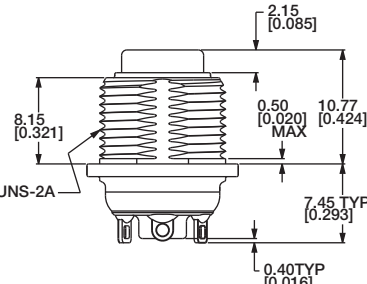
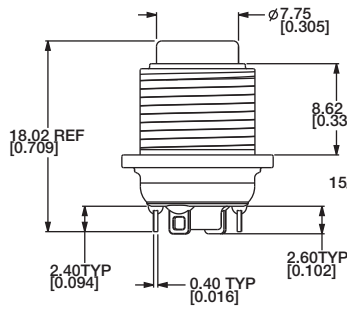
R REAR MOUNT



PC TERMINALS

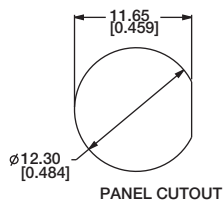


PC HOLE PATTERN
BOARD VIEW

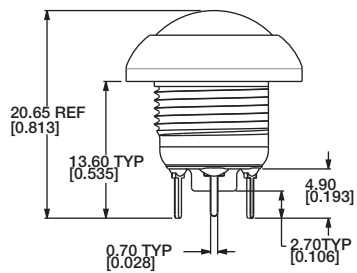
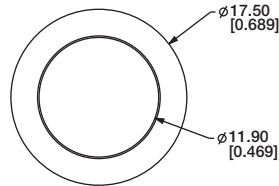


PANEL CUTOUT

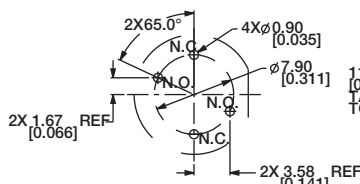
D DOME BEZEL



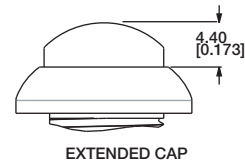
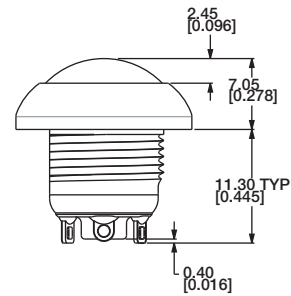
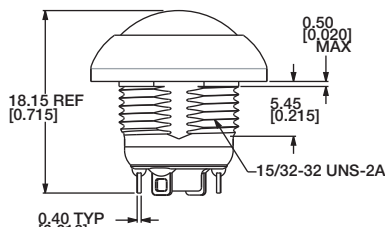
PANEL CUTOUT



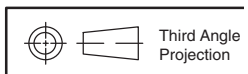
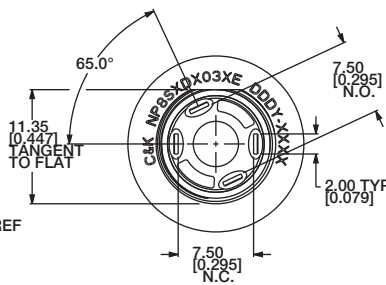
PC TERMINALS



PC HOLE PATTERN
BOARD VIEW



EXTENDED CAP



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



NP Series Sealed Industrial Pushbutton Switch

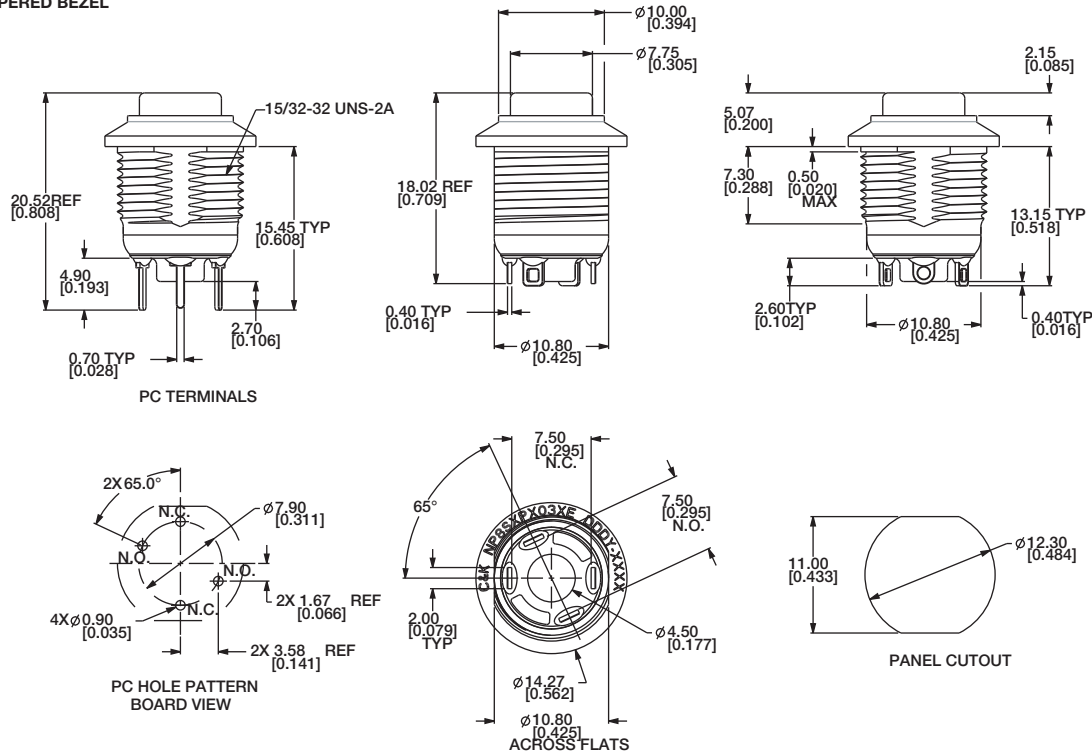


A

Pushbutton

HOUSING STYLE

P TAPERED BEZEL

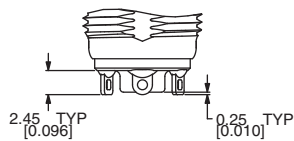


HOUSING ANODIZING COLOR

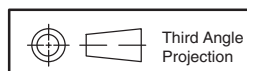
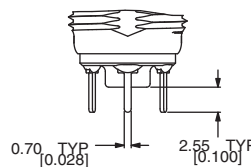
OPTION CODE	ANODIZING COLOR
1	Clear anodized
2	Black anodized (STD)

TERMINATION

03 SOLDER LUG (STD)



02 PC PIN (G CONTACT MATERIAL)



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

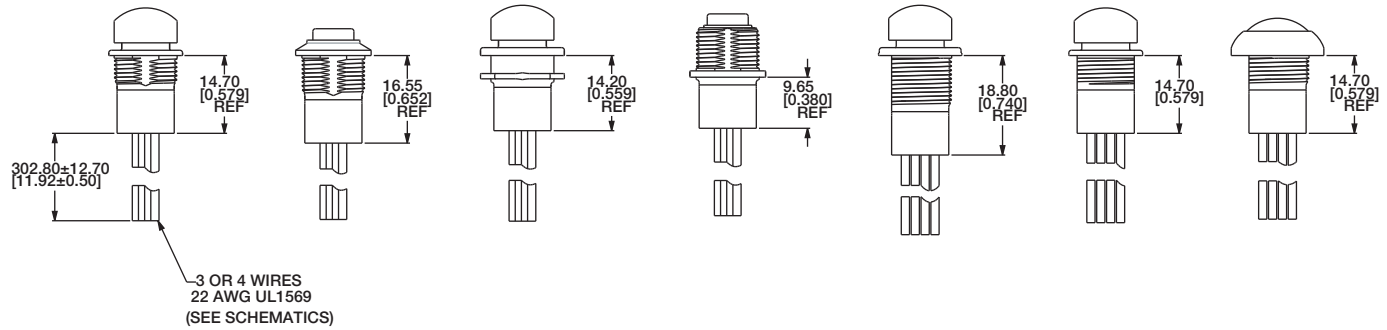


NP Series Sealed Industrial Pushbutton Switch

A

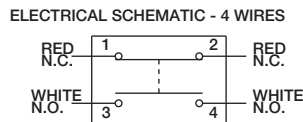
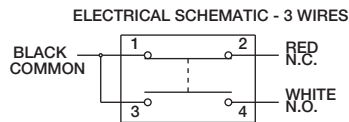
Pushbutton

TERMINATION



W3 3X 12" 22 AWG UL1569 WIRE (OVERMOLDED)

W4 4X 12" 22 AWG UL1569 WIRE (OVERMOLDED)



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
Q	Silver (STD)
G	Gold over Silver

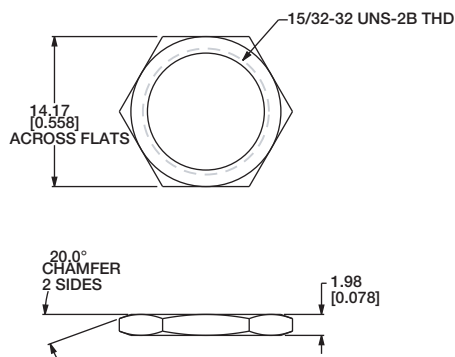
TERMINAL SEAL

E EPOXY

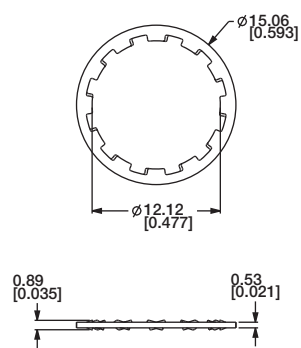
All models are epoxy sealed

HARDWARE

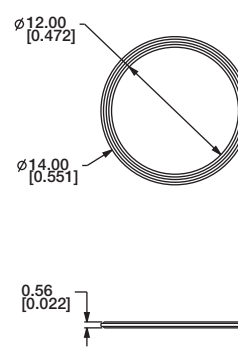
HEX NUT
707100201 Nickel-plated



LOCKWASHER
700302202

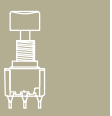


PANEL GASKET
851D02000



Dimensions are shown: mm (inches)
Specifications and dimensions subject to change

PBA Series Illuminated Pushbutton



A

Pushbutton

Features/Benefits

- Illuminated display
- Small size
- Cold lighting
- Tactile feed back

Typical Applications

- Avionics



Mechanical

ACTUATION FORCE: 5,5 N ± 0,5 N
 MAXIMUM FORCE: 80 N
 TRAVEL TO CONTACT: 1,2 ± 0,1 mm
 OVERTRAVEL: >0,3 mm
 TOTAL TRAVEL: 1,5 ± 0,1 mm
 LIFE EXPECTANCY: 10⁸ operations 28 V - 10 mA
 WEIGHT: 2 grams
 VIBRATION: ± 0,45mm from 33 Hz to 75 Hz
 ACCELERATION: 10 g max

Electrical

CONTACTS: Gold plated
 VOLTAGE: Max 100 V - Min 20 mV DC
 CARRYING CURRENT: Max 250 mA - Min 50 µA
 SWITCHING CURRENT: Max 50 mA - Min 50 µA
 MAX SWITCHING POWER: 1 W
 CONTACT RESISTANCE: < 50 Ω
 DIELECTRIC STRENGTH: 500 V rms
 INSULATION RESISTANCE (100 V): > 5000 M Ω
 BOUNCE: < 3 ms
 SWITCHING OF 2 POLES MATCHING: < 10 ms

Environmental Data

STORAGE TEMPERATURE: -55°C TO 85°C
 OPERATING TEMPERATURE: -30°C TO 85°C
 TEMPERATURE OF KEY TO CAP: < Ambient +25°C
 HUMIDITY TEST: 21 days (-40°C - 93% HR)
 ALTITUDE PRESSURE: From 20 hPa to 1070 hPa

Soldering Data

WAVE SOLDERING: 260°C / 5s
 MANUAL SOLDERING: 350°C / 2s
 SEALING: According to IP64

Plastic Material

Housing and Cap: UL-94 V0

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

Designation **PBA** PBA Series

Size

- 1 9,5 x 14
- 2 11,5 x 14
- 3 14 x 14

Marking Location

- H High
- M Middle
- L Low

Type of Marking

- T Text / Legend
- S Status Indicator

LED Color

- 0 White λ
- 1 Green λ 560 nm
- 2 Yellow Green λ 568 nm
- 3 Amber λ 590 nm
- 4 Red λ 660 nm
- 5 Other λ

LED Supply or Type

- AC Alternative
- DC Direct
- XX for each marking

1:6 LEDs in parallel for direct current

Display Type

		LED Non-Illuminated	LED Illuminated
N	Text Marking	White	LED Color
	Background	Black	Black
S	Text Marking	Not visible	LED Color
	Background	Black	Black
R	Text Marking	White	LED Color
	Background	Red	Red
G	Text Marking	Green	Green
	Background	Black	Black

Repeat sequence for 2nd Marking





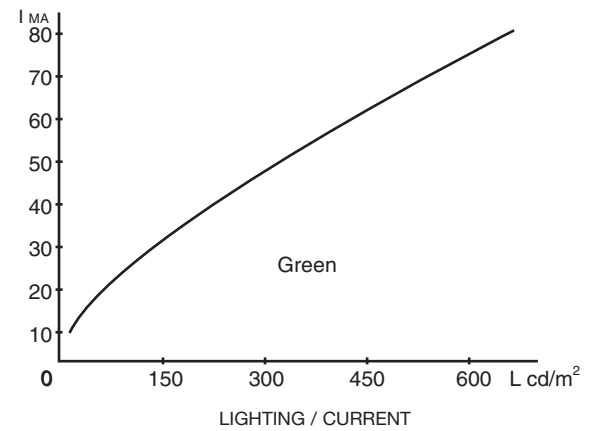
PBA Series Illuminated Pushbutton

A

Pushbutton

LIGHTING DATA

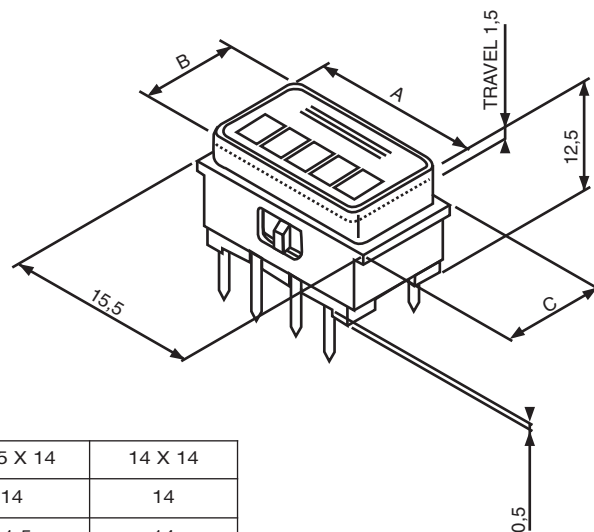
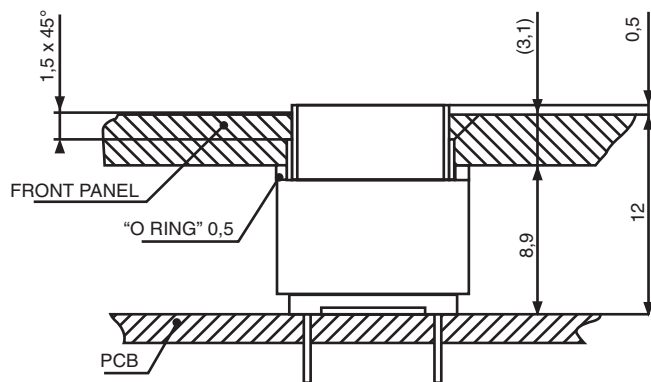
The legends of function and the status indicator can be illuminated separately.



Color	Amber	Green
Wave Length	586 < λ < 592	555 < λ < 560
Current Max	80 mA	80 mA
Chromaticity	X Y	0,54 < X < 0,58 0,40 < Y < 0,44
		0,30 < X < 0,40 0,6 < Y
Contrast Min.	1,2	0,85

For other colors and displays, please contact Customer Service.

DIMENSIONS (applicable for any size)



	9,5 X 14	11,5 X 14	14 X 14
A	14	14	14
B	9,5	11,5	14
C	11	11,5	15,5

Tolerance: $\pm 0,1$ mm



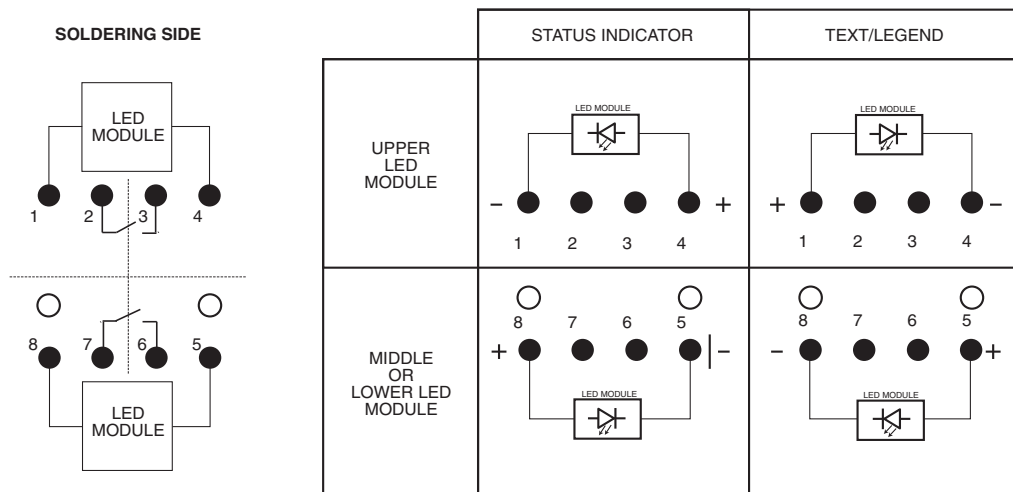
Dimensions are shown: mm
Specifications and dimensions subject to change

PBA Series Illuminated Pushbutton

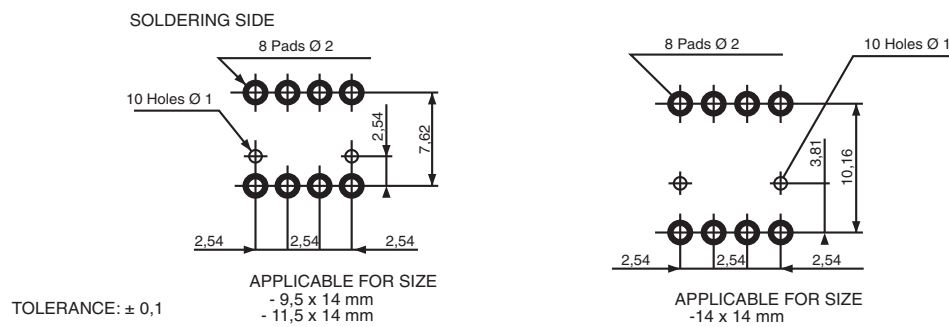


A Pushbutton
A Pushbutton

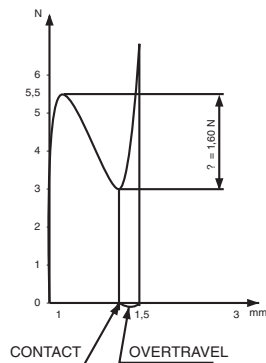
LED MODULE LAYOUT



PCB Layout



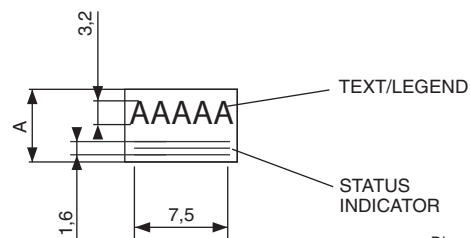
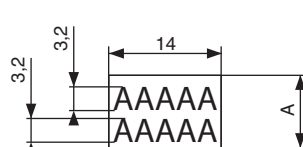
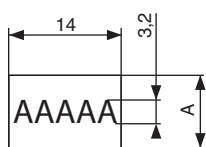
TACTILE EFFECT



- TRAVEL**
- TRAVEL TO CONTACT: 1,2 ± 0,1 mm
 - OVERTRAVEL: > 0,3 mm
 - TOTAL TRAVEL: 1,5 ± 0,1 mm

- FORCE**
- ACTUATOR FORCE: 5,5 N ± 0,5 N
 - TACTILE FEELING: 1,6 N

1 or 2 markings are available in any combination of text / legend or status indicator.



A = 9,5 or 11,5 or 14 mm

Dimensions are shown: mm
Specifications and dimensions subject to change



A

Pushbutton



*Dimensions are shown: mm
Specifications and dimensions subject to change*

PB Series Single Pole and Multi-Key Pushbutton Switches



A

Pushbutton

Features/Benefits

- Momentary or latching options
- Reliable contact design
- 2, 4, and 6 pole configurations
- Long travel and extended life cycles

Typical Applications

- Appliances
- Audio and visual equipment
- Consumer electronics
- Industrial equipment



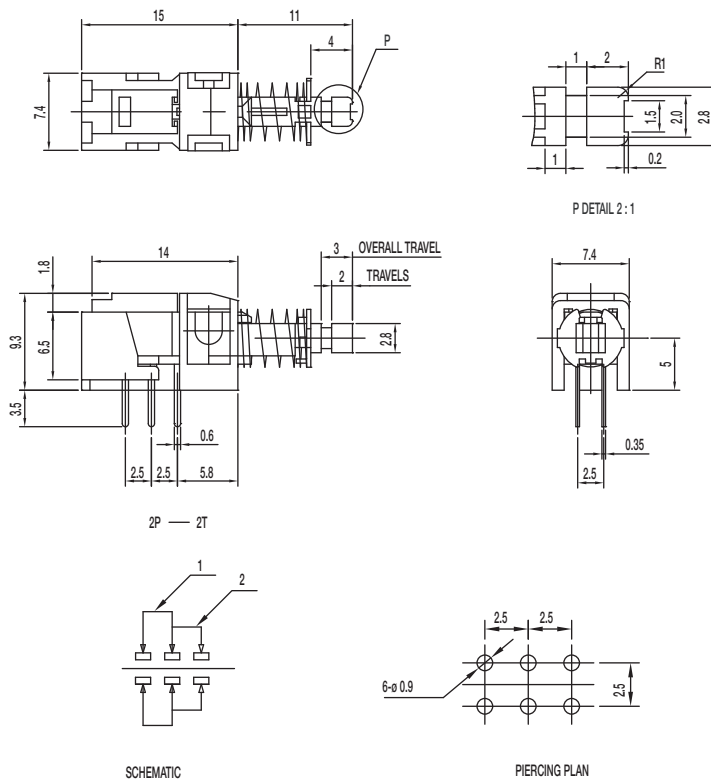
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 250 ± 100 gf (2.45 ± 0.98N)
 LOCK TRAVEL: 2 ± 0.3 mm
 TOTAL TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB-22D01-L 2PDT LOCK / LATCHING

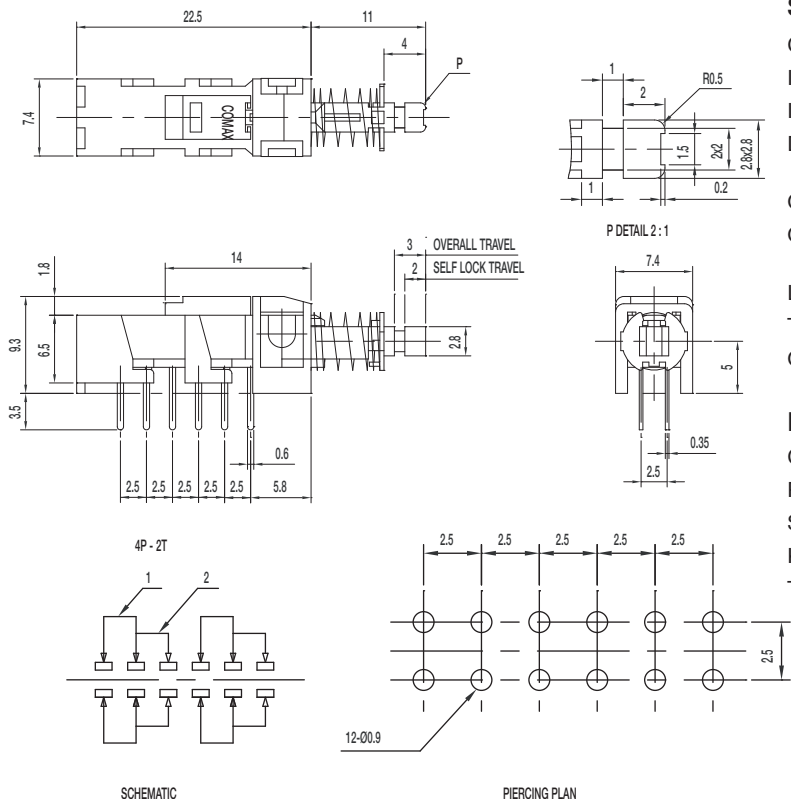


Dimensions are shown: mm
 Specifications and dimensions subject to change



PB Series Single Pole and Multi-Key Pushbutton Switches

PB-42D01-L 4PDT LOCK / LATCHING



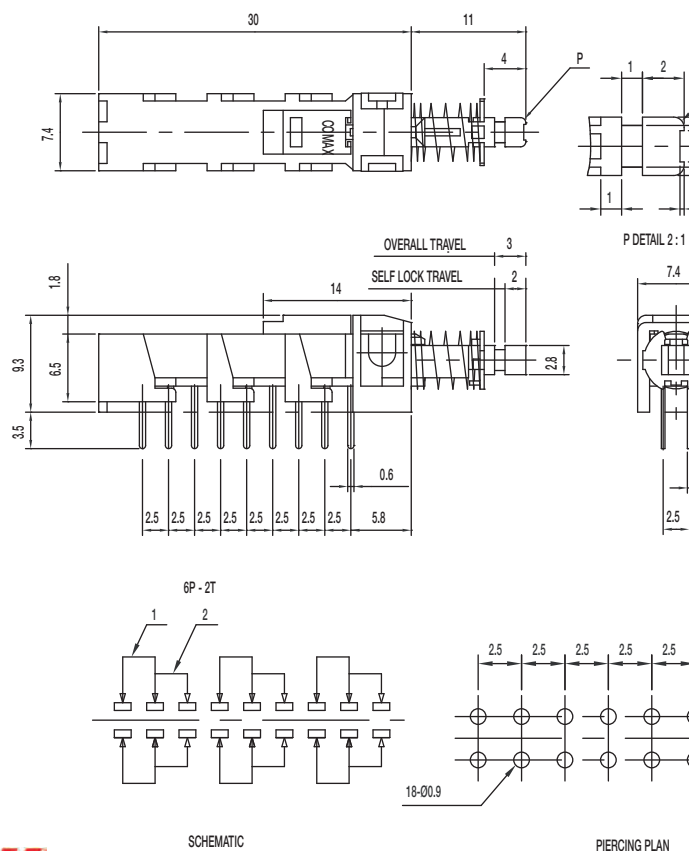
Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE: 280 ± 100 gf
- LOCK TRAVEL: 2 ± 0.3 mm
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated

PB-62D01-L 6PDT LOCK / LATCHING



Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
- LOCK TRAVEL: 2 ± 0.3 mm
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



Dimensions are shown: mm
Specifications and dimensions subject to change

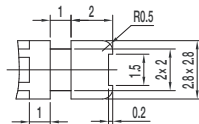
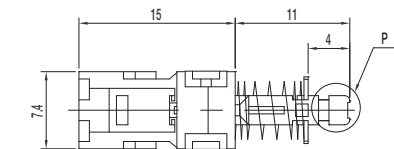
PB Series Single Pole and Multi-Key Pushbutton Switches



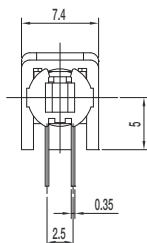
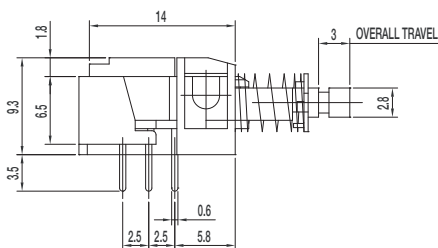
A

Pushbutton

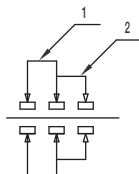
PB-22D01-F 2PDT NON-LOCK / MOMENTARY



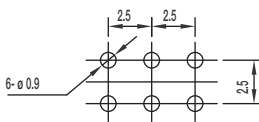
P DETAIL 2:1



2P — 2T



SCHEMATIC



PIERCING PLAN

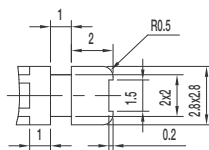
Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
250 ± 100 gf (2.45 ± 0.98N)
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

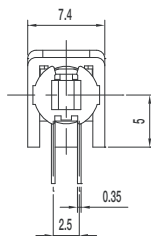
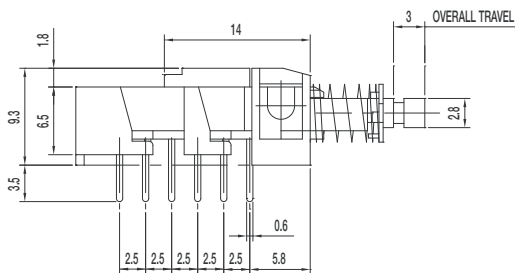
Materials

- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated

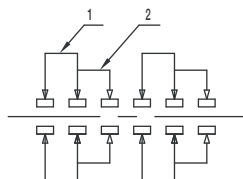
PB-42D01-F 4PDT NON-LOCK / MOMENTARY



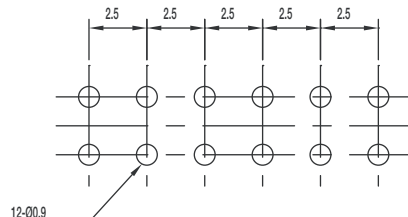
P DETAIL 2:1



4P - 2T



SCHEMATIC



PIERCING PLAN

Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
280 ± 100 gf (2.477 ± 0.98N)
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



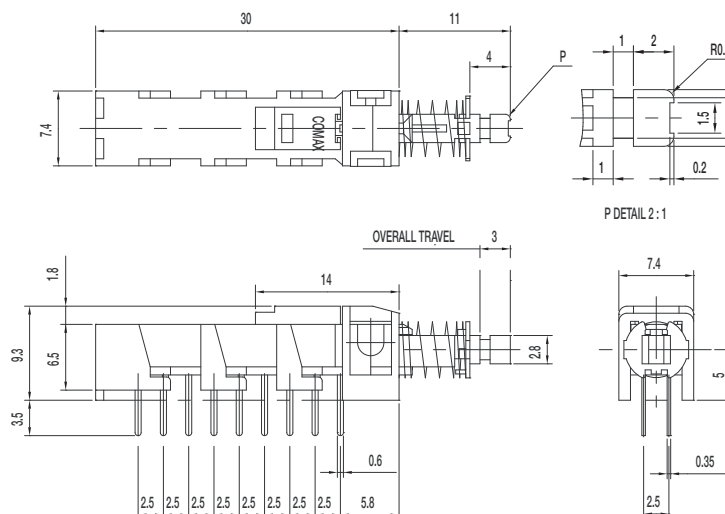
Dimensions are shown: mm
Specifications and dimensions subject to change



PB Series Single Pole and Multi-Key Pushbutton Switches

PB-62D01-F 6PDT NON-LOCK / MOMENTARY

Pushbutton
A

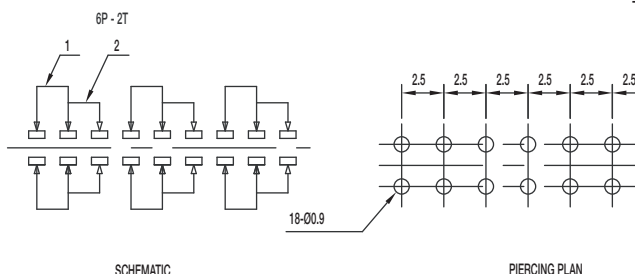


Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
300 ± 100 gf (2.94 ± 0.98N)
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

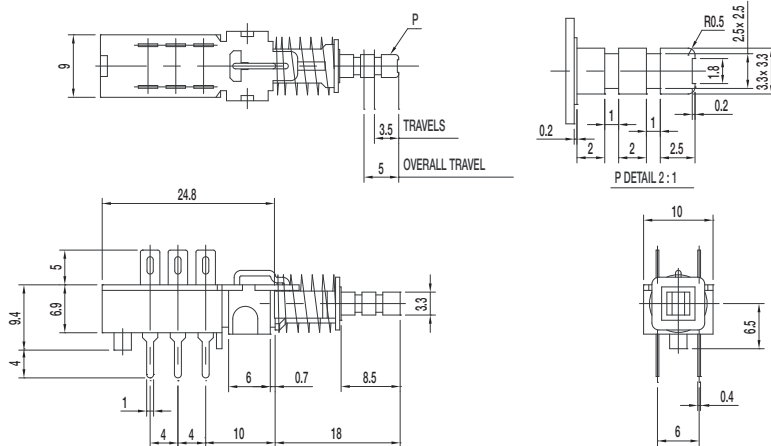
- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



SCHEMATIC

PIERCING PLAN

PB-22G02-L 2PDT LOCK / LATCHING

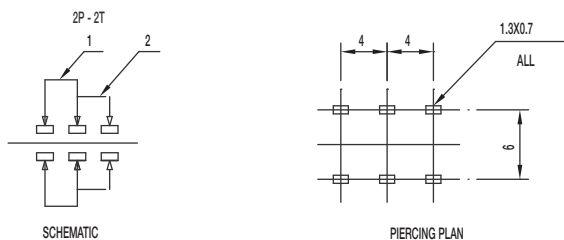


Specifications

- CONTACT RATING: 1A @ 25 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
350 ± 150 gf (3.43 ± 1.47N)
- LOCK TRAVEL: 3.5 ± 0.3mm
- TOTAL TRAVEL: 5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



SCHEMATIC

PIERCING PLAN



Dimensions are shown: mm
Specifications and dimensions subject to change

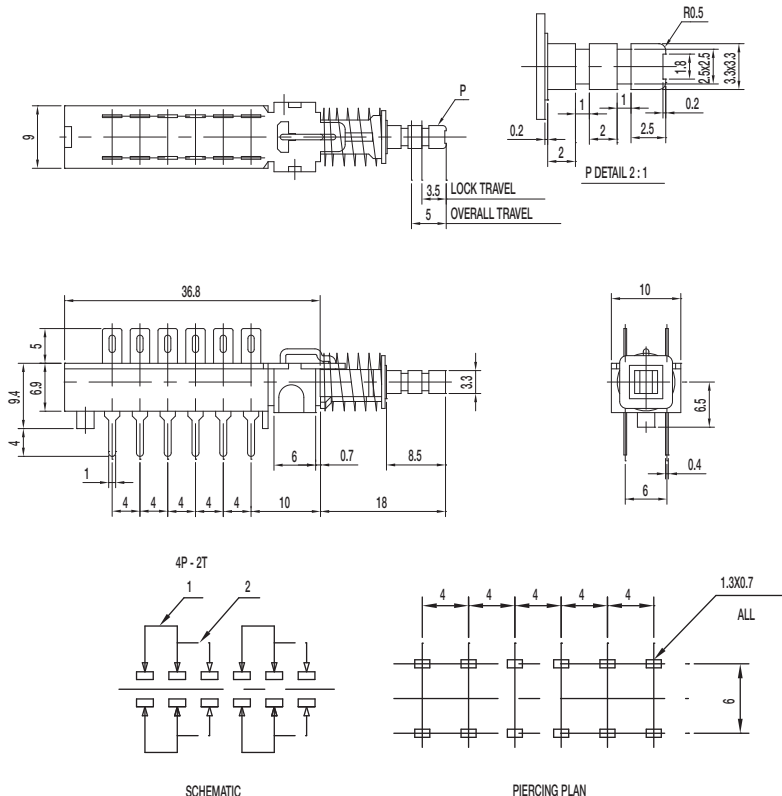
PB Series Single Pole and Multi-Key Pushbutton Switches



A

Pushbutton

PB-42G02-L 4PDT LOCK / LATCHING



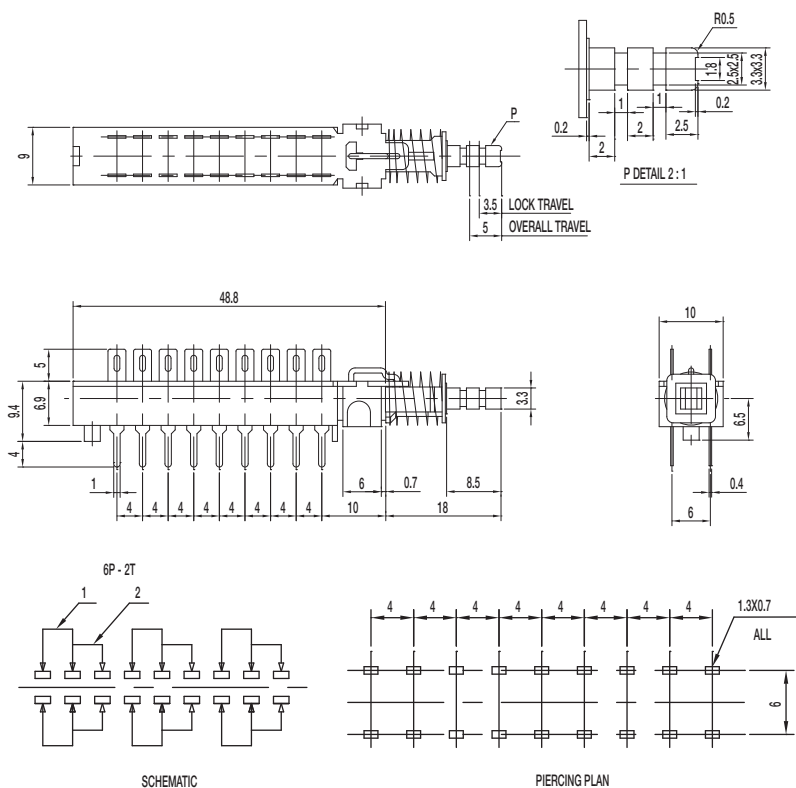
Specifications

- CONTACT RATING: 1A @ 25 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
400 ± 150 gf (3.92 ± 1.47N)
- LOCK TRAVEL: 3.5 ± 0.3mm
- TOTAL TRAVEL: 5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- HOUSING: PC (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated

PB-62G02-L DPDT LOCK / LATCHING



Specifications

- CONTACT RATING: 1A @ 25 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
450 ± 150 gf
- LOCK TRAVEL: 3.5 ± 0.3mm
- TOTAL TRAVEL: 5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- HOUSING: PC (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



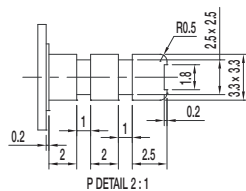
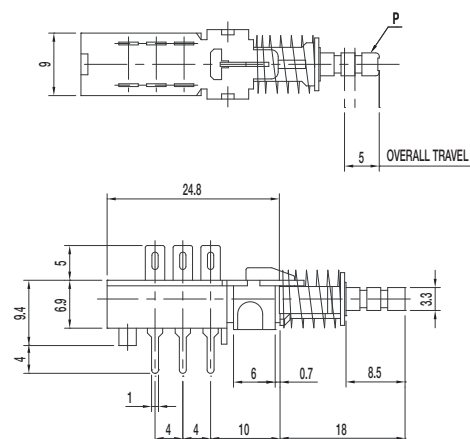
Dimensions are shown: mm
Specifications and dimensions subject to change



PB Series Single Pole and Multi-Key Pushbutton Switches

PB-22G02-F DPDT NON-LOCK / MOMENTARY

Pushbutton
A

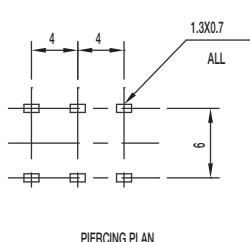
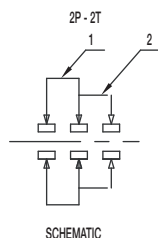


Specifications

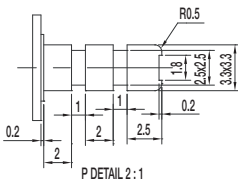
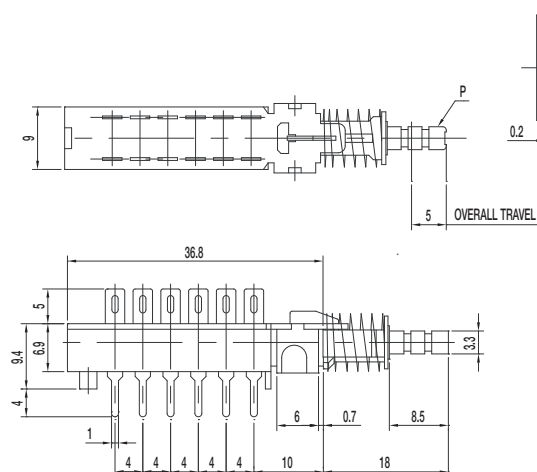
CONTACT RATING: 1A @ 25 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 350 ± 150 gf (3.43 ± 1.47 N)
 TOTAL TRAVEL: 5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated



PB-42G02-F 4PDT NON-LOCK / MOMENTARY

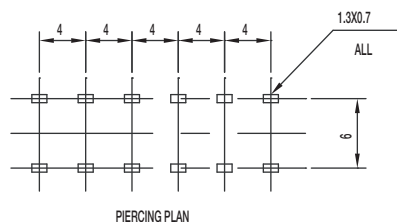
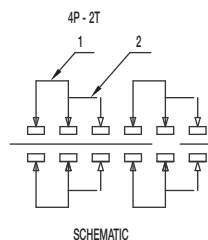


Specifications

CONTACT RATING: 1A @ 25 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 400 ± 150 gf (3.92 ± 1.47 N)
 TOTAL TRAVEL: 5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

HOUSING: PC (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

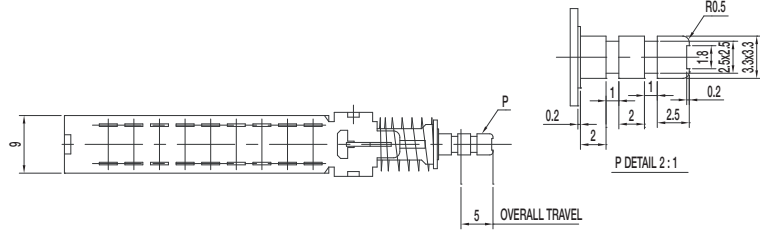
PB Series Single Pole and Multi-Key Pushbutton Switches



A

Pushbutton

PB-62G02-F 6PDT NON-LOCK / MOMENTARY

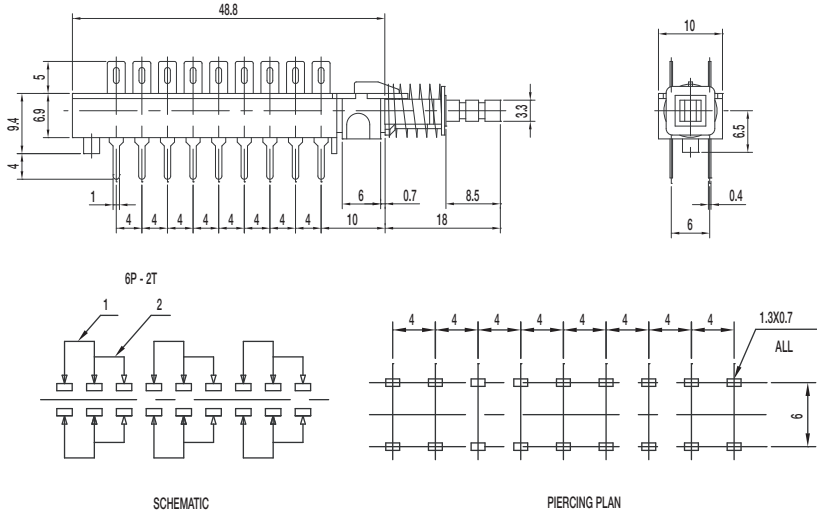


Specifications

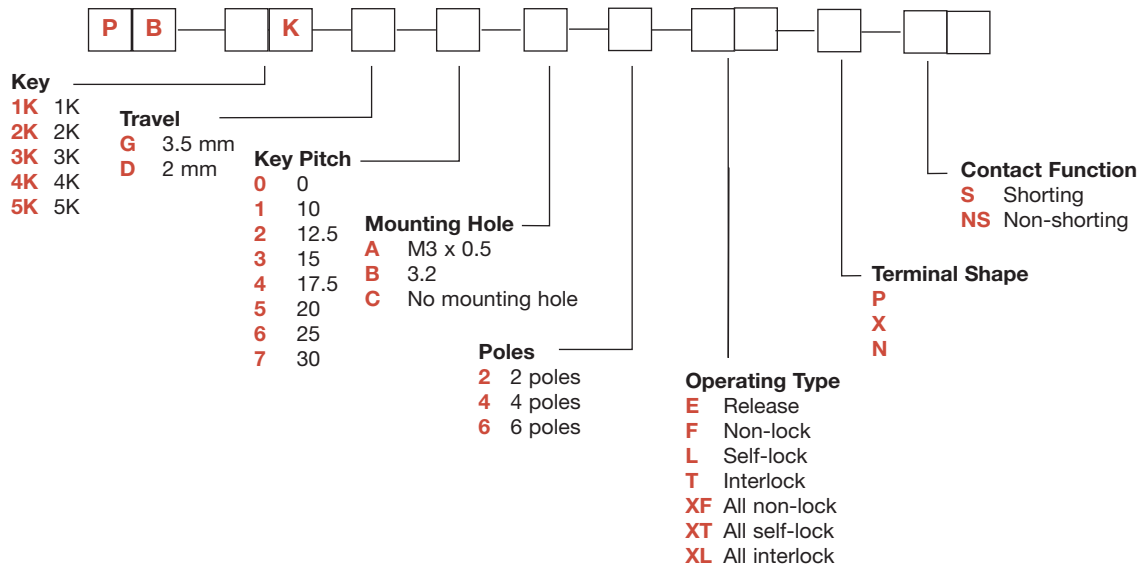
- CONTACT RATING: 1A @ 25 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
450 ± 150 gf (4.41 ± 1.47N)
- TOTAL TRAVEL: 5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- HOUSING: PC (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



PB Multi-Key Series



Dimensions are shown: mm
Specifications and dimensions subject to change

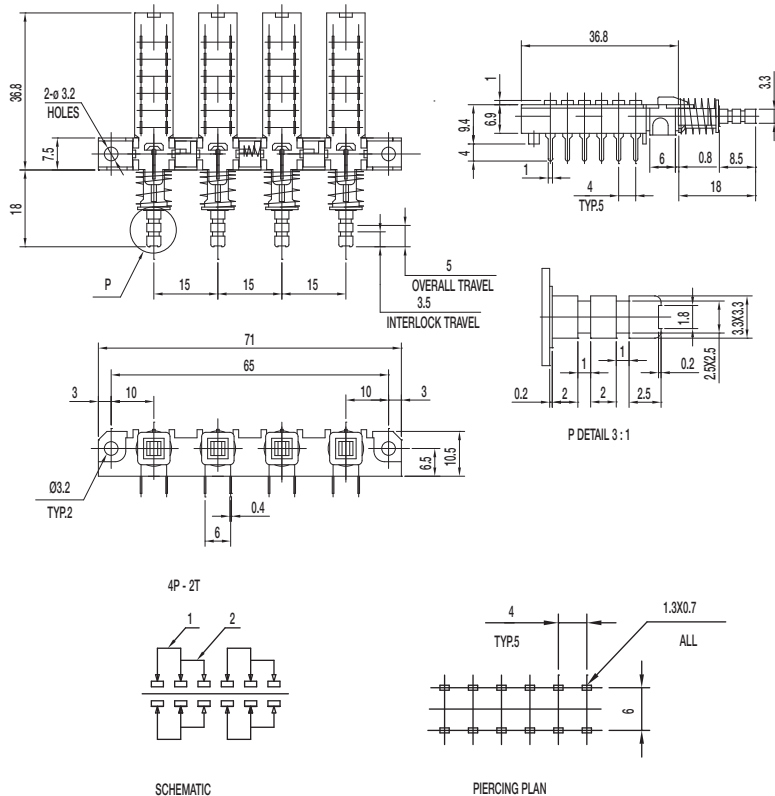


PB Series Single Pole and Multi-Key Pushbutton Switches

PB Multi-Key Series

A

Pushbutton



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 250 ± 100 gf (2.45 ± 0.98N)
 TOTAL TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

PS-12G Series Pushbutton Switches



A

Pushbutton

Features/Benefits

- Latching pushbutton
- Non-shorting with lock
- 5 mm travel
- SPDT

Typical Applications

- Automotive interior lighting
- Computer peripherals
- Appliances



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G01	200 pieces	

Dimensions

FOOTPRINT: 14 X 16.8 mm

HEIGHT: 18 mm

Specifications

CONTACT RATING: 1A @ 14 VDC

INITIAL CONTACT RESISTANCE: 100 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 20,000 cycles with load

OPERATING FORCE: 400 ± 100 gf

OPERATING POSITION: 3.6 ± 0.2 mm

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM (UL 94HB)

HOUSING: PBT (UL 94V-0)

COVER: PBT (UL 94V-0)

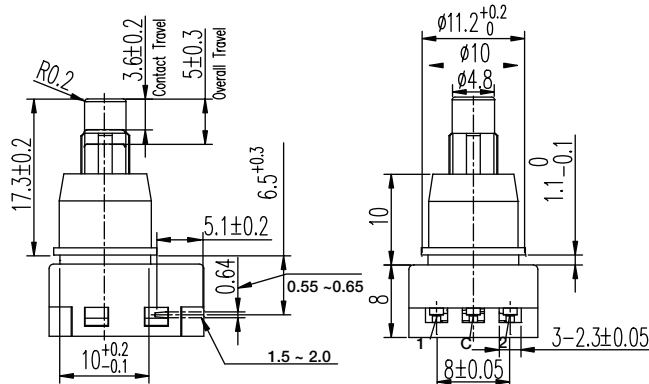
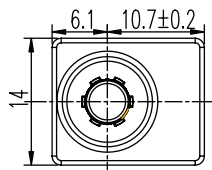
ROTOR: PBT (UL 94V-0)

SLIDER: POM (UL 94HB)

TERMINAL: Phospher bronze, silver plated

SPRING: Stainless steel

CONTACT: Phospher bronze, silver plated





PS-12G Series Pushbutton Switches

Pushbutton
A



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G03	200 pieces	

Dimensions

FOOTPRINT: 14 X 16.8 mm

HEIGHT: 18.3 mm

Specifications

CONTACT RATING: 2.2A @ 14.5 VDC

INITIAL CONTACT RESISTANCE: 50 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 20,000 cycles with load

OPERATING FORCE: 650 ± 300 gf

OPERATING POSITION: 4.00 ± 0.2 mm

TOTAL TRAVEL: 4.5 ± 0.3 mm

OPERATING TEMPERATURE: -40°C to 85°C

Materials

KNOB: POM (UL 94HB)

HOUSING: PBT & PA (UL 94V-0)

COVER: PBT (UL 94V-0)

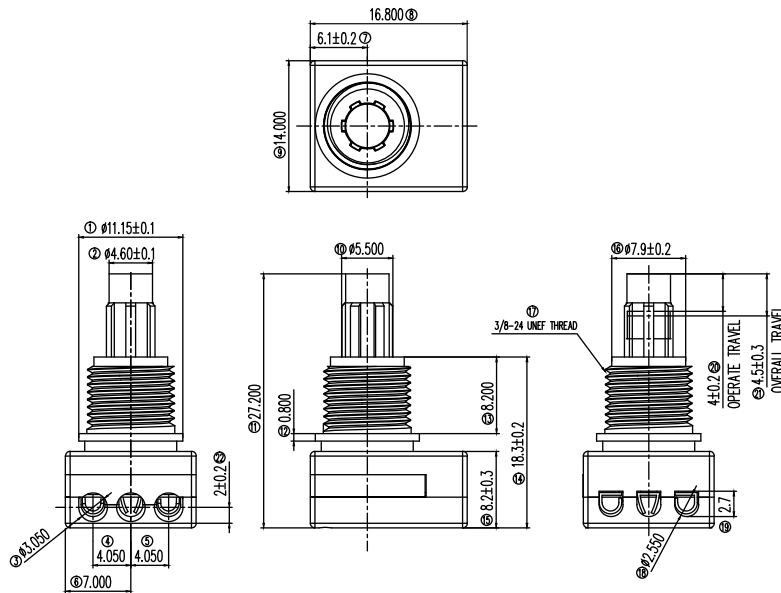
ROTOR: PBT (UL 94V-0)

SLIDER: POM (UL 94HB)

TERMINAL: Brass, silver plated

SPRING: Stainless steel

CONTACT: Phosphor bronze, silver plated



TYCO .062 Commercial Pin
and Socket Connector
PT# 770983-1



Dimensions are shown: mm
Specifications and dimensions subject to change

PS-22 Series Subminiature Pushbutton Switches



A

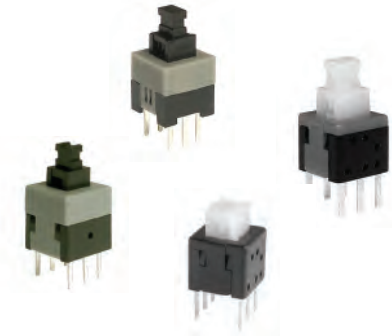
Pushbutton

Features/Benefits

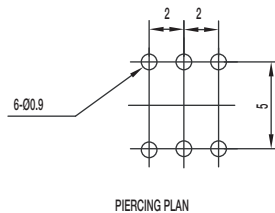
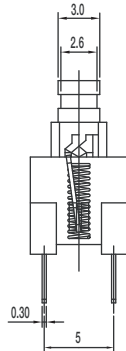
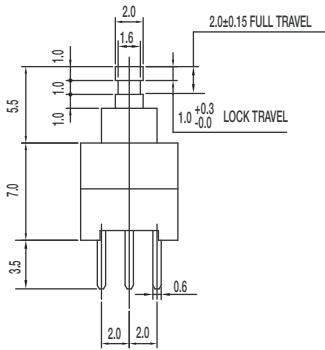
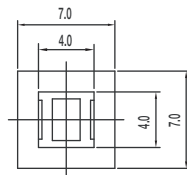
- Compact miniature push switch
- Momentary or latching options
- Shorting or non-shorting
- DPDT

Typical Applications

- Industrial
- Automotive
- Audio and visual equipment



PART NUMBER	PACKAGING	SCHEMATIC
PS-2203-L NS PA	1,000 pieces	
PS-2203-F NS PA	1,000 pieces	



Dimensions

FOOTPRINT: 7.0 x 7.0 mm

HEIGHT: 12.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:

200 ± 100 gf (1.96 ± 0.98N)

LOCK TRAVEL: 1 mm

TOTAL TRAVEL: 2 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black

HOUSING: PA Black

COVER: POM Grey (latch) / White (Mom)

TERMINAL: Brass, silver plated

CONTACT CLIP: Phosphor bronze, silver plated

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)



PS-22 Series Subminiature Pushbutton Switches

Pushbutton
A



PART NUMBER	PACKAGING	SCHEMATIC
PS-2206-L NS PA	1,000 pieces	
PS-2206-F NS PA	1,000 pieces	

Dimensions

FOOTPRINT: 8.0 x 8.0 mm

HEIGHT: 13.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 70 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:
200 ± 100 gf (1.96 ± 0.98N)

LOCK TRAVEL: 1.5 mm

TOTAL TRAVEL: 2.5 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black

HOUSING: PA Black

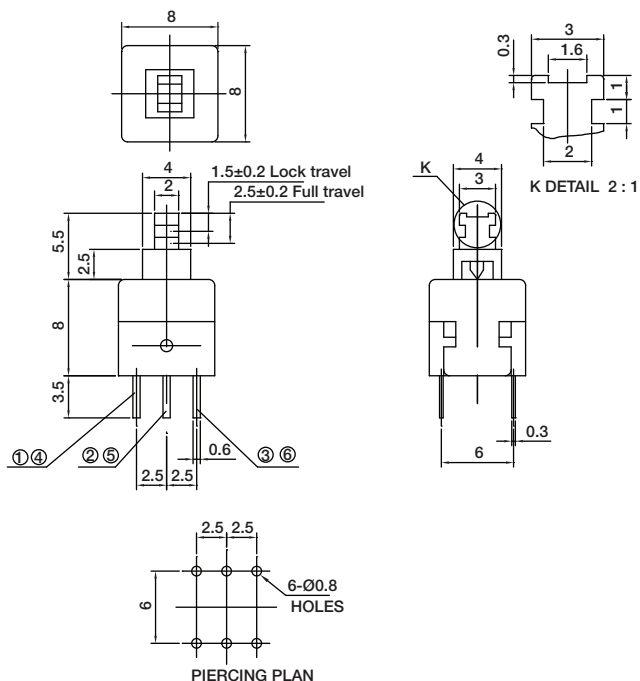
COVER: POM Grey (latch) / White (Mom)

TERMINAL: Brass, silver plated

CONTACT CLIP: Phosphor bronze., silver plated

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)



PART NUMBER	PACKAGING	SCHEMATIC
PS-2214-L NS PA	1,000 pieces	
PS-2214-F NS PA	1,000 pieces	

Dimensions

FOOTPRINT: 5.8 x 5.8 mm

HEIGHT: 7.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 80 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:
150 ± 50 gf (1.47 ± 0.49N)

LOCK TRAVEL: 1.45 mm

TOTAL TRAVEL: 2.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural (latch) / PA black

HOUSING: PA Black

COVER: PA Black

TERMINAL: Brass, silver plated

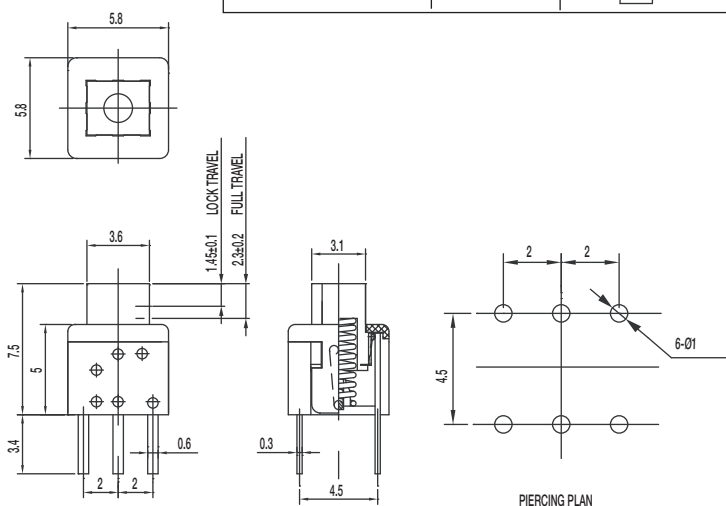
CONTACT CLIP: Phosphor bronze, silver clad

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)

Dimensions are shown: mm

Specifications and dimensions subject to change



PS-22 Series Subminiature Pushbutton Switches



A

Pushbutton



PART NUMBER	PACKAGING	SCHEMATIC
PS-221605-L NS	1,000 pieces	
PS-221605-F NS	1,000 pieces	

Dimensions

FOOTPRINT: 5.8 x 5.8 mm

HEIGHT: 10 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC / 2A @ 2 VDC

INITIAL CONTACT RESISTANCE: 80 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:

150 ± 50 gf (1.47 ± 0.49N)

LOCK TRAVEL: 1.3 mm

TOTAL TRAVEL: 2.1 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural

HOUSING: PA Black

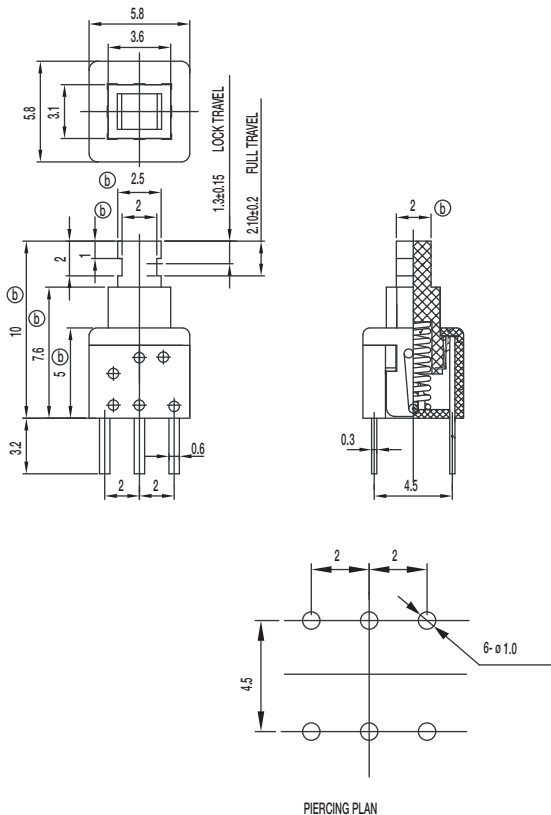
COVER: PC Grey

TERMINAL: Bras, silver plated

CONTACT CLIP: Phosphor bronze, silver clad

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)





PS Series Miniature Pushbutton Switches

Pushbutton
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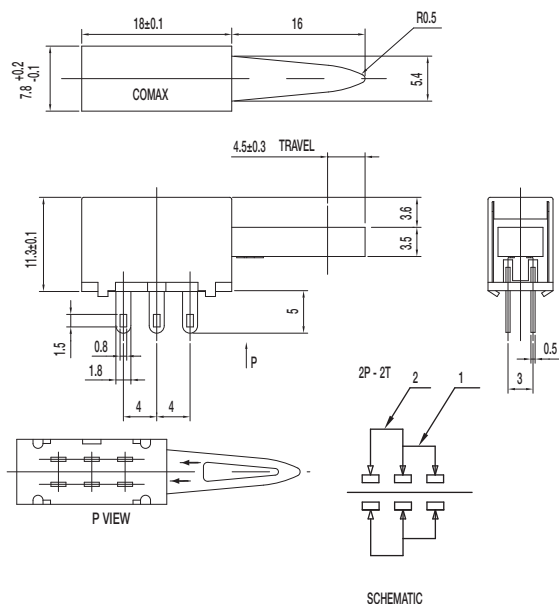
Features/Benefits

- **Miniature size**
- **Momentary or latching options**
- **Broad range of products**

Typical Applications

- **Industrial**
- **Automotive**
- **Audio and visual equipment**
- **Telecommunications**

PS-22105 DPDT NON-SHORTING



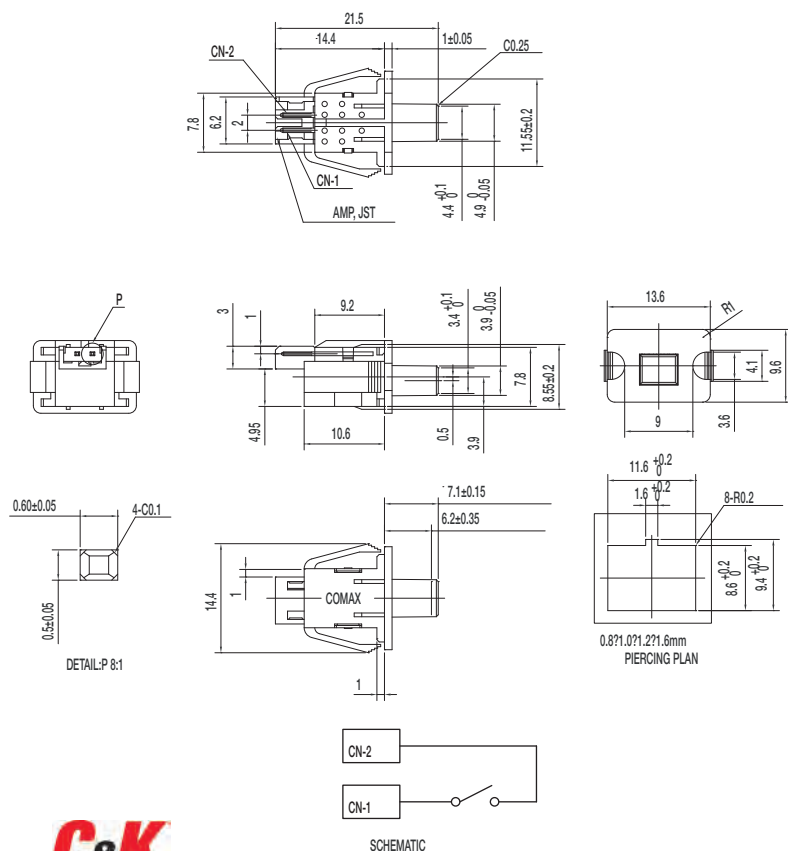
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 400 ± 150 gf (3.92 ± 1.47N)
 TOTAL TRAVEL: 4.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SECC
 KNOB: POM (UL 94HB)
 CONTACT PLATE: Silver clad
 SPRING: SUS
 TERMINAL: Silver plated

PS-12C02-F NS SPST NON-SHORTING



Specifications

CONTACT RATING: 100 μ A @ 3 VDC min. / 10mA @ 5 VDC max
 INITIAL CONTACT RESISTANCE: 100 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 100,000 cycles with load
 OPERATING FORCE: 50 ± 15 gf (0.49 ± 0.147N)
 PRE-TRAVEL: 6.20 ± 0.35 mm
 OPERATING TEMPERATURE: -40°C to 85°C

Materials

KNOB: POM (UL 94HB)
 COVER: PA (UL 94V-0)
 HOUSING: PA (UL 94V-0)
 SPRING: SUS
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

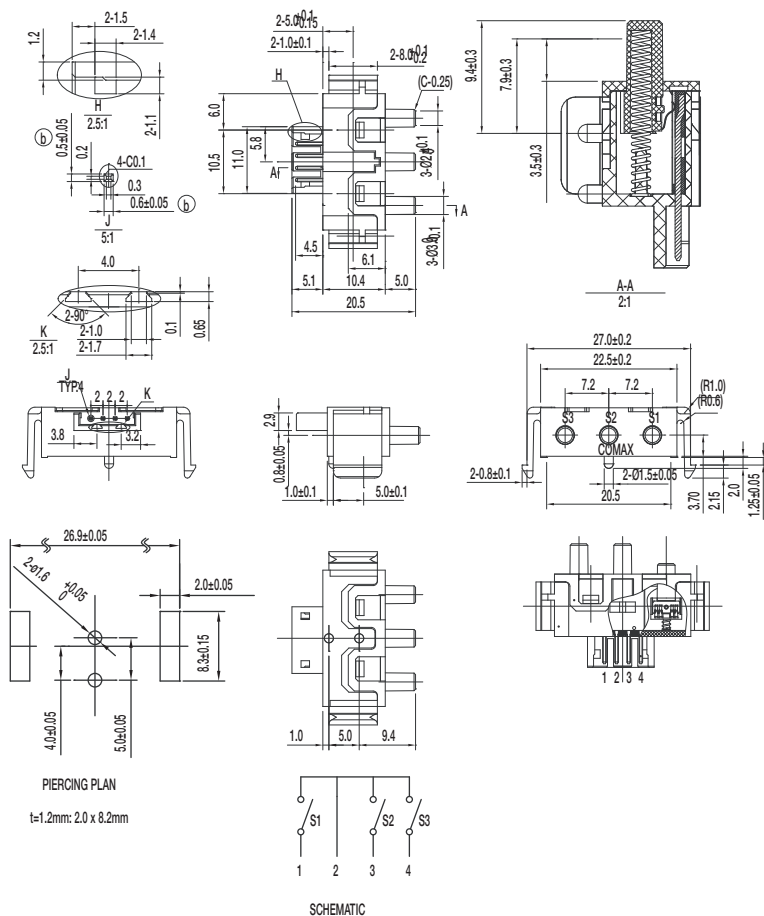
PS Series Miniature Pushbutton Switches



A

Pushbutton

PS-32C02-F NS 1P3T NON-SHORTING



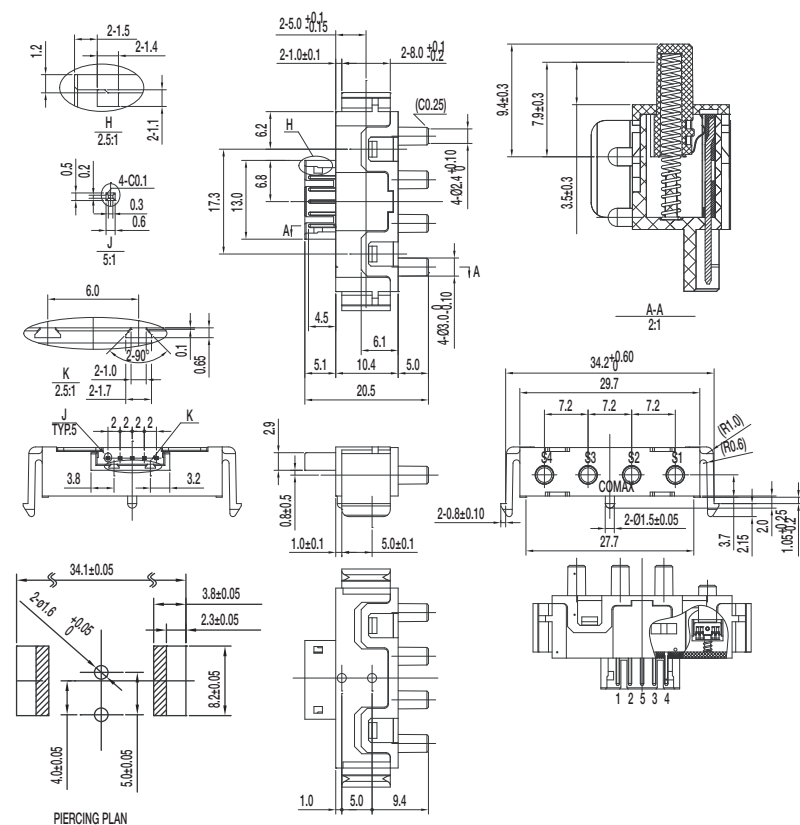
Specifications

- CONTACT RATING: 100 μ A @ 3 VDC min. / 10mA @ 5 VDC max
- INITIAL CONTACT RESISTANCE: 100 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 100,000 cycles with load
- OPERATING FORCE: 80 \pm 20 gf (0.784 \pm 0.196N)
- PRE-TRAVEL: 1.5 \pm 0.3 mm
- OVER-TRAVEL: 3.5 \pm 0.3 mm
- TOTAL TRAVEL: 5 \pm 0.3 mm
- OPERATING TEMPERATURE: -20°C to 65°C

Materials

- KNOB: POM (UL 94HB)
- COVER: PA (UL 94V-0)
- HOUSING: PA (UL 94V-0)
- SPRING: SUS
- TERMINAL: Silver plated

PS-42C02-F NS 1P4T NON-SHORTING



Specifications

- CONTACT RATING: 100 μ A @ 3 VDC min. / 10mA @ 5 VDC max
- INITIAL CONTACT RESISTANCE: 100 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 100,000 cycles with load
- OPERATING FORCE: 80 \pm 20 gf (0.784 \pm 0.196N)
- PRE-TRAVEL: 1.5 \pm 0.3 mm
- OVER-TRAVEL: 3.5 \pm 0.3 mm
- TOTAL TRAVEL: 5 \pm 0.3 mm
- OPERATING TEMPERATURE: -20°C to 65°C

Materials

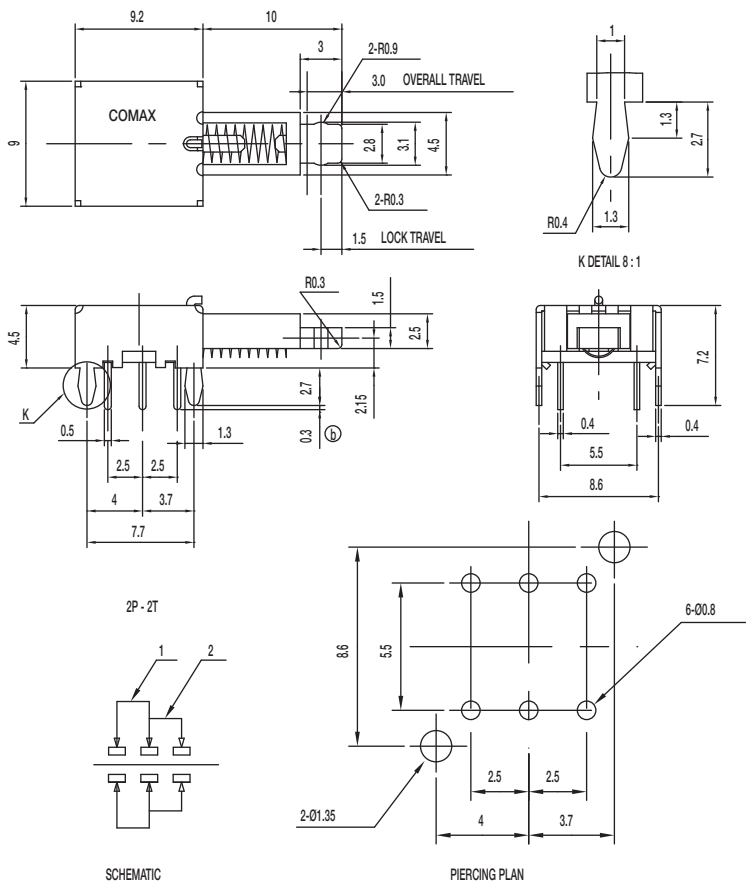
- KNOB: POM (UL 94HB)
- COVER: PA (UL 94V-0)
- HOUSING: PA (UL 94V-0)
- SPRING: SUS
- TERMINAL: Silver plated

Dimensions are shown: mm
Specifications and dimensions subject to change



PS Series Miniature Pushbutton Switches

PS-22C08-G10 NS DPDT NON-SHORTING



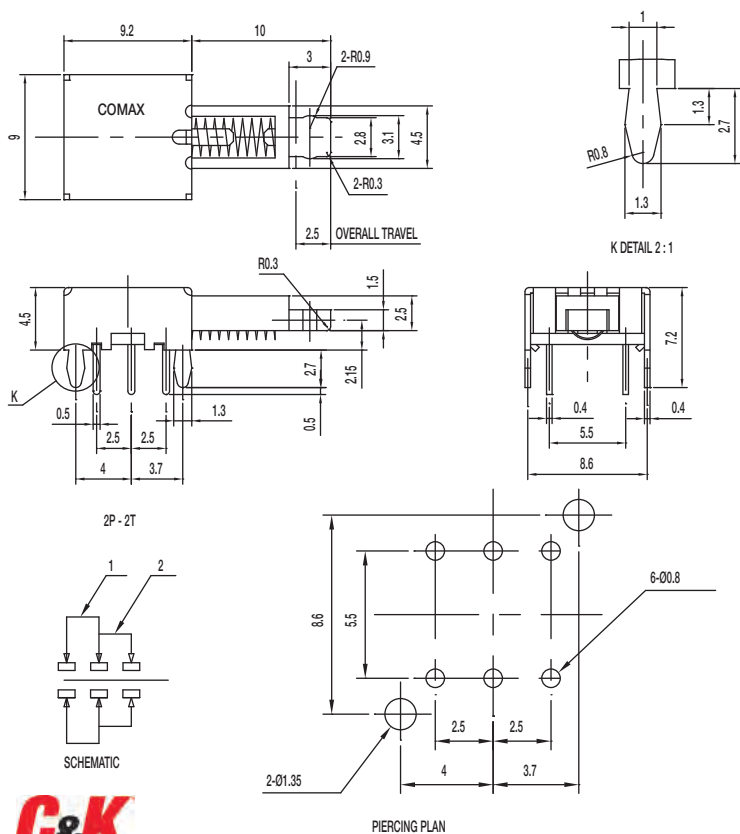
Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
- LOCK TRAVEL: 1.5 ± 0.3 mm
- OVER-TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- FRAME: SPCC
- KNOB: POM (UL 94HB)
- CONTACT: Silver plated
- SPRING: SUS
- TERMINAL: Silver plated

PS-22E08-G10 NS DPDT NON-SHORTING



Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
- TOTAL TRAVEL: 2.5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- FRAME: SPCC
- KNOB: POM (UL 94HB)
- CONTACT: Silver plated
- SPRING: SUS
- TERMINAL: Silver plated



Dimensions are shown: mm
Specifications and dimensions subject to change

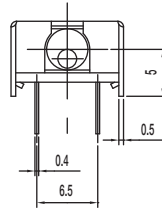
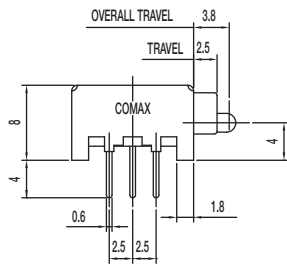
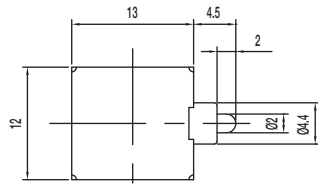
PS Series Miniature Pushbutton Switches



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Pushbutton

PS-22E09-G 4.5 NS DPDT NON-SHORTING

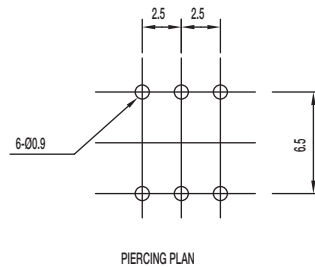
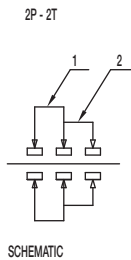


Specifications

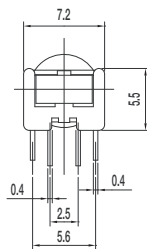
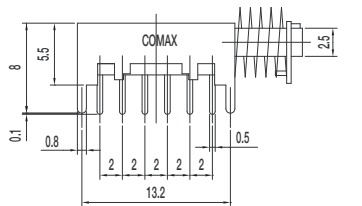
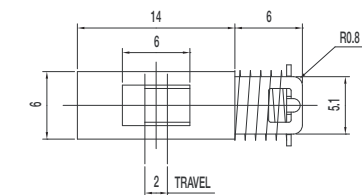
- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 70 ± 20 gf (0.686 \pm 0.196N)
- TRAVEL: 2.5 ± 0.3 mm
- TOTAL TRAVEL: 3.8 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- FRAME: SPCC
- KNOB: POM (UL 94HB)
- CONTACT: Silver plated
- SPRING: SUS
- TERMINAL: Silver plated



PS-42D09-NS 4P2T NON-SHORTING

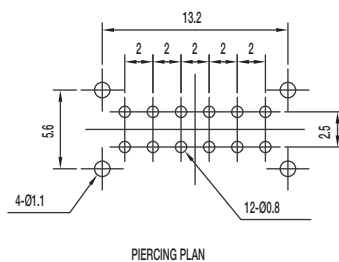
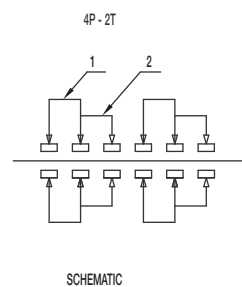


Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 250 ± 100 gf (2.45 \pm 0.98N)
- TRAVEL: 2 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- FRAME: SPCC
- KNOB: POM (UL 94HB)
- CONTACT PLATE: Silver plated
- SPRING: Steel
- TERMINAL: Silver plated



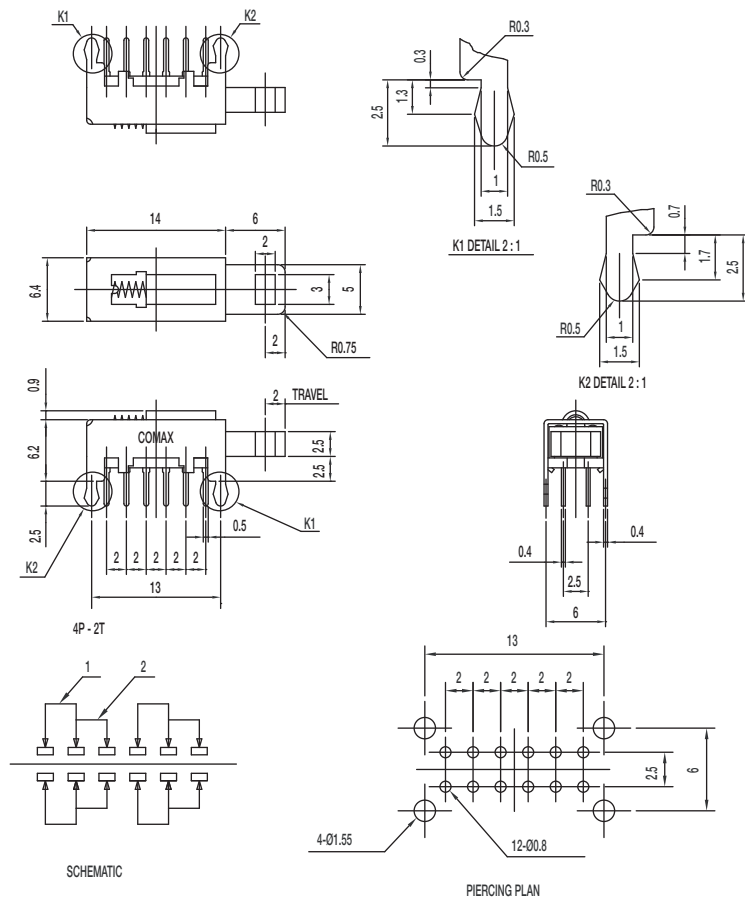
Dimensions are shown: mm
Specifications and dimensions subject to change



PS Series Miniature Pushbutton Switches

Pushbutton
A

PS-42D13-NS 4P2T NON-SHORTING



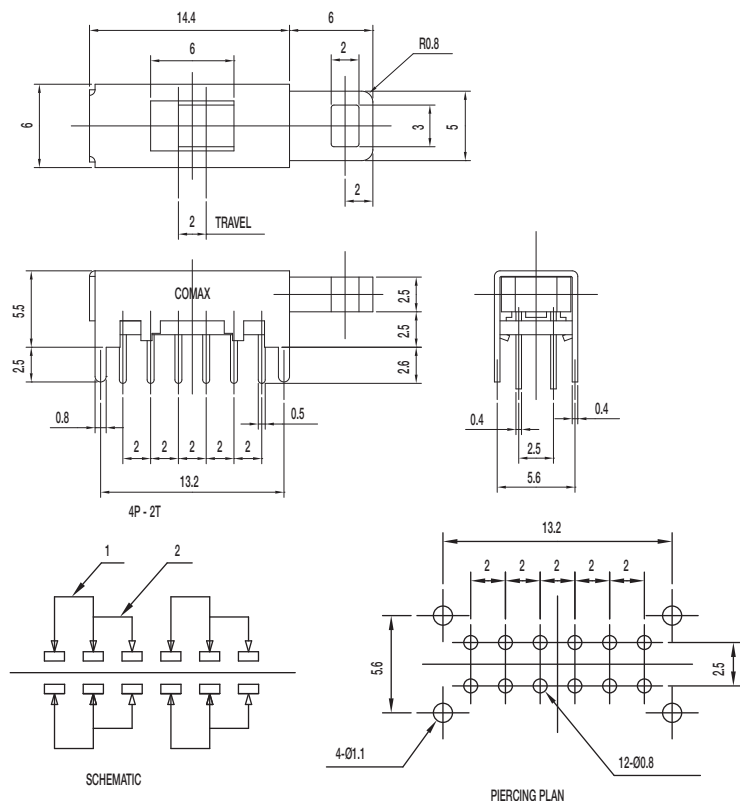
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-42D16-S 4P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 60 ± 30 gf (0.59 ± 0.29N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

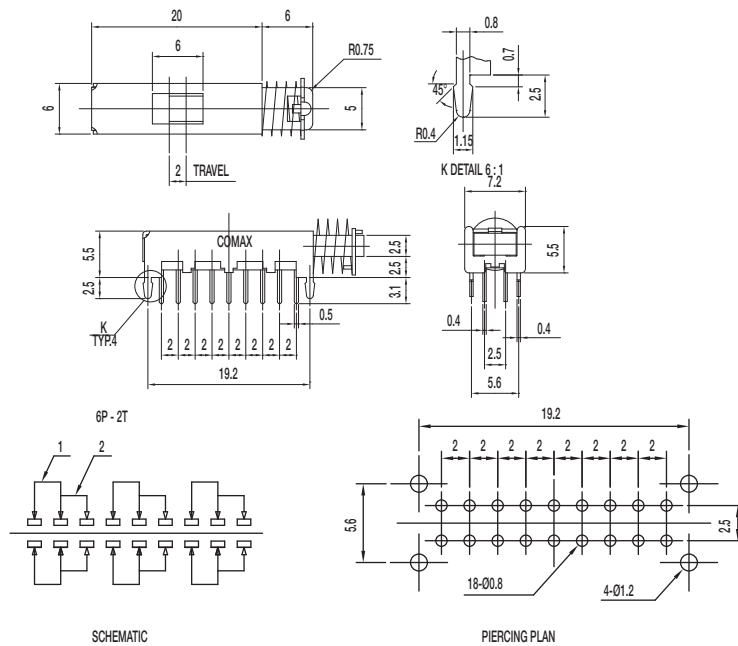
PS Series Miniature Pushbutton Switches



A

Pushbutton

PS-62D10-S 6P2T SHORTING



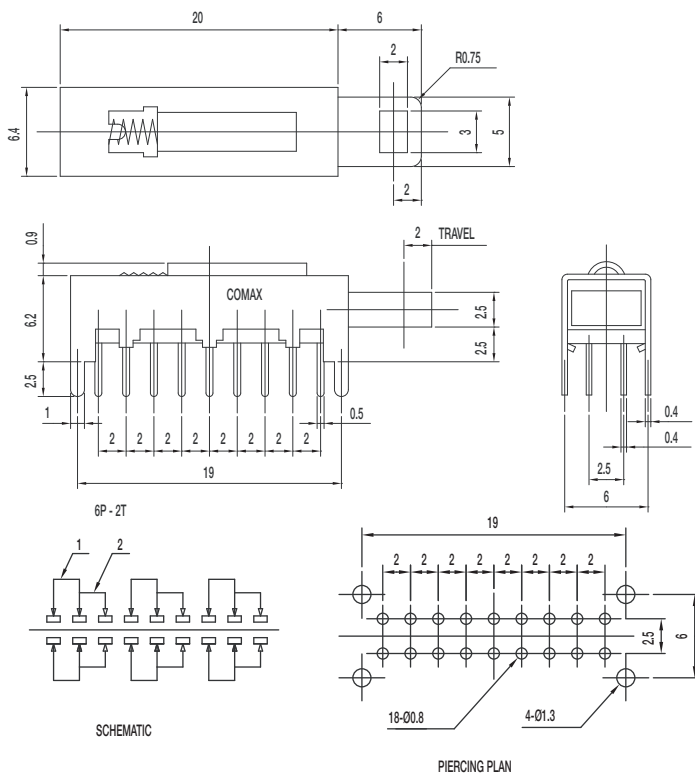
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-62D13-S 6P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT PLATE: Silver plated
 SPRING: Steel
 TERMINAL: SUS



Dimensions are shown: mm
 Specifications and dimensions subject to change

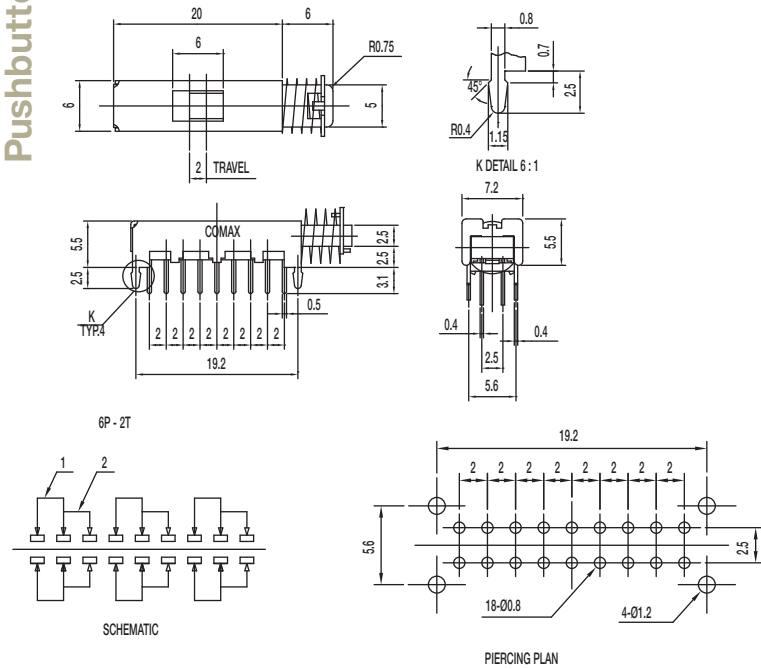


PS Series Miniature Pushbutton Switches

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PS-62D15-S 6P2T SHORTING

Pushbutton



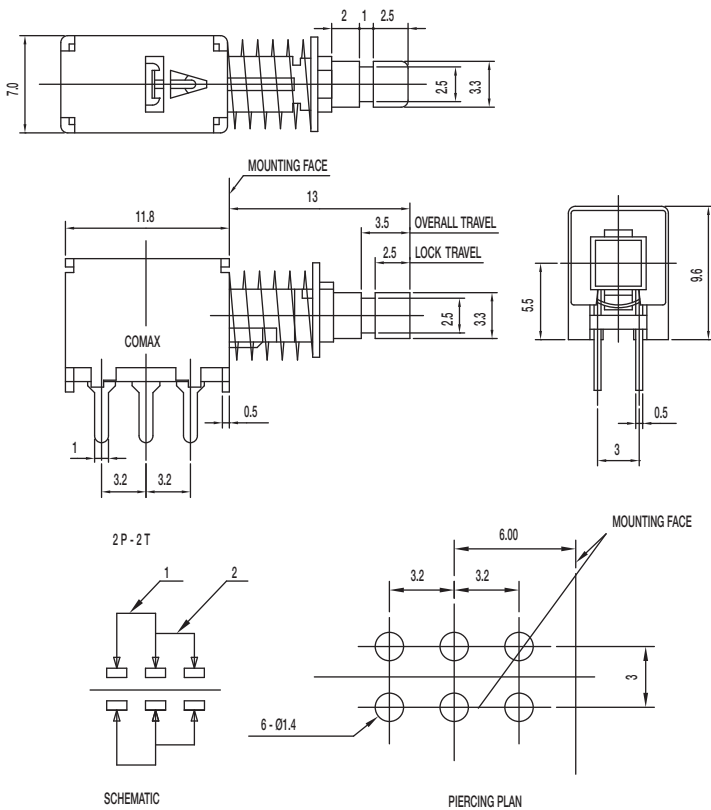
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22E02-G13 S DPDT SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 LOCK TRAVEL: 2.5 ± 0.3 mm
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

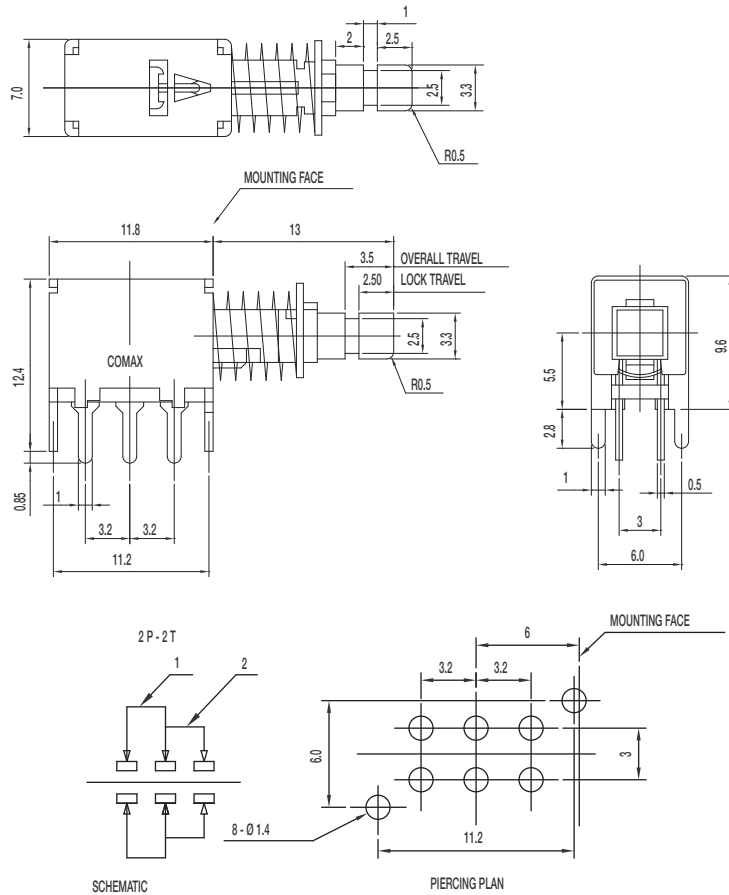
PS Series Miniature Pushbutton Switches



A

Pushbutton

PS-22E04-G13 NS DPDT NON-SHORTING WITH LOCK



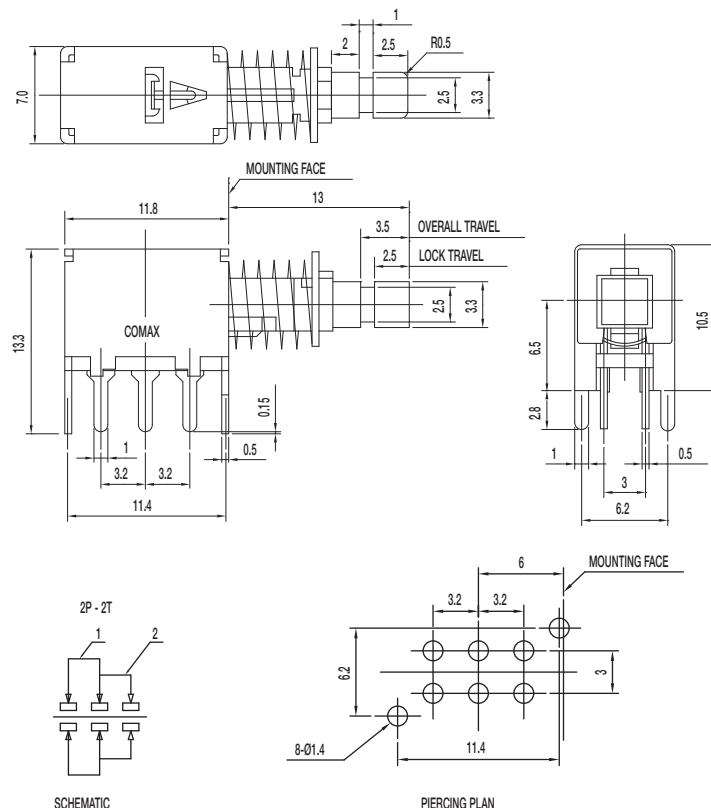
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 LOCK TRAVEL: 2.5 ± 0.3 mm
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22E44-G13 NS DPDT NON-SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 LOCK TRAVEL: 2.5 ± 0.3 mm
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated



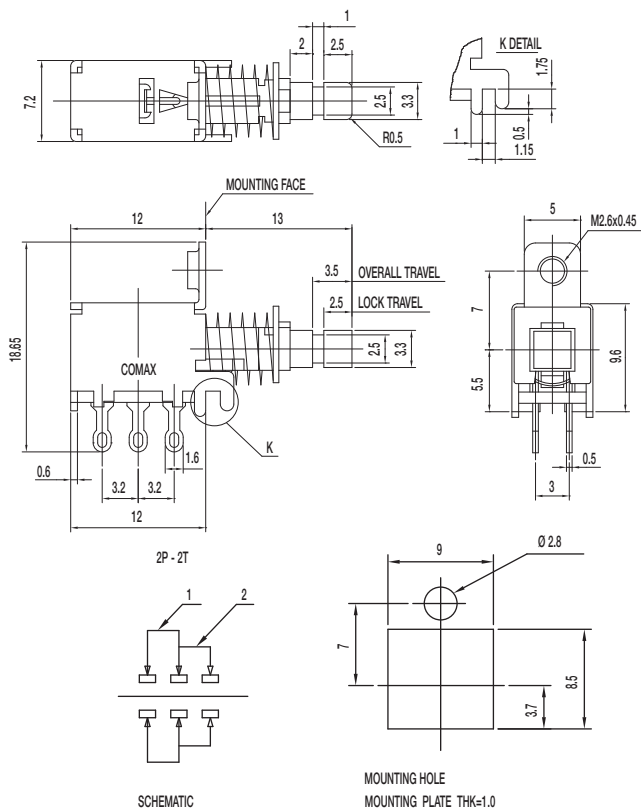
Dimensions are shown: mm
 Specifications and dimensions subject to change



PS Series Miniature Pushbutton Switches

Pushbutton
A

PS-22E75-G13 NS DPDT NON-SHORTING WITH LOCK



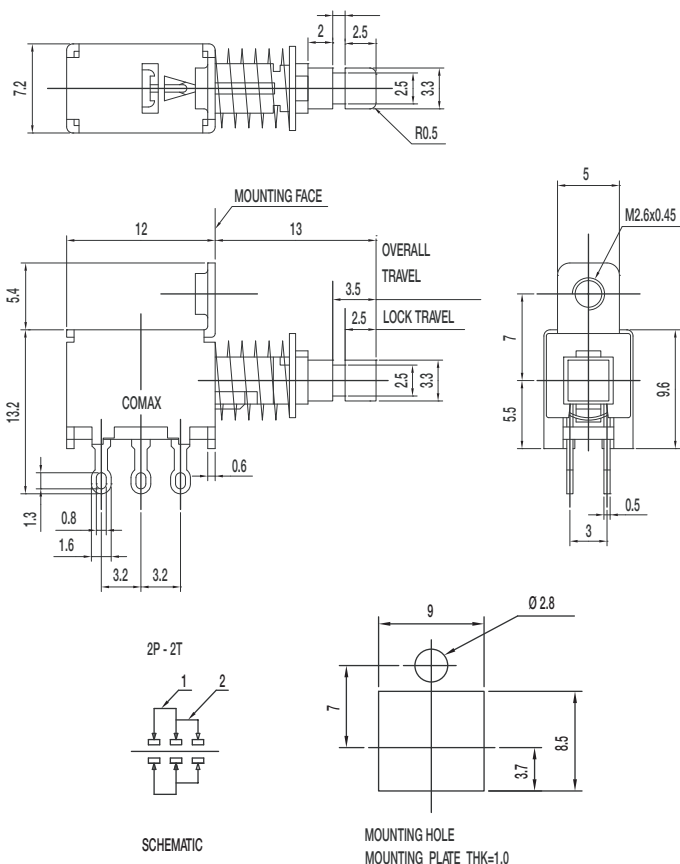
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 LOCK TRAVEL: 2.5 ± 0.3 mm
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22E95-G13 NS DPDT NON-SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 LOCK TRAVEL: 2.5 ± 0.3 mm
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

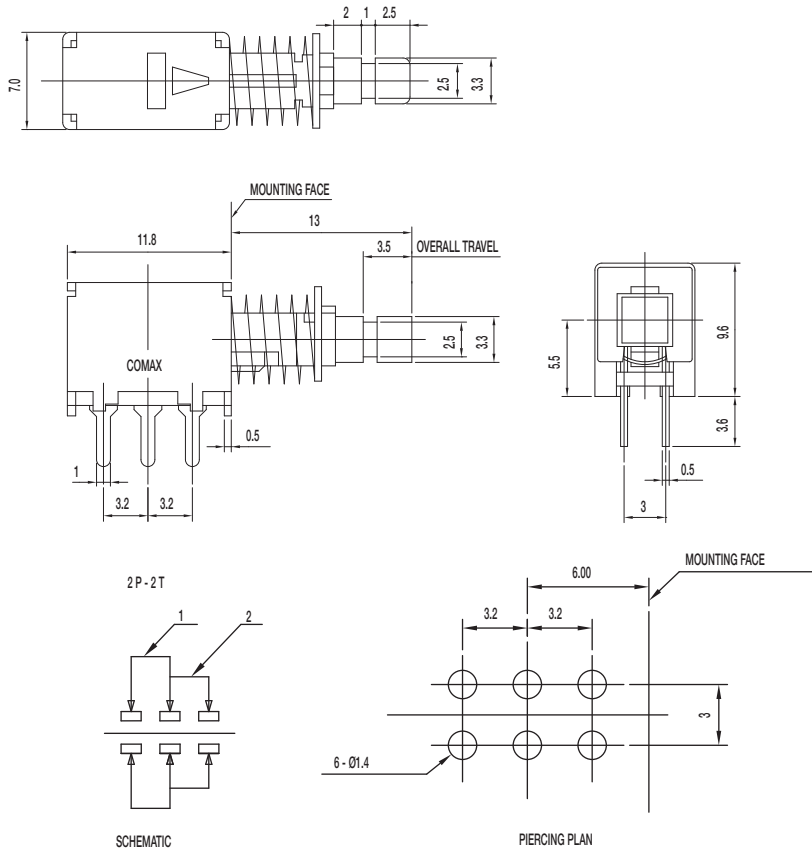
PS Series Miniature Pushbutton Switches



A

Pushbutton

PS-22F02-G13 S DPDT SHORTING



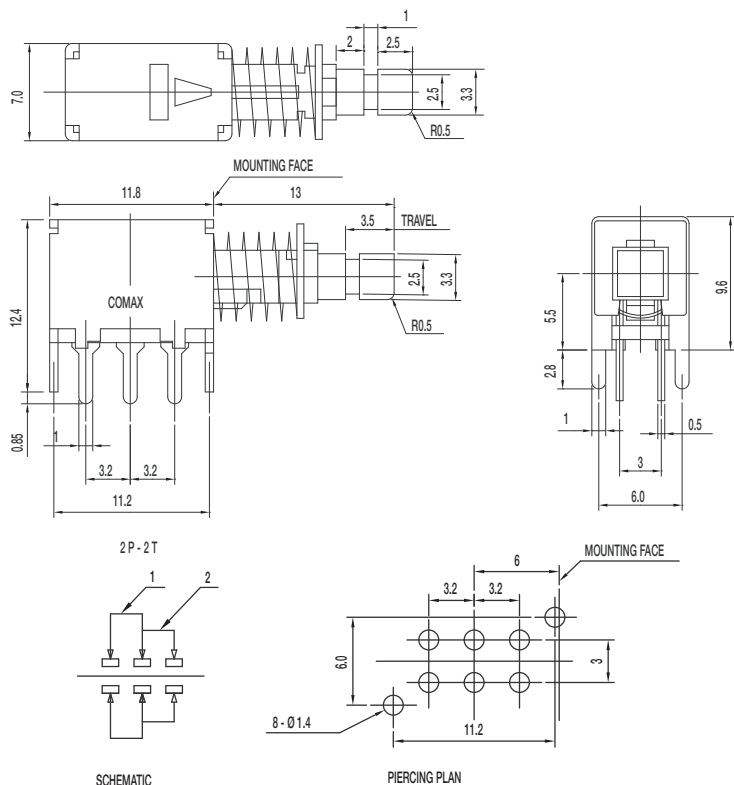
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22F04-G13 NS DPDT NON_SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated



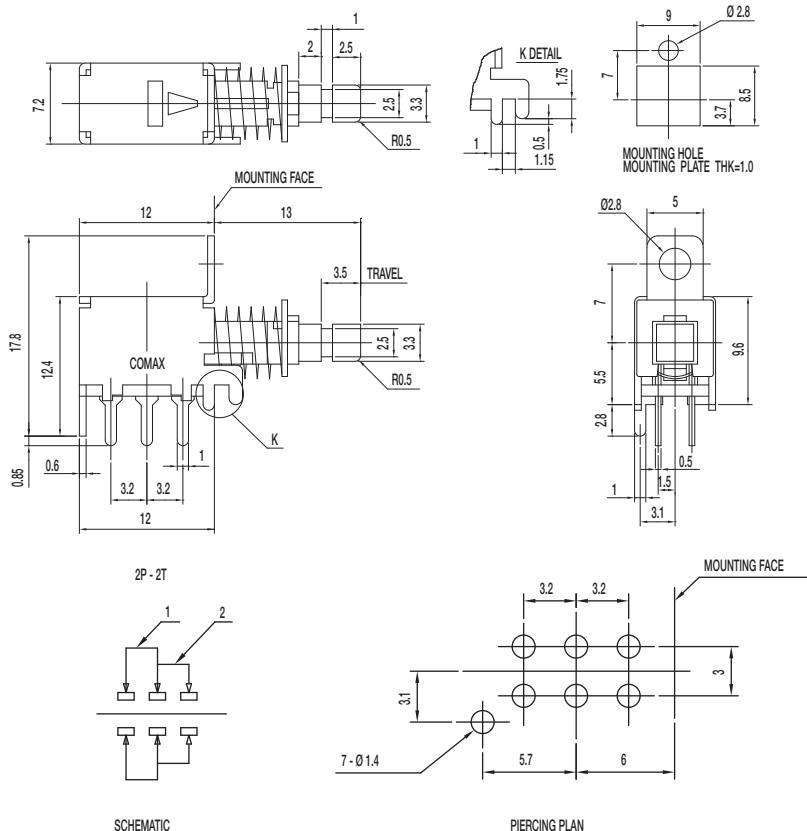
Dimensions are shown: mm
 Specifications and dimensions subject to change



PS Series Miniature Pushbutton Switches

Pushbutton
A

PS-22F24-G13 NS DPDT NON_SHORTING



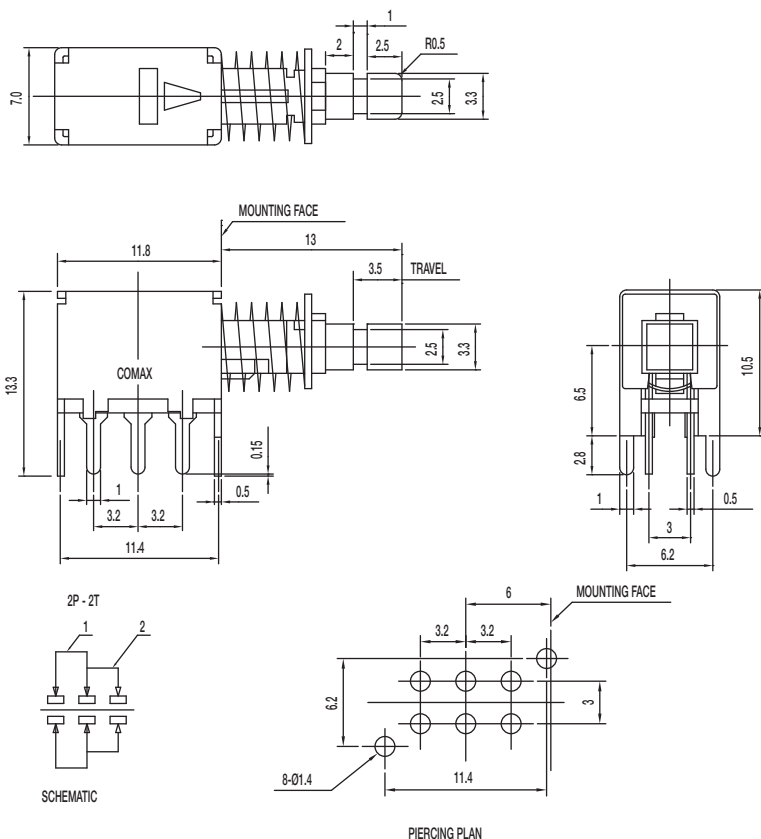
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22F44-G13 NS DPDT NON_SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

Tactile Switches

Product Selection Guide




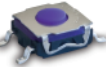

B Tactile Switches

Surface Mount							
Series	KXT2	KXT3	KMT2	KMT0	KMR 2-8	KMS	PTS525
Size on PCB L x W (mm)	3,9 x 3	3 x 2	3 x 2,6	3 x 2,6	4,2 x 2,8	4,2 x 3,55	5,2 x 5,2
Total Height (mm)	1,05	0,6	0,65	0,65	1,9 2,5	1,42	0,8 and 1,5
Travel (mm)	0,1	0,13	0,15	0,15	0,2 to 0,35	0,25 to 0,3	0,3
Actuation Force (N)	100 gf 200 gf	100 gf 160gf 240 gf 330 gf	1,0 1,6	1,0; 1,6 2,3; 3,4	1,2; 2,0 3,0; 4,0	2,0 3,0	1,6 2,6
Contact Type	Silver	Silver	Silver	Silver	Silver / Gold	Silver / Gold	Silver
Max. Voltage (V)	12	15	32	32	32	32	32
Max. Switching Power (VA)	0,5	0,5	0,5	0,5	1 / 0,2	1 / 0,2	1
Life Cycles	100,000	300,000 500,000	150,000	300,000/600,000 1,000,000	100,000 300,000	100,000	100,000
IP Rating	IP64	IP64	IP54	IP68	IP40	IP40	IP40
Page Number	B-5	B-7	B-9	B-11	B-13	B-23	B-25
Surface Mount							
Series	PTS530	PTS540	PTS810	PTS820	PTS830	PTS840	KSR
Size on PCB L x W (mm)	4,5 x 4,5	3,7 x 3,7	4,2 x 3,2	3,9 x 2,9	3,5 x 2,6	3,5 x 3,55	7,15 x 3,8 7,3 x 3,8
Total Height (mm)	0,55 and 0,65	0,55 / 0,65	2,5	1,5/2,0/2,5	1,4	1,35	2,5
Travel (mm)	0,2	0,15	0,15/0,2	0,2	0,15	0,2	0,3 to 0,5
Actuation Force (N)	1,0; 1,6; 2,0; 2,6; 4,0; 6,0	160 gf 230 gf	1,6; 2,6; 4,0; 6,0	1,6 2,5	160 gf 450 gf	1,6 2,2	1,2; 2,0; 3,0; 4,5
Contact Type	Silver	Silver	Silver	Silver	Silver	Silver	Silver / Gold
Max. Voltage (V)	12	12	16	12	12	12	32
Max. Switching Power (VA)	-	-	-	-	-	-	1 / 0,2
Life Cycles	150,000 to 1,000,000	300,000 500,000	50,000 to 150,000	100,000 200,000	200,000 500,000	100,000	100,000 200,000
IP Rating	-	IP40	IP40	IP40	IP40	IP40	IP50
Page Number	B-29	B-31	B-33	B-35	B-38	B-42	B-45

* Other options available by request

Dimensions are shown: mm
Specifications and dimensions subject to change

Tactile Switches Product Selection Guide

Surface Mount Thru-Hole Options							
Series	KSS	KSC4V2	KSC 1 - 10			KSE	KT
Footprint	5,5 x 4,4	2 holes ø 1,1 2 pads 1,5 x 0,8	J 6,8 x 6,2	G 10 x 6,2		6,8 x 6,2	SA 7,5x5 SA2 7,5x7
Total Height (mm)	1,7	5,0*				3,1 / 4,3	6,6 7,11 with tab
Travel (mm)	0,3	0,7*	0,20 to 0,75 *			0,3	0,3 to 0,5
Actuation Force (N)	2 2,5 4	3.5*	1,1 to 5,5 *			1.5 2.25	3
Contact Type	Silver / Gold	Silver / Gold	Silver / Gold			Silver	Silver / Gold
Max. Voltage (V)	32	32	32			32	50
Max. Switching Power (VA)	1 / 0,2	1 / 0,2	1 / 0.2			1	1 / 0.2
Life Cycles	100,000	300,000	100,000 to 1,000,000			300,000	100,000
IP Rating	IP40	IP67	IP67			IP67	
Page Number	B-49	B-63	B-51			B-65	B-68

Surface Mount Thru-Hole Options							
Series	K5AT	K8	K5V	KSF/KSI	KSA	KSA-V	KSA MKII
Footprint	G 8,4 x 10,8	G 8,4 x 10,8	8 x 9 x 17 / 9 x 13	7,62 x 5,08	7,62 x 5,08	7,62 x 2,54	7,62 x 5,08
Total Height (mm)	6,1	6	9 / 13	2,6	4,7 button option	8	4,7
Travel (mm)	0,5	0,45	1,2	0,3 to 0,5	0,3 to 0,5	0,3 to 0,5	0,3 to 0,5
Actuation Force (N)	4.0	4.0	4.0	1.3 3.0 1.6 5.0	1.3 3.0 5.0	1.3 3.0 5.0	1.3 3.0 5.0
Contact Type	Gold	Silver	Gold	Silver / Gold	Silver / Gold	Silver / Gold	Silver / Gold
Max. Voltage (V)	32	32	32	32	32	32	32
Max. Switching Power (VA)	1	1	1	1 / 0.2	1 / 0.2	1 / 0.2	1 / 0.2
Life Cycles	100,000	300,000	25,000	100,000	100,000	100,000	100,000 1,000,000
IP Rating	IP40	IP40	IP40	IP60	IP60	IP60	IP67
Page Number	B-73	B-75	B-78	B-82	B-84	B-84	B-89






* Other options available by request

Tactile Switches

Product Selection Guide

Tactile Switches

B

Surface Mount Thru-Hole Options					
Series	KSJ	KSJ-V	KSJ	KSJ-V	PTS635
Footprint	7,62 x 5,08	7,62 x 2,54	7,62 x 5,08	7,62 x 2,54	6 x 3,5
Total Height (mm)	9,9	8	6,65	8	2,5 4,3 5,0
Travel (mm)	0,3 to 0,5	0,3 to 0,5	0,55 to 0,7	0,55 to 0,7	0,25
Actuation Force (N)	1,3 3,0	1,3 3,0	2,0 3,0	2,0 3,0	1,3 2,0 2,6
Contact Type	Silver / Gold	Silver / Gold	Silver / Gold	Silver / Gold	Silver
Max. Voltage (V)	32	32	32	32	12
Life Cycles	100,000	100,000	100,000 30,000	100,000 30,000	20,000
IP Rating	IP60	IP60	IP60	IP60	IP40
Page Number	B-84	B-84	B-91	B-91	B-93

Surface Mount Thru-Hole Options						
Series	PTS641	PTS645	PTS645-V	PTS125	ITS	
Footprint	6,3 x 6,4	6 x 6	7,0 x 2,5	12 x 12	variety of sizes available	
Total Height (mm)	2,5 3,1 3,4	4,3; 5,0; 7,0; 9,5;	7,1	4,3 7,3 Sq. 8,5 12,0		
Travel (mm)	0,20 / 0,30	0,25	0,25	0,30	0,25	
Actuation Force (N)	160 gf 250 gf 320 gf	1,3; 1,6 2,0; 2,6	1,3; 1,6 2,0; 2,6	1,6 2,6	160 gf	
Contact Type	Silver	Silver	Silver	Silver	Silver	
Max. Voltage (V)	12	12	12	12	12	
Life Cycles	100,000	100,000	100,000	200,000	50,000	
IP Rating	IP40	IP40	IP40	IP40	IP40	
Page Number	B-96	B-98	B-103	B-105	B-109	

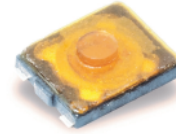
KXT2 Series Double Action Ultra Low Profile Top Actuated

Features

- 3.9 x 3.0 mm footprint
- 1.05 mm thickness
- Dual action

Typical Applications

- Wearable electronics
- Mobile Phones
- Portable Electronics



B

Tactile Switches

Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: Dual action = SPDT, N.O.
 TERMINALS: G type for SMT
 TRAVEL: 0.1 mm ± 0.05 mm
 TRAVEL: 0.2 mm + 0.1 / - 0.05 mm

Mechanical

	Operating force gf		Operating Life
KXT 211 LHS	Push force 1	100 ± 40	100,000
	Push force 2	200 ± 50	

Electrical

MAXIMUM VOLTAGE: 12 VDC
 MAXIMUM CURRENT DC: 50 mA
 DIELECTRIC STRENGTH: 250 V (50 Hz, 1 min.)
 CONTACT RESISTANCE: ≤ 500 mΩ
 INSULATION RESISTANCE: 100 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C
 STORAGE TEMPERATURE: -40°C to 85°C

Process

SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

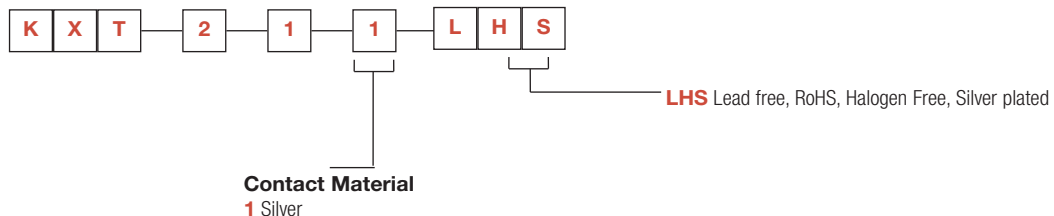
Packaging

In reels of 6,000 pieces
 Dimensions of reels according to EIA RS481 or IEC 2863
 External diameter 178 mm ± 2mm

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

Part Number Description

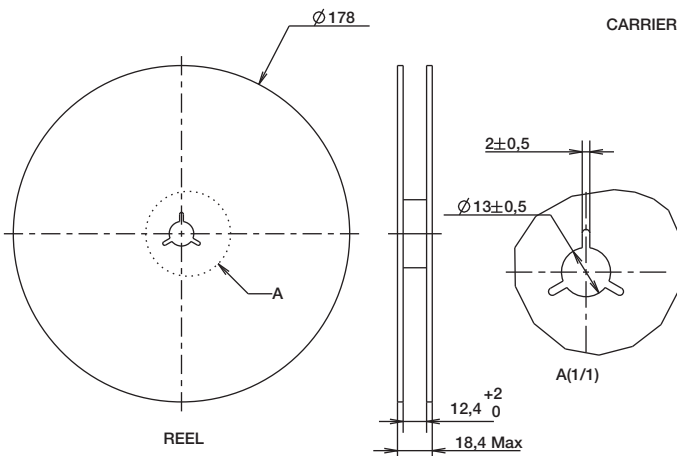
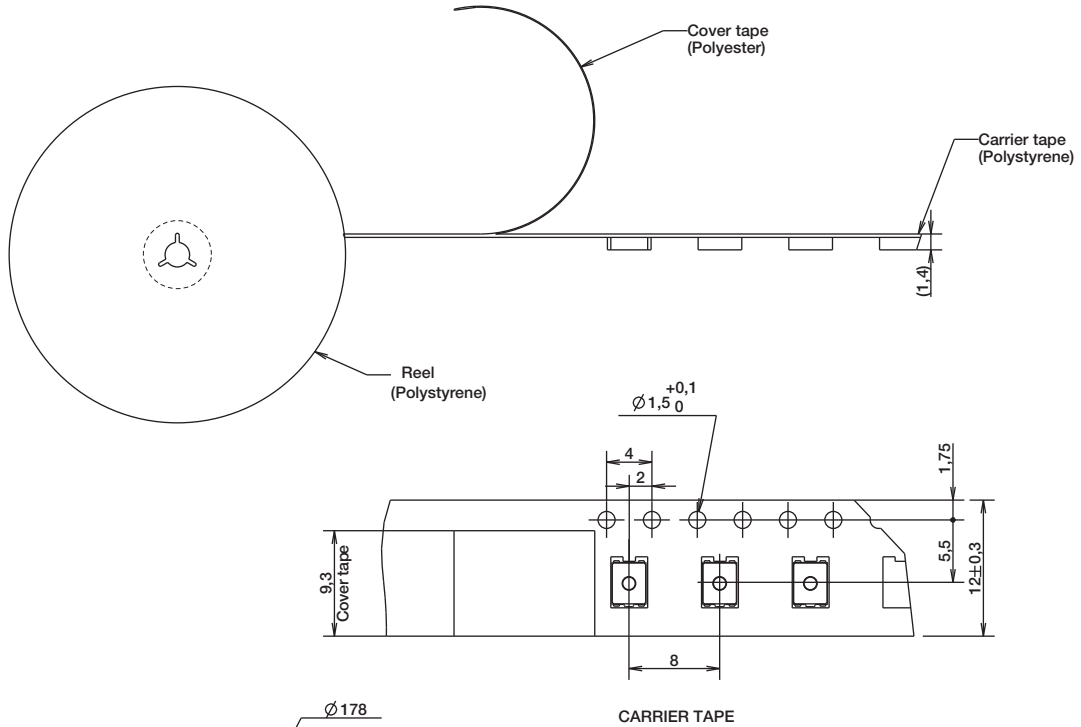
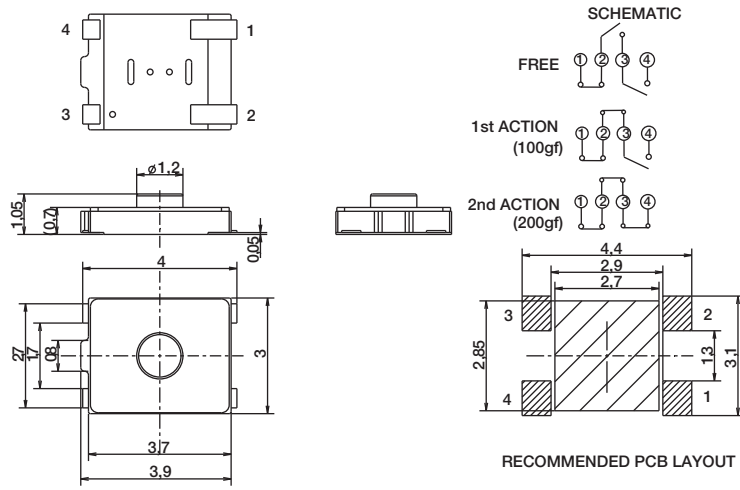
For any part number different from those listed above, please consult your local representative.



KXT2 Series Double Action Ultra Low Profile Top Actuated

B

Tactile Switches



Dimensions are shown: mm
Specifications and dimensions subject to change

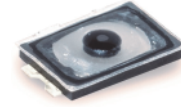
KXT3 Series Ultra Low Profile Top Actuated

Features

- 3.0 x 2.0 mm footprint
- 0.6 mm thickness
- High number of cycle

Typical Applications

- Wearable electronics
- In-Ear headphones, Earbuds
- Mobile Phones
- Portable Electronics
- Hearing Aids



B

Tactile Switches

Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS: G type for SMT
 TRAVEL: 0.13 mm ± 0.05 mm

Mechanical

	Operating force gf	Operating Life	Casing Color
KXT 311 LHS	100 ± 50	300,000	Black
KXT 321 LHS	160 ± 50	500,000	Black
KXT 331 LHS	240 ± 70	500,000	Black
KXT 341 LHS	330 ± 70	300,000	Black

Electrical

MAXIMUM VOLTAGE: 15 VDC
 MAXIMUM CURRENT DC: 20 mA
 DIELECTRIC STRENGTH: (50/60 Hz, 1 min) 250 Vrms
 CONTACT RESISTANCE: ≤ 500 mΩ
 INSULATION RESISTANCE: ≥ 50 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C
 STORAGE TEMPERATURE: -40°C to 85°C

Process

SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

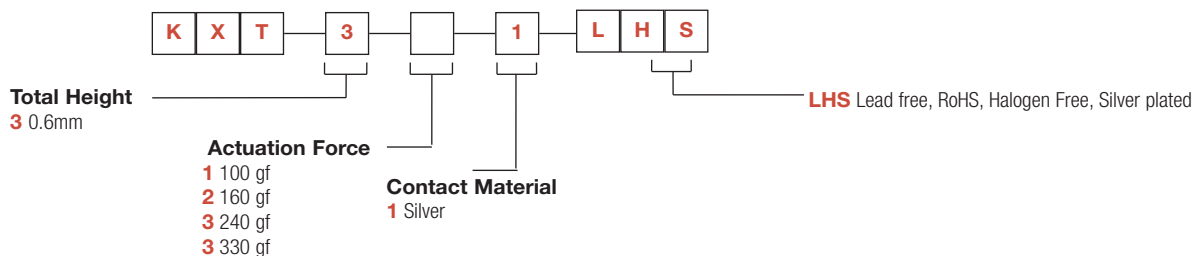
Packaging

In reels of 8,500 pieces
 Dimensions of reels according to EIA 481B
 External diameter 330 mm

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

Part Number Description

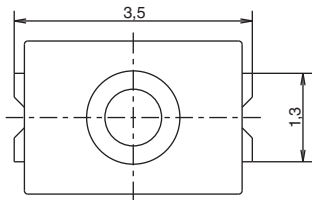
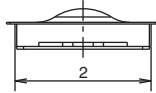
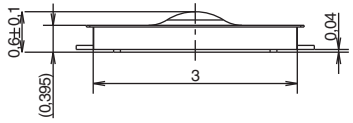
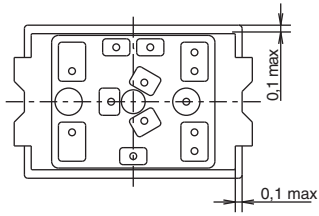
For any part number different from those listed above, please consult your local representative.



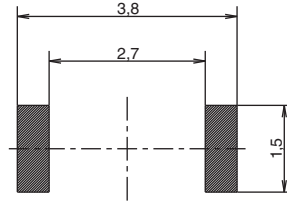
KXT3 Series Ultra Low Profile Top Actuated

Tactile Switches

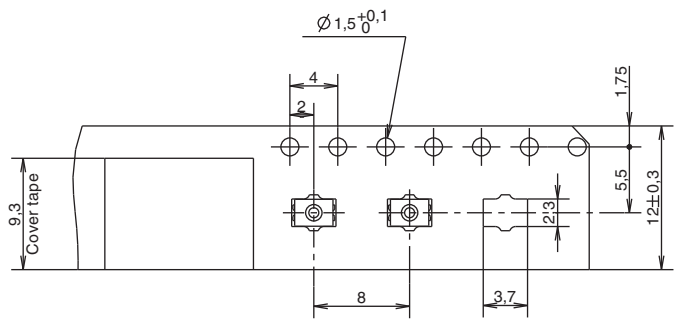
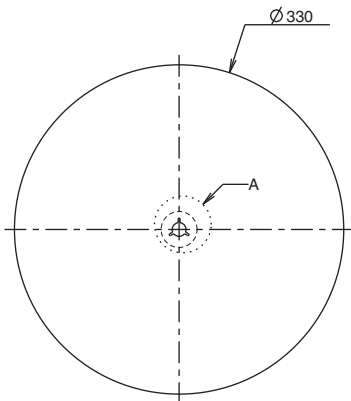
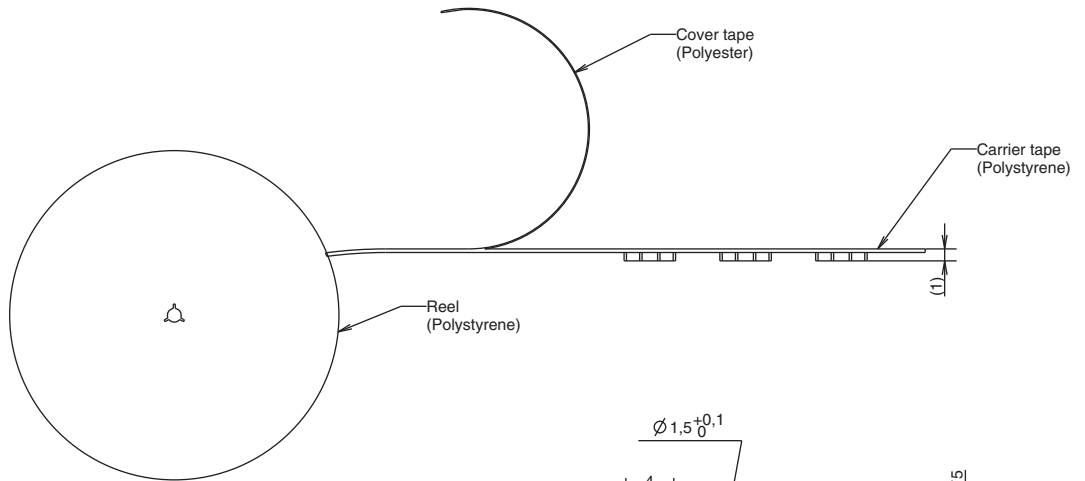
B



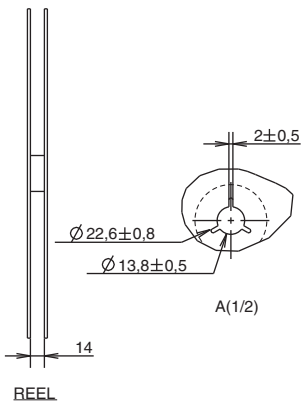
SCHEMATIC



RECOMMENDED PCB LAYOUT



CARRIER TAPE NOTE:



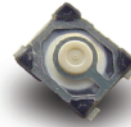
KMT2 Series Nano-Miniature SMT Top Actuated

Features

- **Smallest footprint**
- **High number of cycles within the smallest packaging**
- **Smallest thickness with integrated actuator**
- **Ground pin option**
- **Halogen free**

Typical Applications

- **Mobile Phones**
- **Hearing Aids**
- **MP3 accessories**
- **Bluetooth Headset**



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type G and NG	Operating force Newtons (grams)	Operating Life	Tactile Feeling	Travel mm
KMT 211 HF LFS	1.0 (100) ± 0.25	150,000	≥ 10%	0.15 ± 0.1
KMT 221 HF LFS	1.6 (160) ± 0.40	150,000	≥ 30%	0.15 ± 0.1

Electrical

	Silver
MAXIMUM POWER:	0.5 VA
MAXIMUM VOLTAGE:	32 VDC
MINIMUM VOLTAGE:	20 mV
MAXIMUM CURRENT DC:	50 mA
MINIMUM CURRENT DC:	1 mA
DIELECTRIC STRENGTH:	≥ 250 Vrms (1mn)
CONTACT RESISTANCE:	≤ 150 mΩ
INSULATION RESISTANCE:	≥ 50 MΩ
BOUNCE TIME:	≤ 6 ms

Environmental

	Silver
OPERATING TEMPERATURE:	-40°C to 85°C
STORAGE TEMPERATURE:	-55°C (10 days) +85°C (4 days)

Process

SOLDERING: This component is suited to the following methods:
– Infrared Reflow Soldering in accordance with IEC61760-1

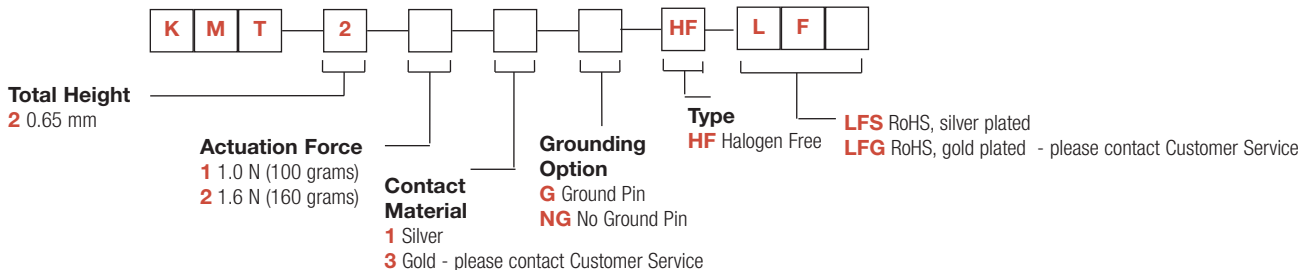
Packaging

In reels of 4,000 pieces.
Dimensions of reels according to EIA 481B
External diameter 180 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Part Number Description

For any part number different from those listed above, please consult your local representative.

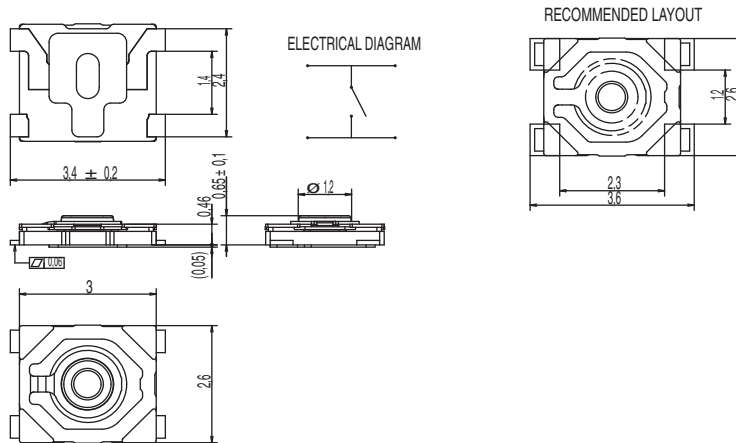


KMT2 Series Nano-Miniature SMT Top Actuated

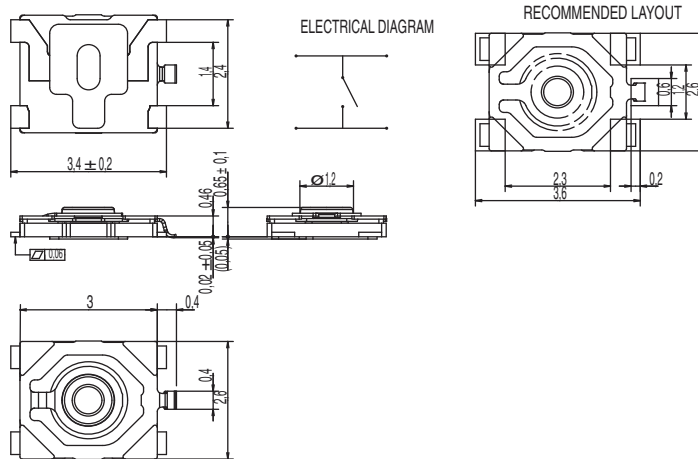
Tactile Switches

B

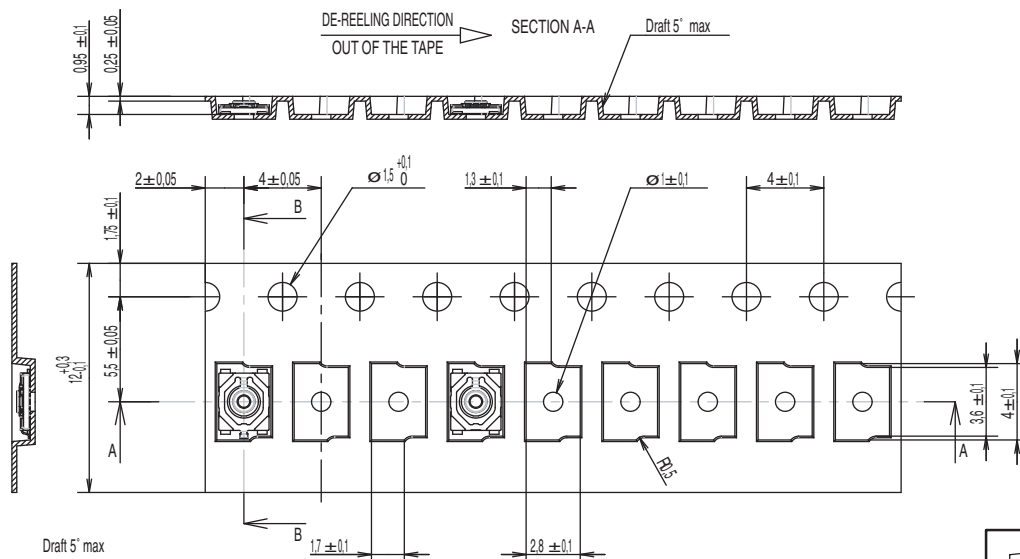
KMT Series – No Ground Pin



KMT Series – With Ground Pin



TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change



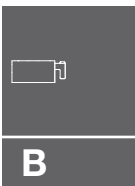
KMT0 Series Nano-Miniature SMT Top Actuated

Features

- **Smallest footprint**
- **Smallest thickness with integrated actuator**
- **Extended life cycles**
- **IP68**
- **Ultra low current capabilities**

Typical Applications

- **Mobile Phones**
- **Hearing Aids**
- **MP3 accessories**
- **Bluetooth Headset**
- **Automotive keyless entry system**
- **Smoke and CO detectors**
- **E-readers**
- **Home automation remote controls**



Tactile Switches

Specification

FUNCTION: momentary action, normally open
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: J lead type for SMT

Mechanical

TRAVEL (mm): 0.15 ± 0.1

	Operating force Newtons (grams)	Tactile Feeling	Operating Life
KMT011NGJLHS	1.0 (100) ± 25%	≥ 10%	300,000
KMT021NGJLHS	1.6 (160) ± 25%	≥ 30%	300,000
KMT071NGJLHS	2.3 (230) ± 25%	≥ 30%	300,000
KMT031NGJLHS	3.4 (340) ± 25%	≥ 30%	300,000

	Operating force Newtons (grams)	Tactile Feeling	Operating Life
KMT012NGJLHS	1.0 (100) ± 25%	≥ 10%	1,000,000
KMT022NGJLHS	1.6 (160) ± 25%	≥ 30%	600,000
KMT072NGJLHS	2.3 (230) ± 25%	≥ 30%	600,000

Electrical

MAXIMUM POWER:	0.5 VA
MAXIMUM VOLTAGE:	32 VDC
MINIMUM VOLTAGE:	20 mV
MAXIMUM CURRENT DC:	50 mA
MINIMUM CURRENT DC:	1 mA
DIELECTRIC STRENGTH:	≥ 250 Vrms (1mn)
CONTACT RESISTANCE:	≤ 150 mΩ
INSULATION RESISTANCE:	≥ 50 MΩ
BOUNCE TIME:	≤ 6 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C
STORAGE TEMPERATURE: -55°C (10 days) +85°C (4 days)

Process

SOLDERING: This component is suited to the following methods:
– Infrared Reflow Soldering in accordance with IEC61760-1

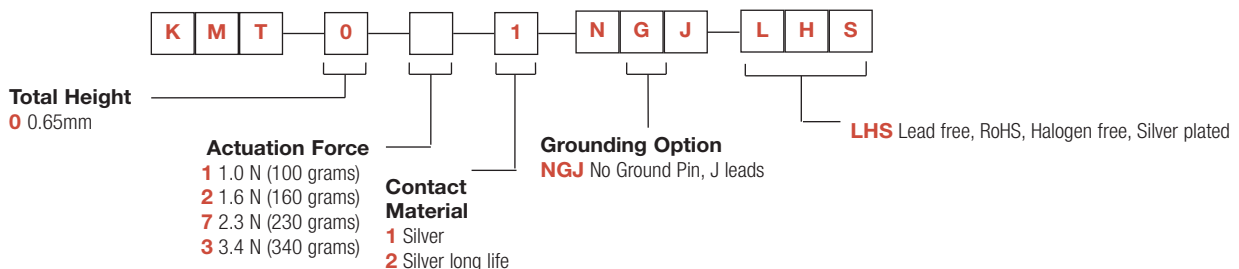
Packaging

In reels of 5,000 pieces.
Dimensions of reels according to EIA 481B
External diameter 180 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Part Number Description

For any part number different from those listed above, please consult your local representative.

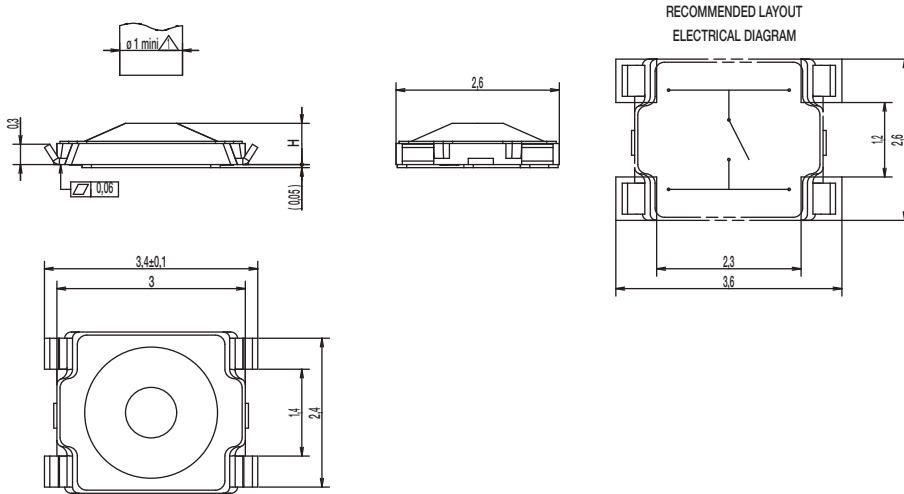


KMT0 Series Nano-Miniature SMT Top Actuated

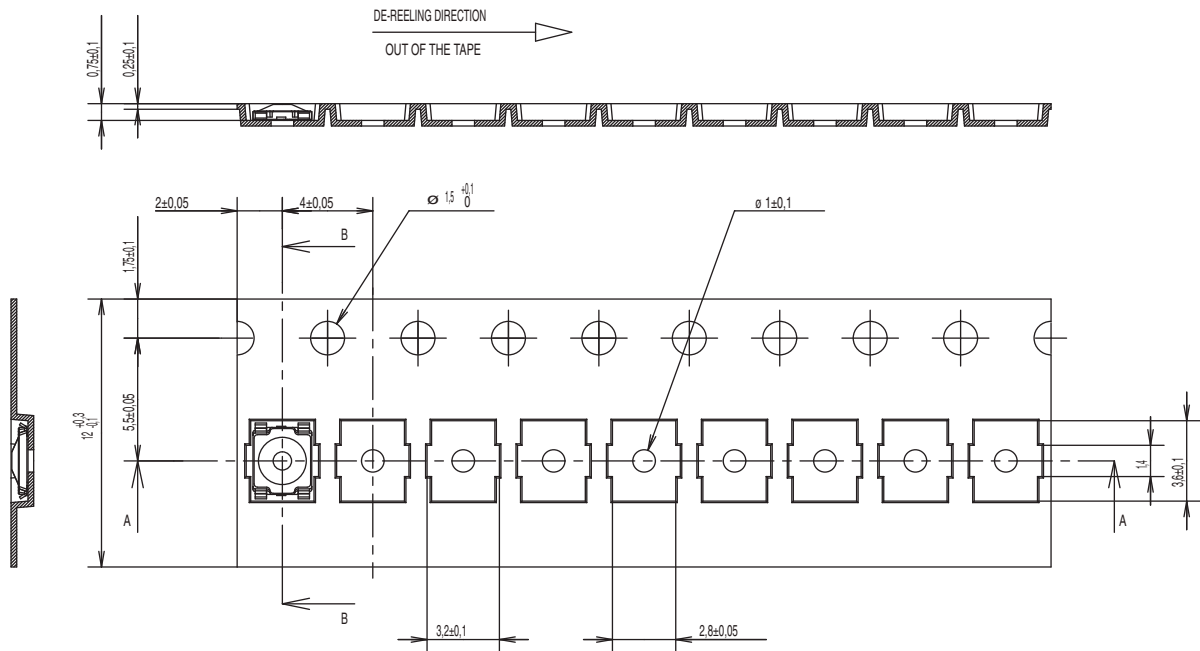
Minimum actuator diameter is 1.0 mm. It is recommended to enlarge this diameter to a full flat surface covering the switch.

Tactile Switches

B



TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change



KMR 2 Series Microminiature SMT Top Actuated

Features/Benefits

- Small footprint
- 4 actuation forces
- Excellent tactile feel
- Ultra low current capabilities
- IP40

Typical Applications

- Automotive
- Industrial electronics
- Medical equipment



Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type G and NG See description below	Operating force N (grs)	Operating life (cycles)	Travel (mm)
KMR211 LFS	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR211 ULC LFS	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR213 LFG	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR213 ULC LFG	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR221 LFS	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR221 ULC LFS	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR223 LFG	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR223 ULC LFG	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR231 LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR231 ULC LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR232 LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR232 ULC LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR233 LFG	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR233 ULC LFG	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR241 LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR241 ULC LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR242 LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR242 ULC LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR243 LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR243 ULC LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mVDC	20 mVDC
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA*	1 mA*
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE:	≥ 1GΩ	
BOUNCE TIME:	≤ 3 ms	

*For ULC version minimum current is 1µA at 1.8 VDC

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

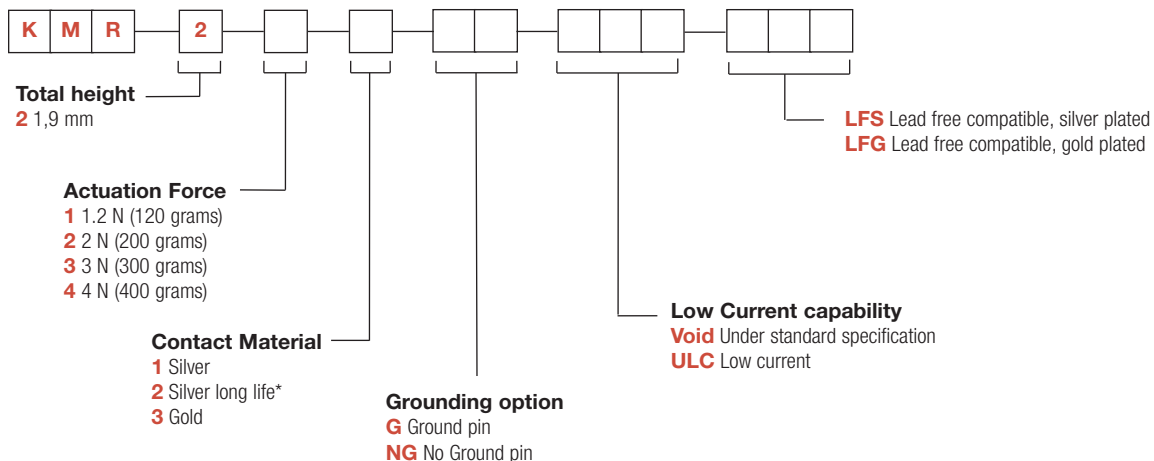
In reels of 7,000 pieces
External diameter 330 mm ± 2 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

TACTILE FEELING: KMR 2 series with actuation force in 2N - 3N - 4N: ≥ 30%
KMR 2 series with actuation force in 1.2N: ≥ 20%

Part Number Description

For any part number different from those listed above, please consult your local representative.



* Silver long life is available in 3N and 4N actuation force. For other versions, please contact Customer Service.



KMR 2 Series Microminiature Tact Switch for SMT

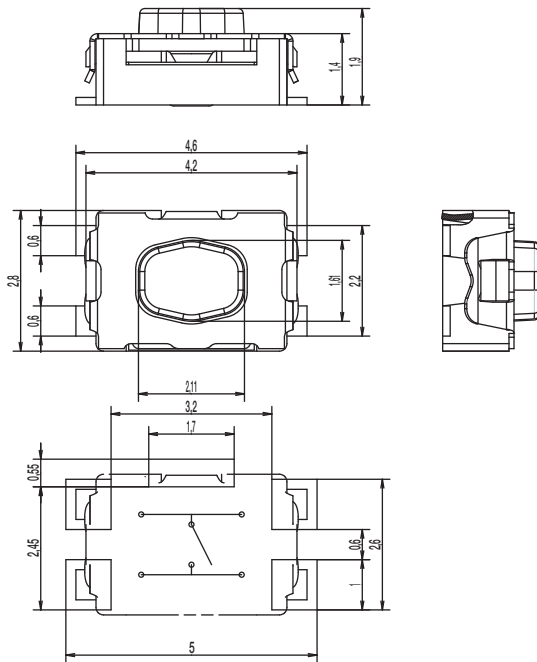
KMR 2 Series - 1.9 mm height

PCB layout shown with ground pin option

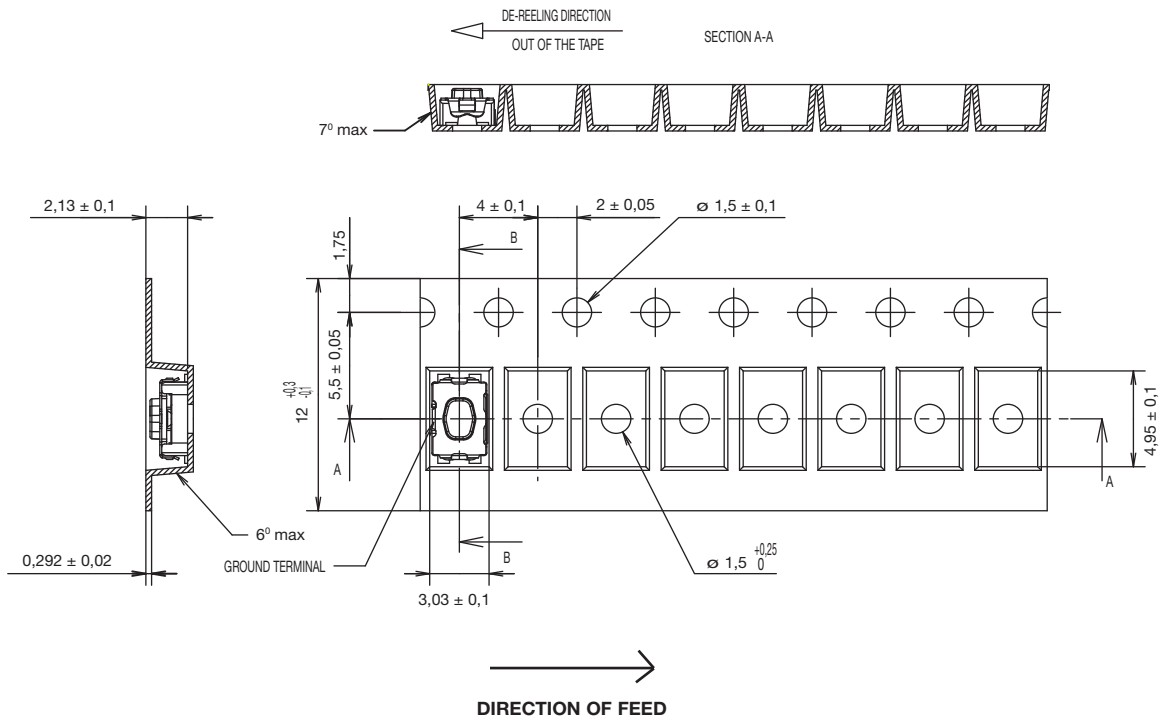


B

Tactile Switches



TAPE & REEL



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

KMR 4 Series Microminiature SMT Top Actuated

Features/Benefits

- Small footprint
- 4 actuation forces
- Excellent tactile feel
- Ultra low current capabilities
- IP40

Typical Applications

- Automotive
- Industrial electronics
- Medical equipment



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type G and NG See description below	Operating force N (grs)	Operating life (cycles)	Travel (mm)
KMR411 LFS	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR411 ULC LFS	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR413 LFG	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR413 ULC LFG	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR421 LFS	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR421 ULC LFS	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR423 LFG	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR423 ULC LFG	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR431 LFS	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR431 ULC LFS	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR432 LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR432ULC LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR433 LFG	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR433ULC LFG	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR441 LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR441 ULC LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR442 LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR442 ULC LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR443 LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR443 ULC LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mVDC	20 mVDC
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA*	1 mA*
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE:	≥ 1GΩ	
BOUNCE TIME:	≤ 3 ms	

*For ULC version minimum current is 1µA at 1.8 VDC

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

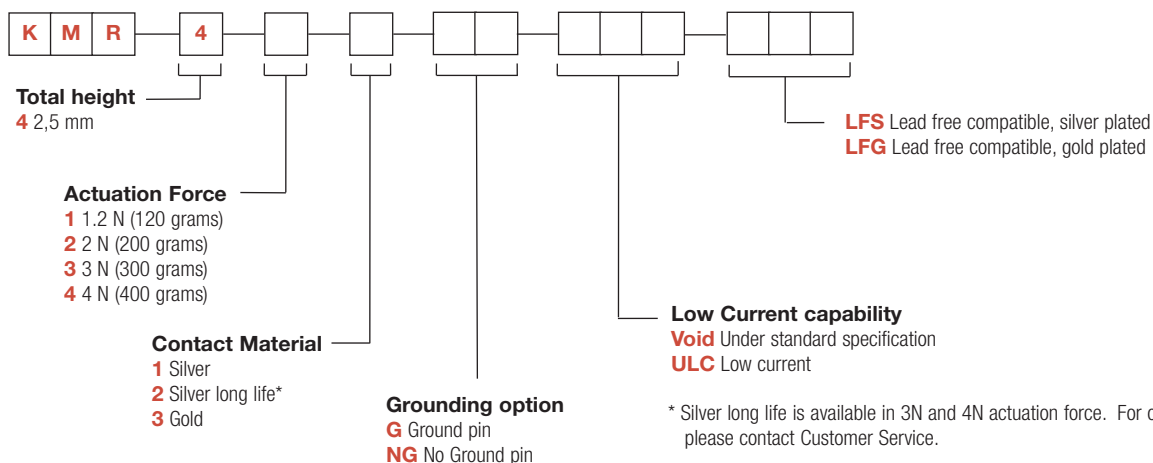
In reels of 6,000 pieces
External diameter 330 mm ± 2 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

TACTILE FEELING: KMR 4 series with actuation force in 2N - 3N - 4N: ≥ 25%
KMR 4 series with actuation force in 1.2N: ≥ 20%

Part Number Description

For any part number different from those listed above, please consult your local representative.



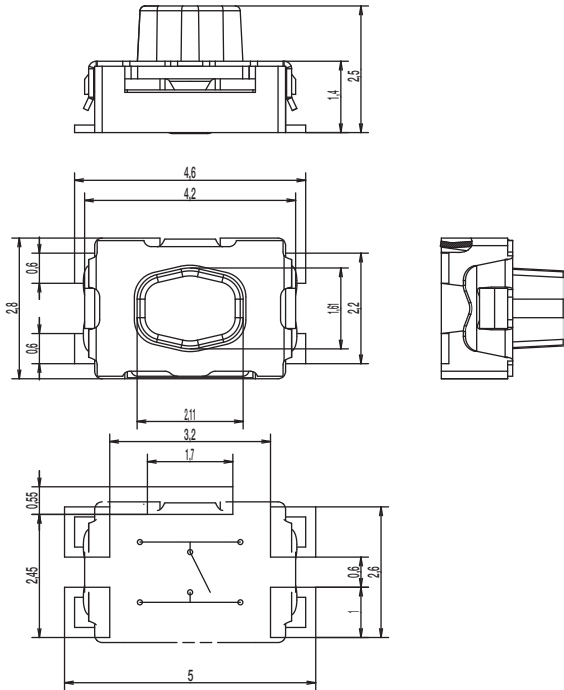
KMR 4 Series Microminiature Tact Switch for SMT

KMR 4 Series - 2.5 mm height

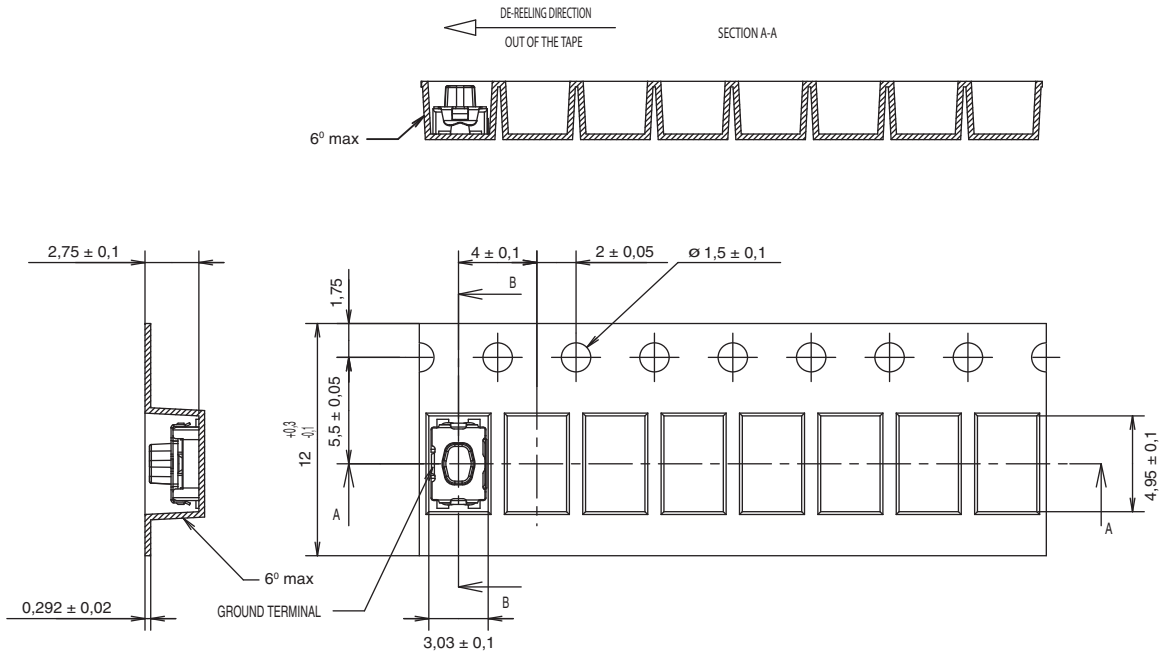
PCB layout shown with ground pin option

B

Tactile Switches



TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change



KMR 6 Series Microminiature SMT Top Actuated IP67

Features/Benefits

- Watertight IP67
- Standard and long life versions
- No ground pin
- Ultra low current capabilities
- Excellent tactile feel

Typical Applications

- Automotive
- Medical
- Consumer
- Industrial



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type NG See description below	Operating force N (grs)	Operating life (cycles)	Travel (mm)
KMR611NG LFS	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR611NG ULC LFS	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR613NG LFG	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR613NG ULC LFG	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR621NG LFS	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR621NG ULC LFS	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR623NG LFG	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR623NG ULC LFG	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR631NG LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR631NG ULC LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR632NG LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR632NG ULC LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR633NG LFG	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR633NG ULC LFG	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR641NG LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR641NG ULC LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR642NG LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR642NG ULC LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR643NG LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR643NG ULC LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mVDC	20 mVDC
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA*	1 mA*
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE:	≥ 1GΩ	
BOUNCE TIME:	≤ 3 ms	

*For ULC version minimum current is 1µA at 1.8 VDC

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

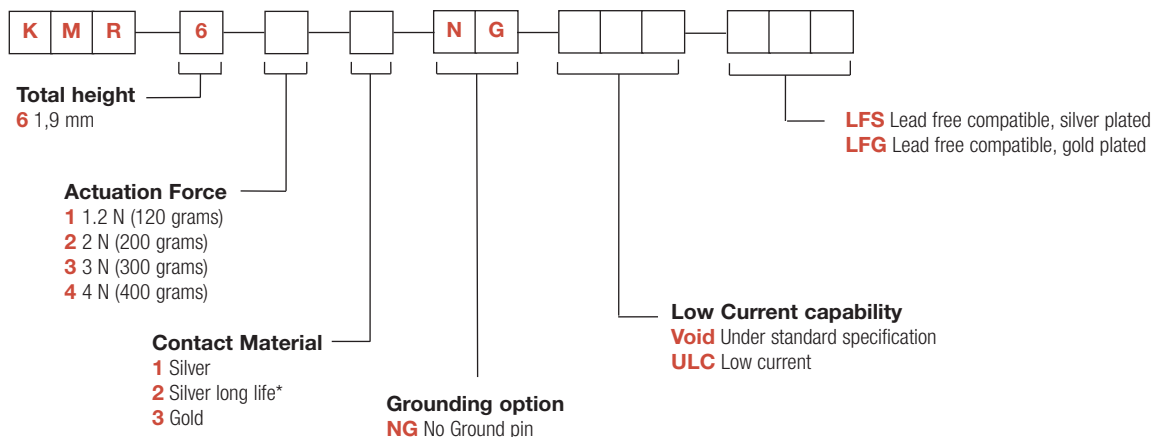
In reels of 7,000 pieces
External diameter 330 mm ± 2 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

TACTILE FEELING: KMR 6 series with actuation force in 2N - 3N - 4N: ≥ 30%
KMR 6 series with actuation force in 1.2N: ≥ 20%

Part Number Description

For any part number different from those listed above, please consult your local representative.



* Silver long life is available in 3N and 4N actuation force. For other versions, please contact Customer Service.



Dimensions are shown: mm
Specifications and dimensions subject to change

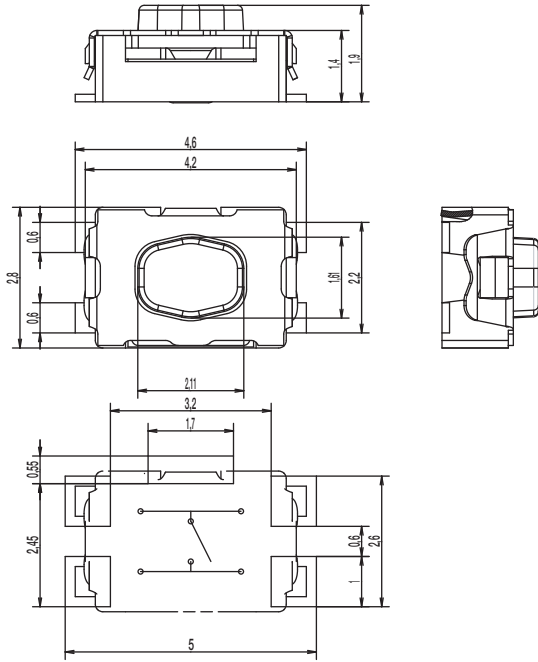
KMR 6 Series Microminiature SMT Top Actuated IP67

KMR 6 Series - 1.9 mm height

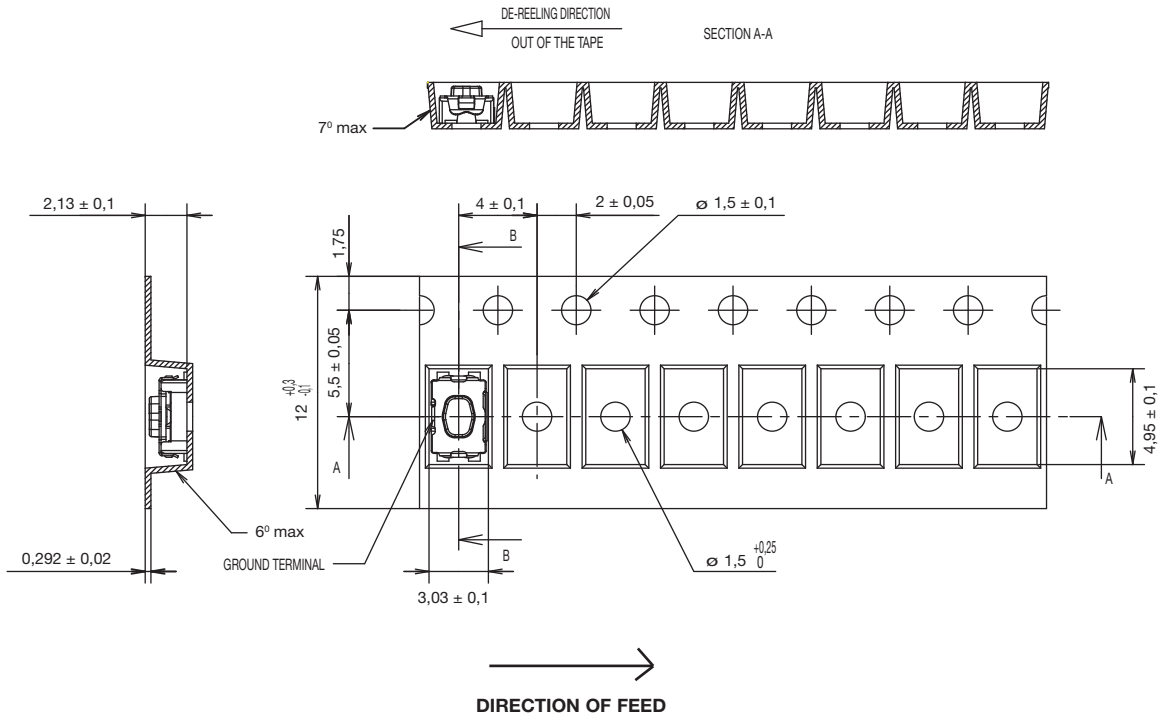
PCB layout shown with ground pin option

B

Tactile Switches



TAPE & REEL



KMR 7 Series Microminiature SMT Top Actuated IP67

Features/Benefits

- Watertight IP67
- Standard and long life versions
- No ground pin
- Ultra low current capabilities
- Excellent tactile feel

Typical Applications

- Automotive
- Medical
- Consumer
- Industrial



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type NG See description below	Operating force N (grs)	Operating life (cycles)	Travel (mm)
KMR711NG LFS	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR711NG ULC LFS	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR713NG LFG	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR713NG ULC LFG	1.2 (120) ± 0.30	100,000	0.20 mm ± 0.1
KMR721NG LFS	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR721NG ULC LFS	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR723NG LFG	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR723NG ULC LFG	2.0 (200) ± 0.50	100,000	0.25 mm ± 0.1
KMR731NG LFS	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR731NG ULC LFS	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR732NG LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR732NG ULC LFS	3.0 (300) ± 0.75	300,000	0.25 mm ± 0.1
KMR733NG LFG	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR733NG ULC LFG	3.0 (300) ± 0.75	100,000	0.25 mm ± 0.1
KMR741NG LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR741NG ULC LFS	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR742NG LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR742NG ULC LFS	4.0 (400) ± 1.00	200,000	0.30 mm ± 0.1
KMR743NG LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1
KMR743NG ULC LFG	4.0 (400) ± 1.00	100,000	0.30 mm ± 0.1

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mVDC	20 mVDC
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA*	1 mA*
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE:	≥ 1GΩ	
BOUNCE TIME:	≤ 3 ms	

*For ULC version minimum current is 1µA at 1.8 VDC

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

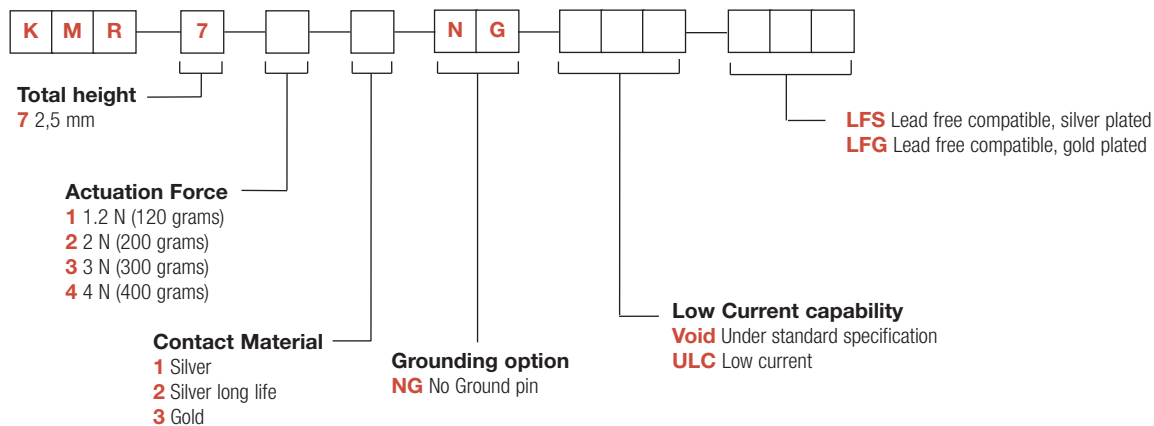
In reels of 6,000 pieces
External diameter 330 mm ± 2 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

TACTILE FEELING: KMR 7 series with actuation force in 2N - 3N - 4N: ≥ 25%
KMR 7 series with actuation force in 1.2N: ≥ 20%

Part Number Description

For any part number different from those listed above, please consult your local representative.



* Silver long life is available in 3N and 4N actuation force. For other versions, please contact Customer Service.



Dimensions are shown: mm
Specifications and dimensions subject to change

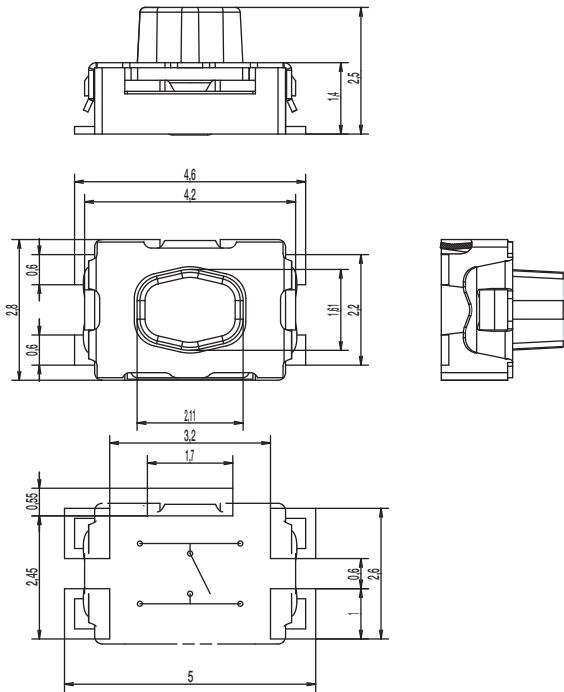
KMR 7 Series Microminiature SMT Top Actuated IP67

KMR 7 Series - 2.5 mm height

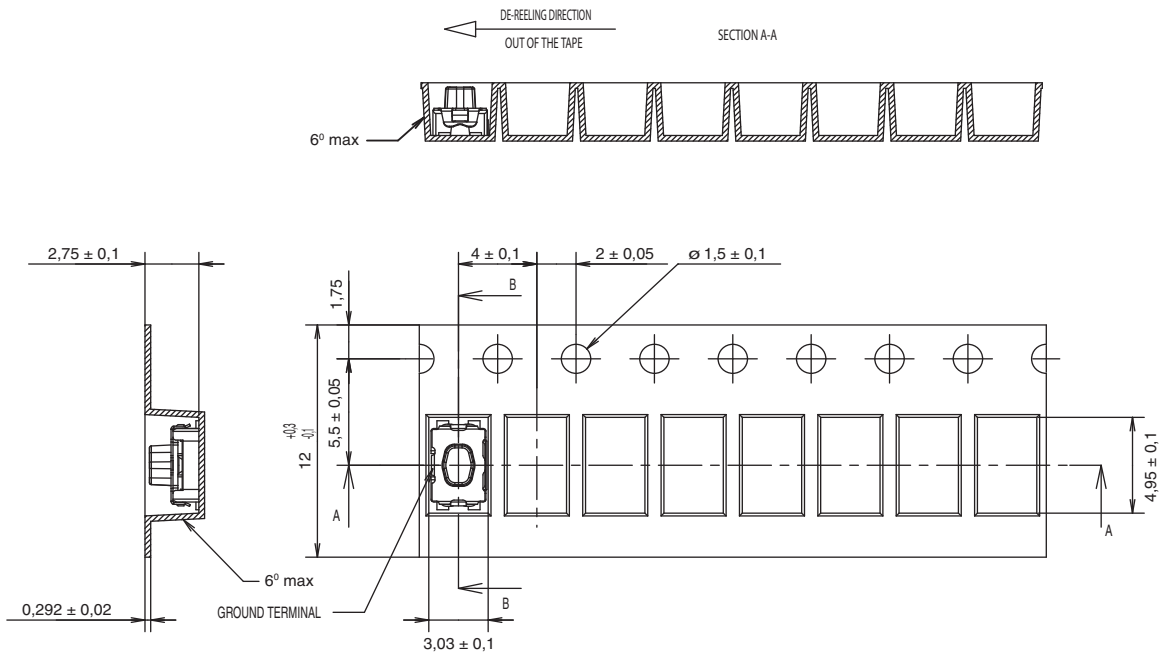
PCB layout shown with ground pin option

B

Tactile Switches



TAPE & REEL



KMR 8 Series Microminiature SMT Top Actuated

Features/Benefits

- Small footprint
- 3 actuation forces
- Excellent tactile feel
- Hard actuator
- IP40

Typical Applications

- Automotive
- Mobile phones
- Industrial electronics
- Medical equipment



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type G and NG See description below	Operating force N (grs)	Operating life (cycles)	Travel (mm)
KMR811G LFS	1.2 (120) ± 0.30	200,000	0.20 mm ± 0.1
KMR821G LFS	2.0 (200) ± 0.50	200,000	0.25 mm ± 0.1
KMR831G LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1
KMR831NG ULC LFS	3.0 (300) ± 0.75	150,000	0.25 mm ± 0.1

TACTILE FEELING:

KMR 8 series with actuation force in 2N - 3N - 4N: ≥ 30%
KMR 8 series with actuation force in 1.2N: ≥ 20%

Electrical

	Silver
MAXIMUM POWER:	1 VA
MAXIMUM VOLTAGE:	32 VDC
MINIMUM VOLTAGE:	20 mVDC
MAXIMUM CURRENT:	50 mA
MINIMUM CURRENT:	1 mA*
DIELECTRIC STRENGTH:	≥ 250 Vrms
CONTACT RESISTANCE:	≤ 100 mΩ
INSULATION RESISTANCE:	≥ 1GΩ
BOUNCE TIME:	≤ 3 ms

*For ULC version minimum current is 1µA at 1.8 VDC

Environmental

	Silver
OPERATING TEMPERATURE:	-40°C to 85°C
STORAGE TEMPERATURE:	-55°C to 85°C

Process

Infrared Reflow Soldering in accordance with IEC61760-1

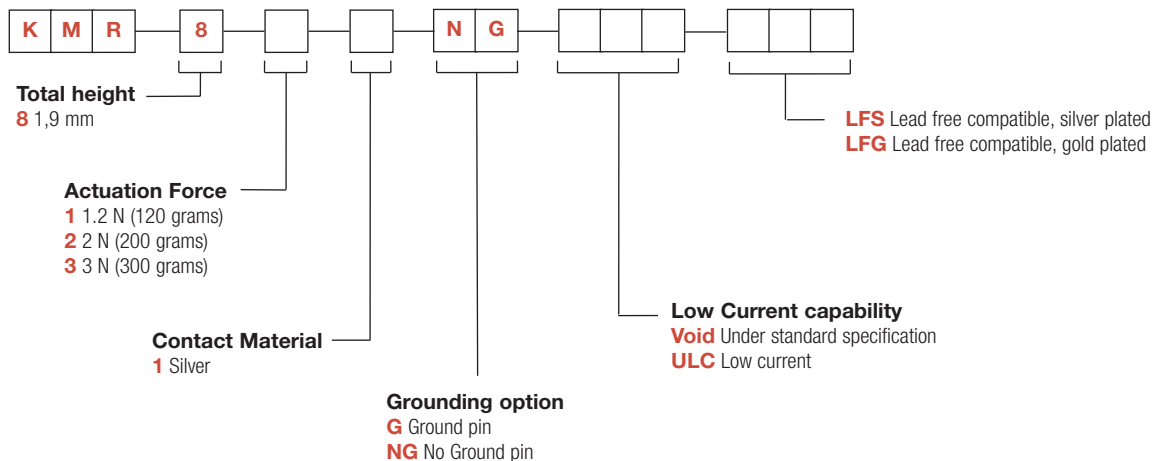
Packaging

In reels of 7,000 pieces
External diameter 330 mm ± 2 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

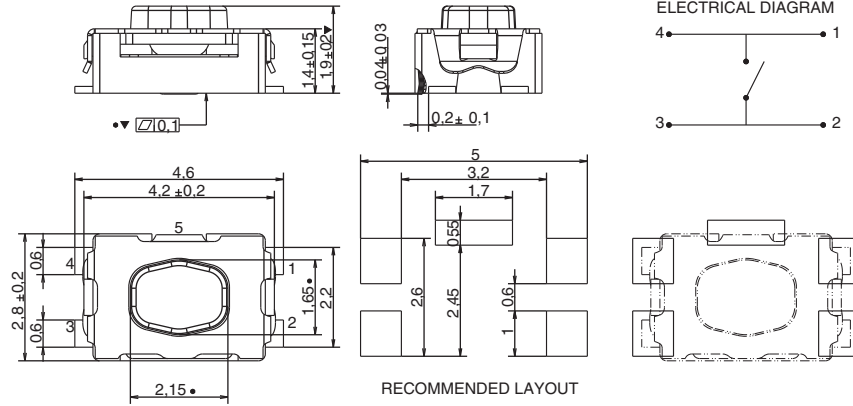
Part Number Description

For any part number different from those listed above, please consult your local representative.

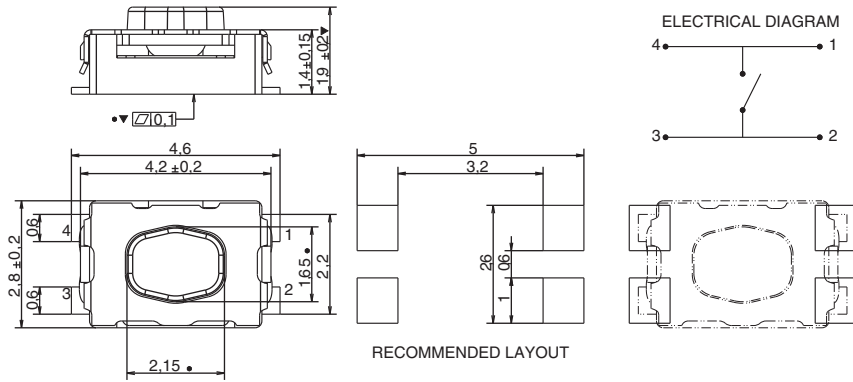


KMR 8 Series Microminiature SMT Top Actuated

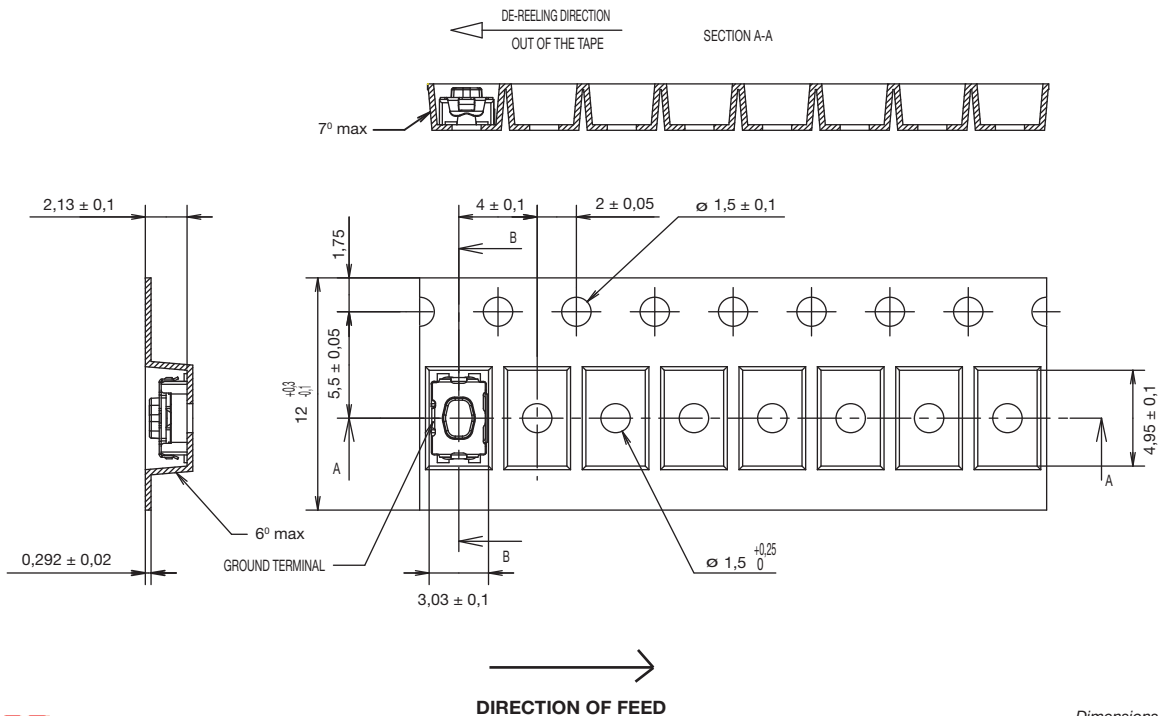
G - Ground Pin



NG - No Ground Pin



TAPE & REEL



KMS Series Microminiature SMT Side Actuated

Features/Benefits

- Compact size
- Excellent tactile feel
- ESD protection
- Positioning pegs for stability
- RoHS compliant and compatible

Typical Applications

- Mobile phones
- Medical handheld monitors
- Consumer electronics
- Telecommunication networks



B

Tactile Switches

Specification

FUNCTION: Momentary
CONTACT ARRANGEMENT: SPST, N.O.
TERMINALS: Gullwing type for SMT
IP40 Sealed

Mechanical

OVERLOAD: 20N
TACTILE FEELING: 15% min. for the 2N version
25% min for the 2.5N version

Type	Operating force Newtons (grams)	Operating life (operations)	Travel
KMS221G/GP	2N (200) ± 0.5	100 K cycles	0,25 ± 0,15
KMS223G/GP	2N (200) ± 0.5	100 K cycles	0,25 ± 0,15
KMS231G/GP	3N (300) ± 0.6	100 K cycles	0,3 ± 0,15
KMS233G/GP	3N (300) ± 0.6	100 K cycles	0,3 ± 0,15

Note: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Packaging

Tape and reels in reels of 3,000 pieces.
External diameter 330mm ± 2mm.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MAXIMUM CURRENT DC:	50 mA	10 mA
MINIMUM CURRENT DC:	1 mA	1 mA
DIELECTRIC STRENGTH: 250 VDC		
CONTACT RESISTANCE: ≤100 mΩ		
INSULATION RESISTANCE: 10 ⁹ Ω		
BOUNCE TIME: ≤ 3 ms		

Environmental

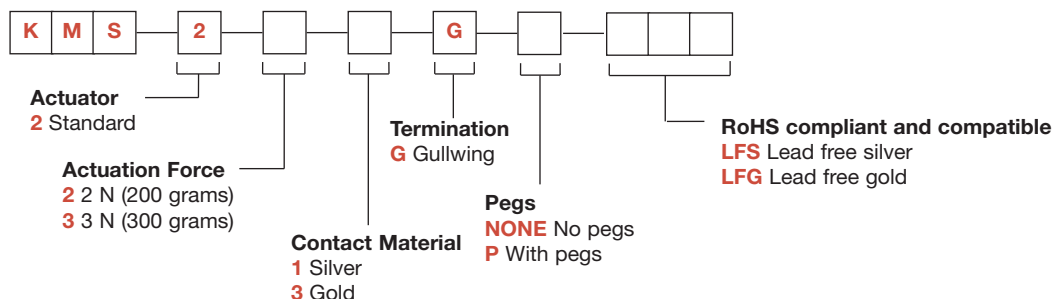
	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared reflow soldering in accordance with IEC 61760-1

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

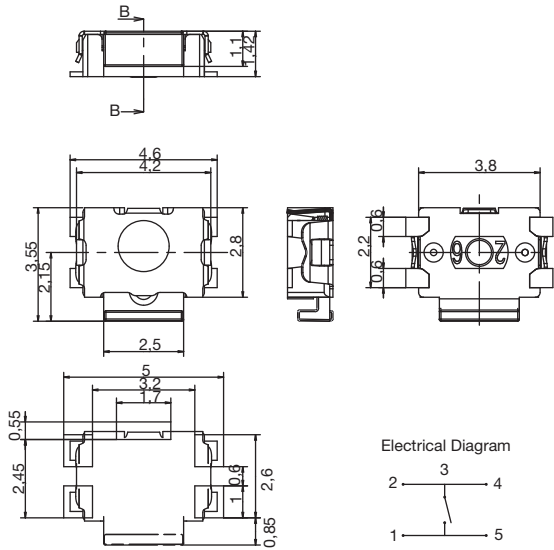


KMS Series Microminiature SMT Side Actuated

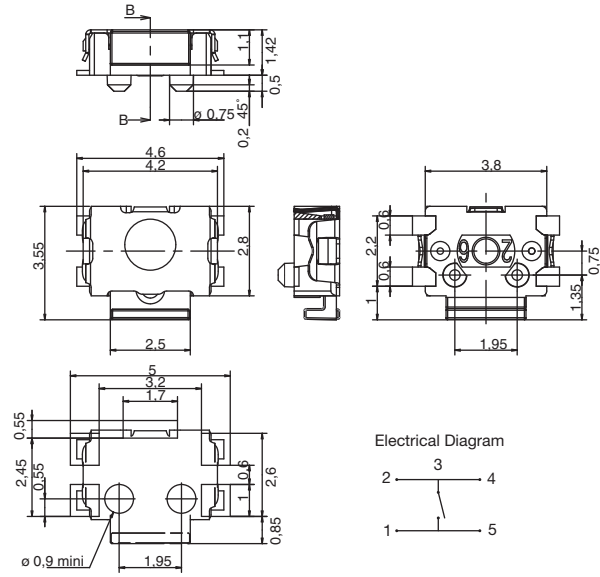
Tactile Switches

B

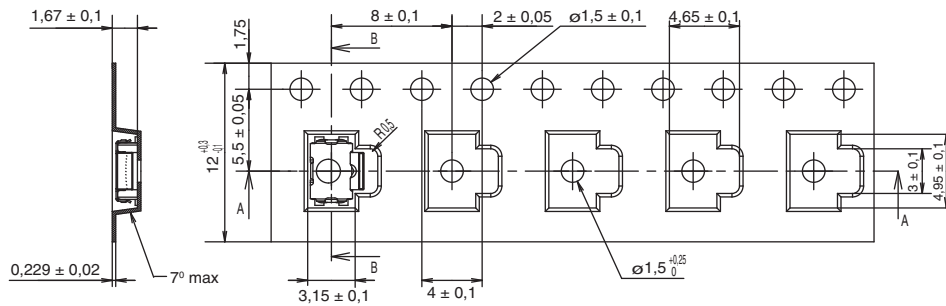
KMS



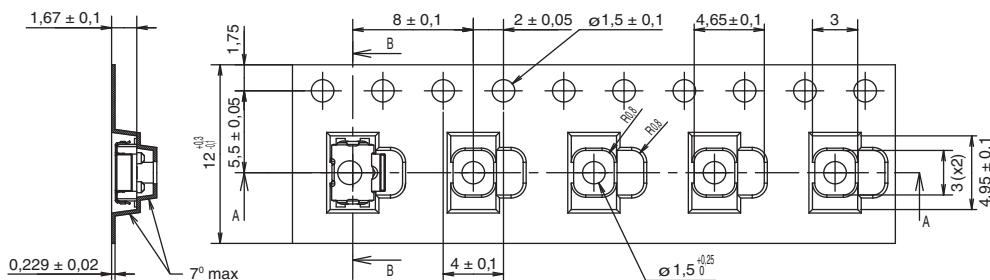
KMS WITH PEGS



TAPE & REEL



WITH PEGS



→
DIRECTION OF FEED



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



PTS 525 Series Microminiature Tact Switch for SMT

Features/Benefits

- 0.8 & 1.5 mm actuator height
- Ruggedized package in a compact size
- High number of cycles

Typical Applications

- Consumer products
- Instrumentation
- Remote controls



B

Tactile Switches

Specification

FUNCTION: Momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.

Electrical

MAXIMUM VOLTAGE: 15 VDC
MAXIMUM CURRENT DC: 20 mA
DIELECTRIC STRENGTH: 250 VA C (1mn)
CONTACT RESISTANCE: $\leq 100 \text{ m}\Omega$
INSULATION RESISTANCE: $\geq 100 \text{ M}\Omega$
BOUNCE TIME: $\leq 10 \text{ ms}$

Environmental

OPERATING TEMPERATURE: -20°C to 70°C

Process

SOLDERING: This component is suited to the following methods:
Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

Switches in reels of:
5,000 pieces in 0.8 mm height
4,000 pieces in 1.5 mm height
Dimensions of reels according to EIA 481B
External diameter 330 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Please see chart below for full part numbers.

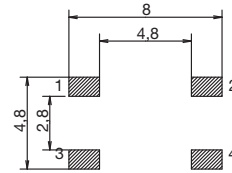
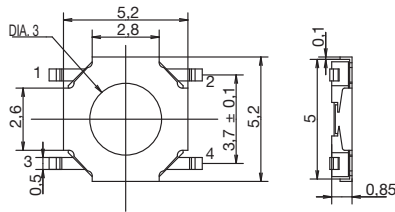
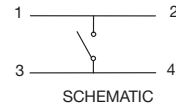
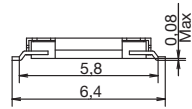
Part Number	Height (mm)	Leads Shape	Ground Pin	Force	Travel (mm)	Operating Life
PTS525 SM08 SMTR 2 LFS	0.8	G	No	160 gf \pm 50 gf	0.25 \pm 0.2	1,000,000
PTS525 SK08 SMTR 2 LFS	0.8	G	No	260 gf \pm 50 gf	0.25 \pm 0.2	200,000
PTS525 SM15 SMTR 2 LFS	1.5	G	No	160 gf \pm 50 gf	0.25 \pm 0.2	1,000,000
PTS525 SK15 SMTR 2 LFS	1.5	G	No	260 gf \pm 50 gf	0.25 \pm 0.2	500,000
PTS525 SMG15 SMTR 2 LFS	1.5	G	Yes	160 gf \pm 50 gf	0.25 \pm 0.2	1,000,000
PTS525 SKG15 SMTR 2 LFS	1.5	G	Yes	260 gf \pm 50 gf	0.25 \pm 0.2	500,000
PTS525 SMG15J SMTR 2 LFS	1.5	J	Yes	160 gf \pm 50 gf	0.25 \pm 0.2	1,000,000
PTS525 SKG15J SMTR 2 LFS	1.5	J	Yes	260 gf \pm 50 gf	0.25 \pm 0.2	500,000



Dimensions are shown: mm
Specifications and dimensions subject to change

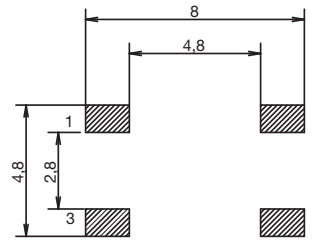
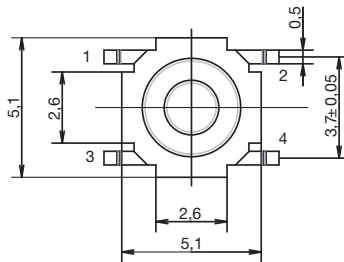
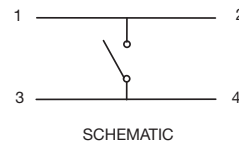
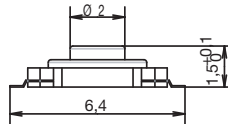
PTS 525 Series Microminiature Tact Switch for SMT

PTS525 SM08 SMTR2 LFS
PTS525 SK08 SMTR2 LFS



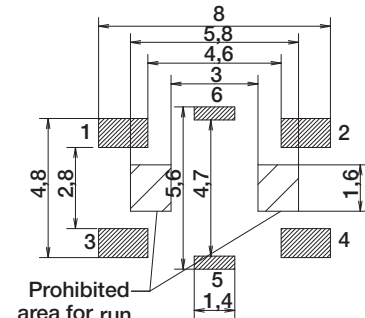
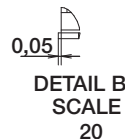
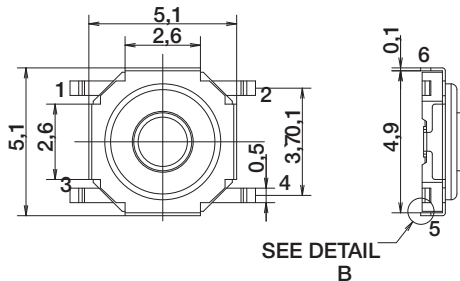
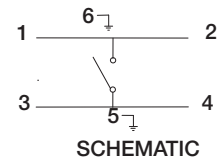
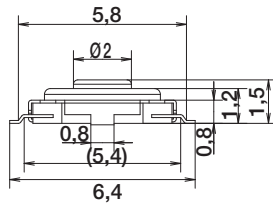
RECOMMENDED PCB LAYOUT

PTS525 SM15 SMTR2 LFS
PTS525 SK15 SMTR2 LFS



RECOMMENDED PCB LAYOUT

PTS525 SMG15 SMTR2 LFS
PTS525 SKG15 SMTR2 LFS



RECOMMENDED PCB LAYOUT

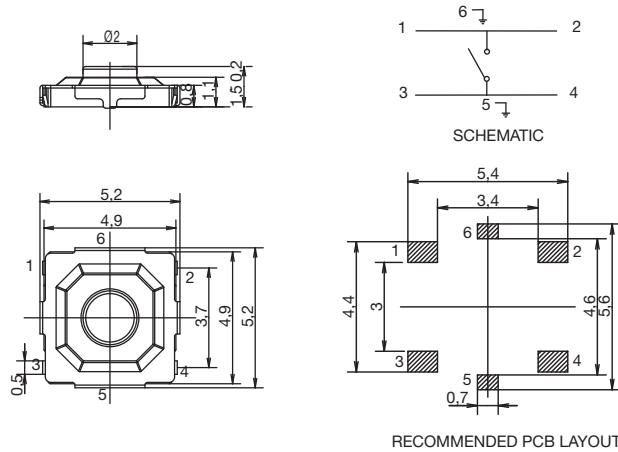
*Dimensions are shown: mm
Specifications and dimensions subject to change*



B

PTS 525 Series Microminiature Tact Switch for SMT

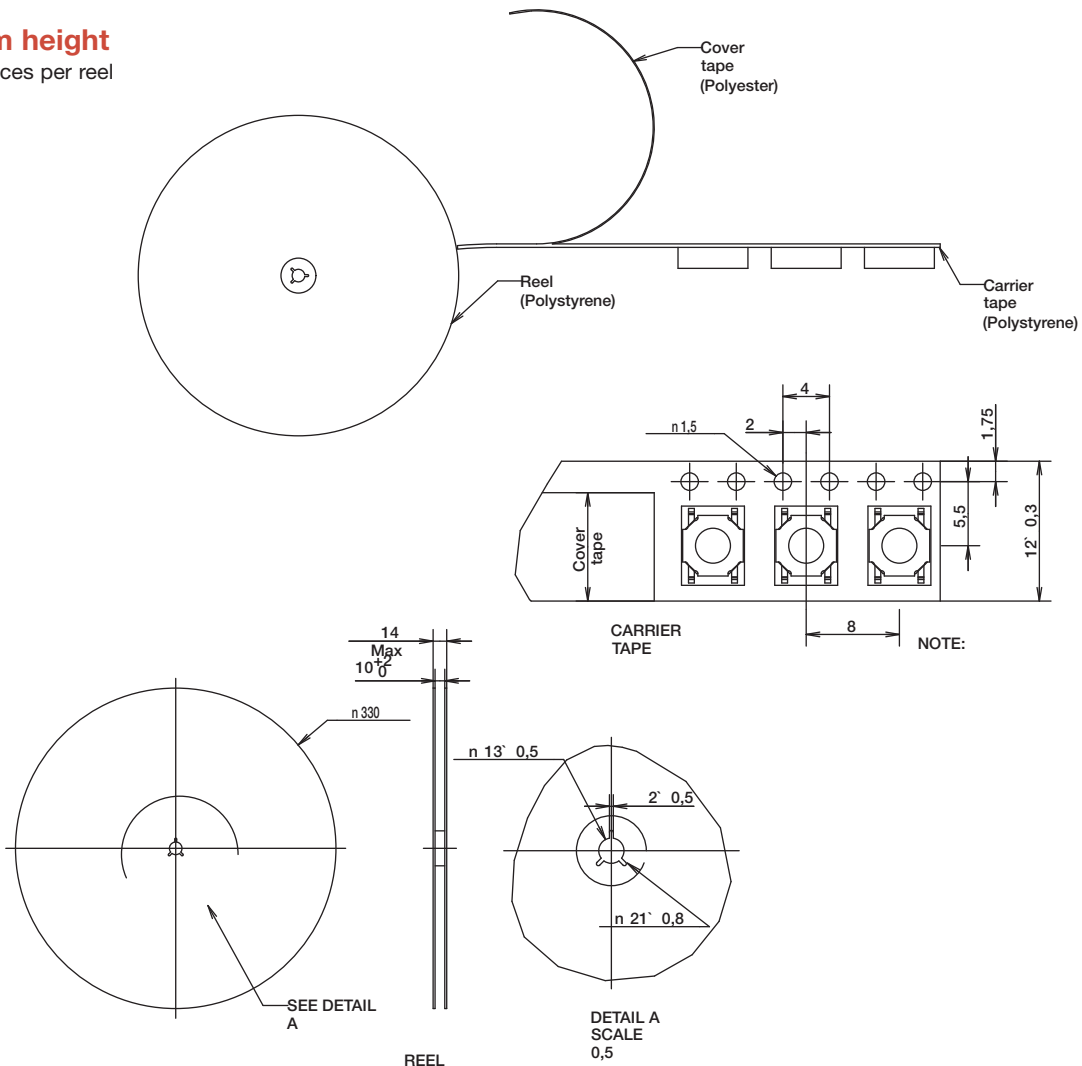
PTS525 SMG15J SMTR2 LFS
PTS525 SKG15J SMTR2 LFS



B
Tactile Switches

TAPE & REEL

0.8 mm height
5,000 pieces per reel



Dimensions are shown: mm
Specifications and dimensions subject to change

PTS 525 Series Microminiature Tact Switch for SMT

TAPE & REEL

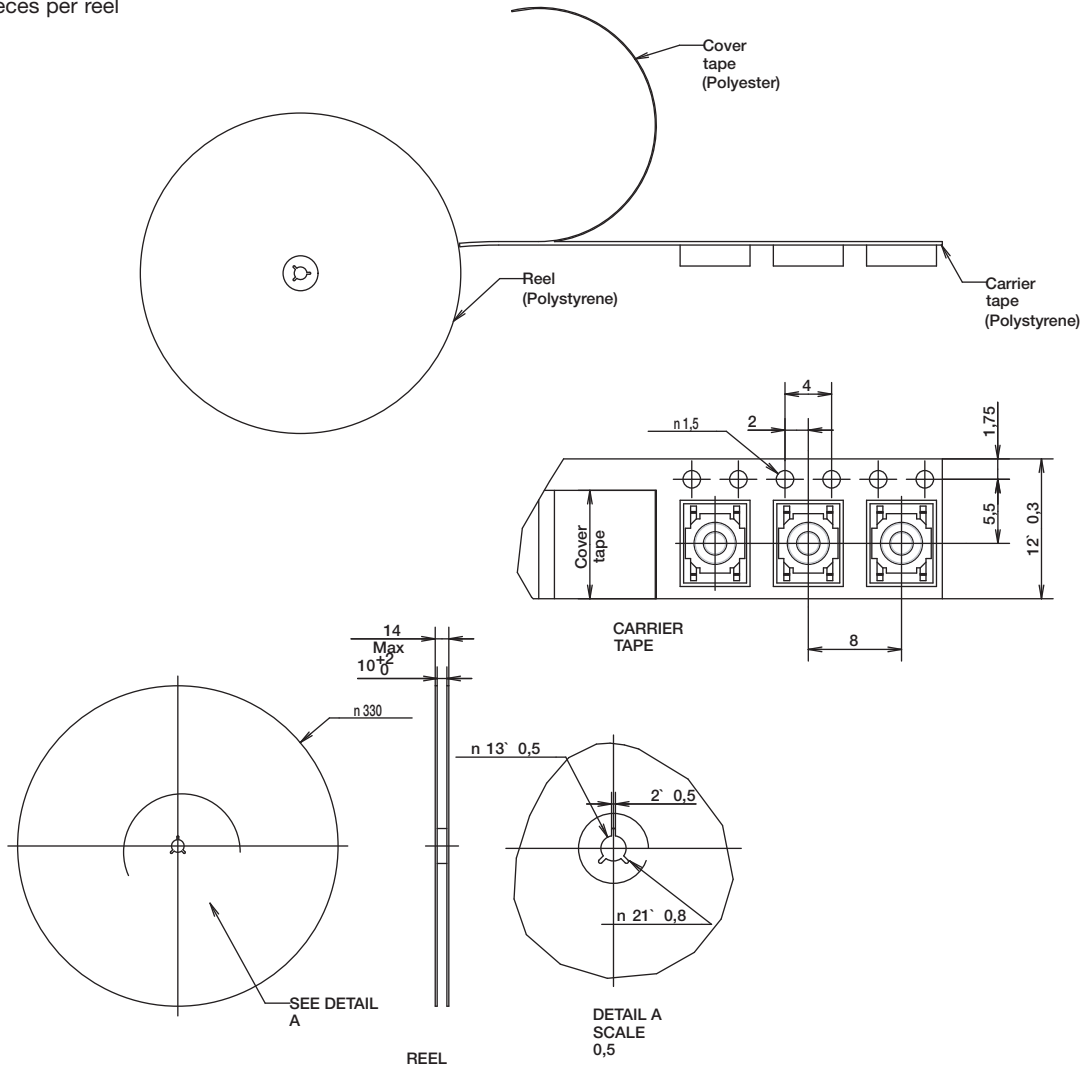
1.5 mm height

4,000 pieces per reel



B

Tactile Switches



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



PTS 530 Series Ultra Low Profile SMT Top Actuated

Features/Benefits

- 4.5 x 4.5 mm footprint
- 0.55 mm thickness
- High number of cycles
- Symbol line identification

Typical Applications

- MP3 accessories
- Bluetooth headset
- Remote controls
- Garage door opener



B

Tactile Switches

Specifications

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
 TERMINALS: Gullwing for SMT
 TRAVEL: 0.2mm - 0.1 /+ 0.15mm

Part Number	Operating Force (gf)	Operating Life (operations)
PTS530 GN055 SMTR LFS	100 ± 30	1,000,000
PTS530 GM055 SMTR LFS	160 ± 30	1,000,000
PTS530 GH055 SMTR LFS	200 ± 30	200,000
PTS530 GK055 SMTR LFS	260 ± 30	200,000
PTS530 GG065 SMTR LFS	400 ± 70	300,000
PTS530 GS065 SMTR LFS	600 - 50/+100	150,000

Electrical

MAXIMUM VOLTAGE: 12 VDC
 MAXIMUM CURRENT DC: 50 mA
 DIELECTRIC STRENGTH: 250 VA C (1mn)
 CONTACT RESISTANCE: ≤ 100 mΩ
 INSULATION RESISTANCE: ≥ 100 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C

Process

SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

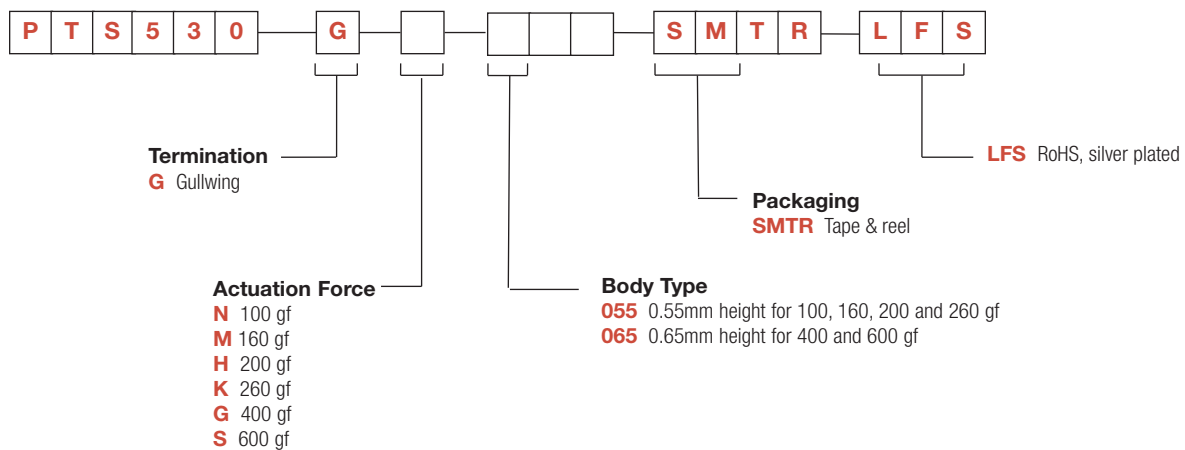
Switches in reels of 7,000 pieces.
 Dimensions of reels according to EIA 481B
 External diameter 330 mm

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

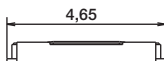
For any part number different from those listed above, please consult your local representative.



PTS 530 Series Ultra Low Profile SMT Top Actuated

TERMINATION

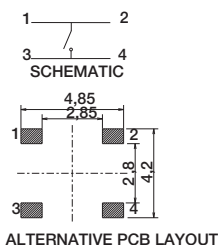
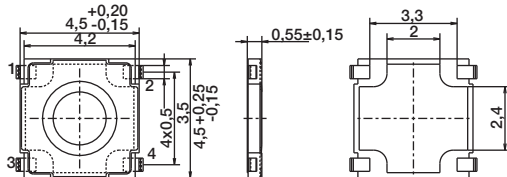
G GULLWING



BODY TYPE / ACTUATION FORCE

Tactile Switches

055 0,55 MM HEIGHT

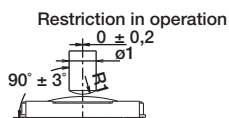
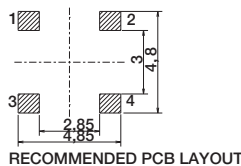
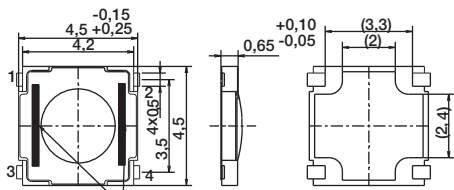
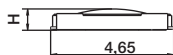


Actuation force identification lines:

N: 100 gf	
M: 160 gf	No Lines
H: 200 gf	
K: 260 gf	

065 0,65 MM HEIGHT

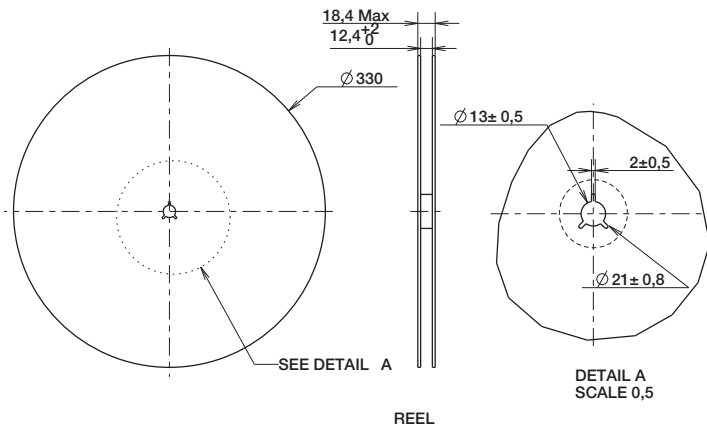
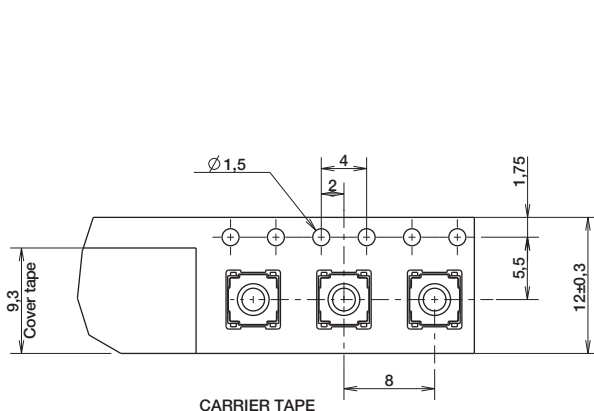
PART NUMBER	HEIGHT
PTS 530 GS 065 SMTR LFS	+0.1 -0.05 0.72
PTS 530 GG 065 SMTR LFS	0.68



Force symbol lines for 600 gf
No symbol line for 400 gf

G: 400 gf	No Lines
S: 600 gf	

TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change

PTS 540 Series Ultra Low Profile SMT Top Actuated

Features/Benefits

- 3.7 x 3.7 mm footprint
- 0.35 mm thickness
- High number of cycles

Typical Applications

- MP3 accessories
- Bluetooth headset
- Remote controls



B

Tactile Switches

Specifications

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
TERMINALS: J type for SMT
TRAVEL: 0.15 mm ± 0.1 mm

Mechanical

Part Number	Operating Force (gf)	Operating Life (operations)
PTS540 JM035 SMTR LFS	160 ± 50	500,000
PTS540 JK035 SMTR LFS	230 ± 50	300,000

Packaging

Switches in reels of 10,000 pieces.
Dimensions of reels according to EIA 481B
External diameter 330 mm

Electrical

MAXIMUM VOLTAGE: 12 VDC
MAXIMUM CURRENT DC: 50 mA
DIELECTRIC STRENGTH: 250 VA C (1mn)
CONTACT RESISTANCE: ≤ 100 mΩ
INSULATION RESISTANCE: ≥ 100 MΩ
BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -30°C to 85°C

Process

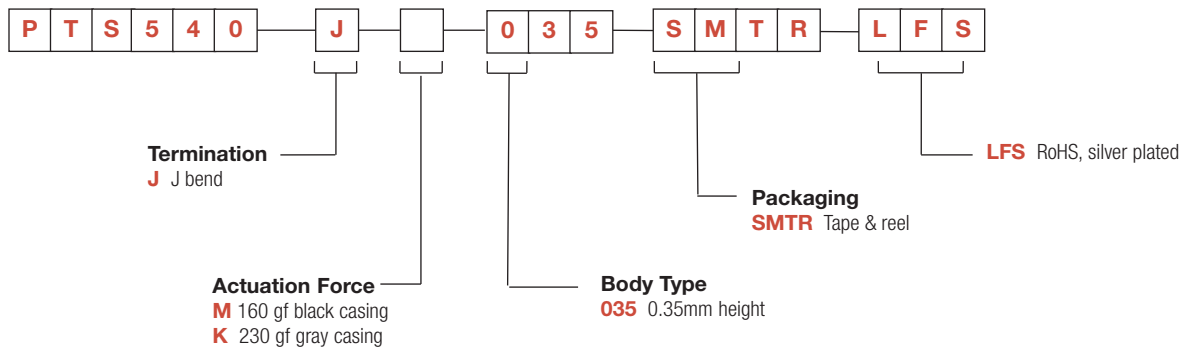
SOLDERING: This component is suited to the following methods:
Infrared Reflow Soldering in accordance with IEC61760-1

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

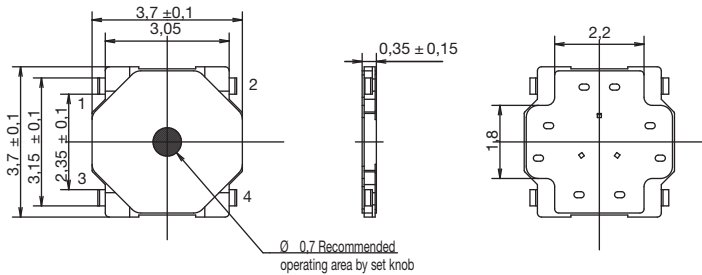


PTS 540 Series Ultra Low Profile SMT Top Actuated

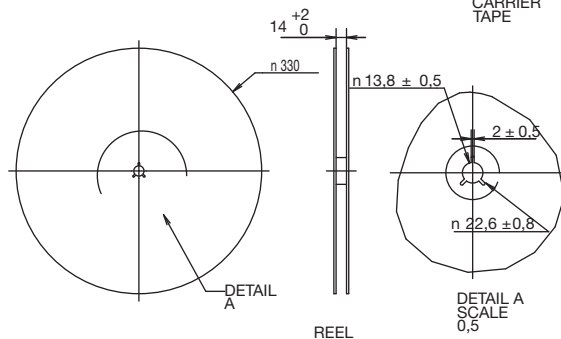
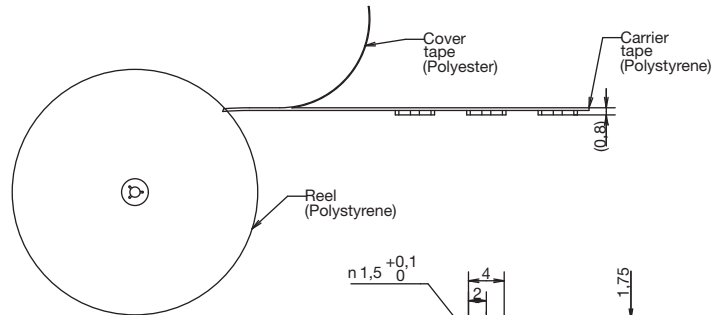
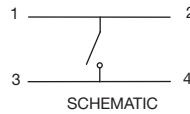
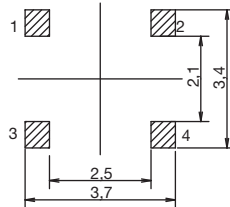
PTS 540

Tactile Switches

B



RECOMMENDED PCB



PTS 810 Series Microminiature SMT Top Actuated

Features/Benefits

- 4.2 x 3.2 mm footprint
- 2.5 mm thickness
- High number of cycles
- Color coded actuators

Typical Applications

- Control panels
- Nomad devices
- Remote controls
- Keyless entry system



Specifications

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
 TERMINALS: J type for SMT
 TRAVEL: 160 & 260 gf: 0.15mm ± 0.1mm
 400 & 600 gf: 0.20mm ± 0.1mm

	Operating Force (gf)	Operating Life (operations)
PTS810 SJM 250 SMTR LFS	160 ± 50	150,000
PTS810 SJK 250 SMTR LFS	260 ± 70	50,000
PTS810 SJG 250 SMTR LFS	400 ± 100	100,000
PTS810 SJS 250 SMTR LFS	600 ± 150	150,000

Packaging

Switches in reels of 2,900 pieces.
 Dimensions of reels according to EIA 481B
 External diameter 330 mm

Electrical

MAXIMUM VOLTAGE: 16 VDC
 MAXIMUM CURRENT DC: 50 mA
 DIELECTRIC STRENGTH: 250 VA C (1mn)
 CONTACT RESISTANCE: ≤ 500 mΩ
 INSULATION RESISTANCE: ≥ 100 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C

Process

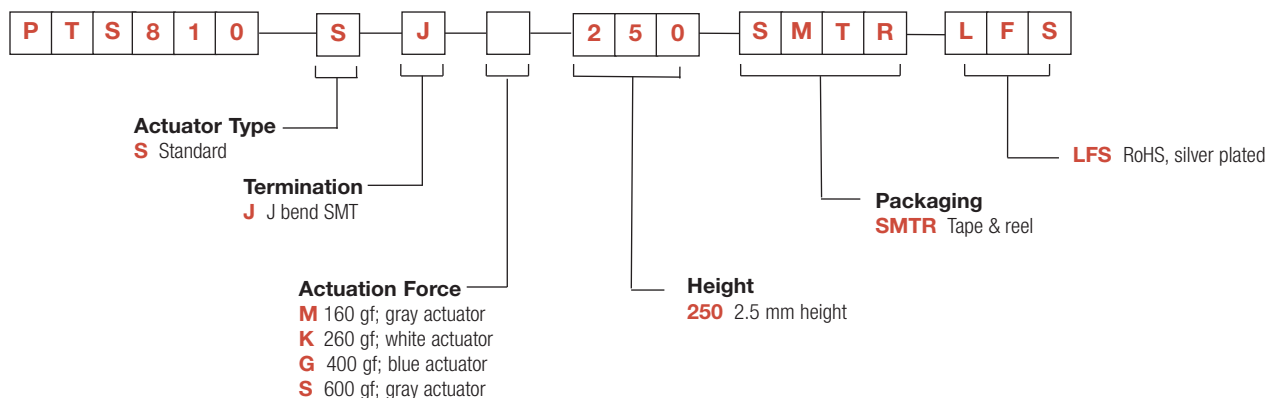
SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

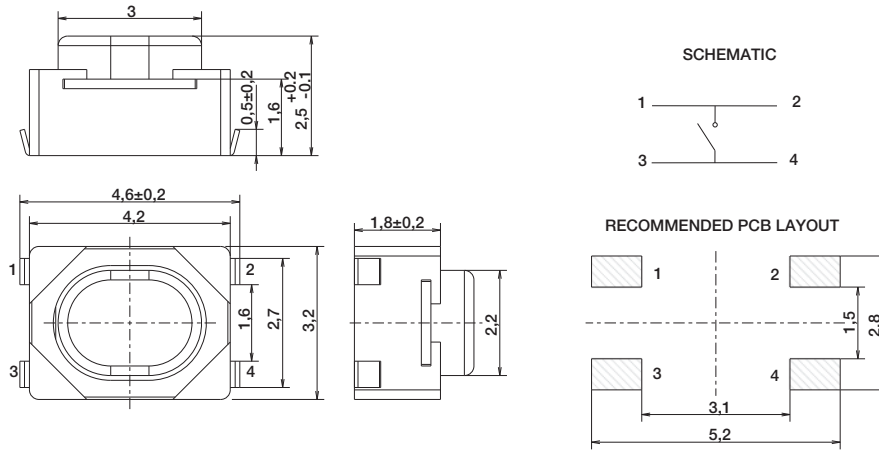


PTS 810 Series Microminiature SMT Top Actuated

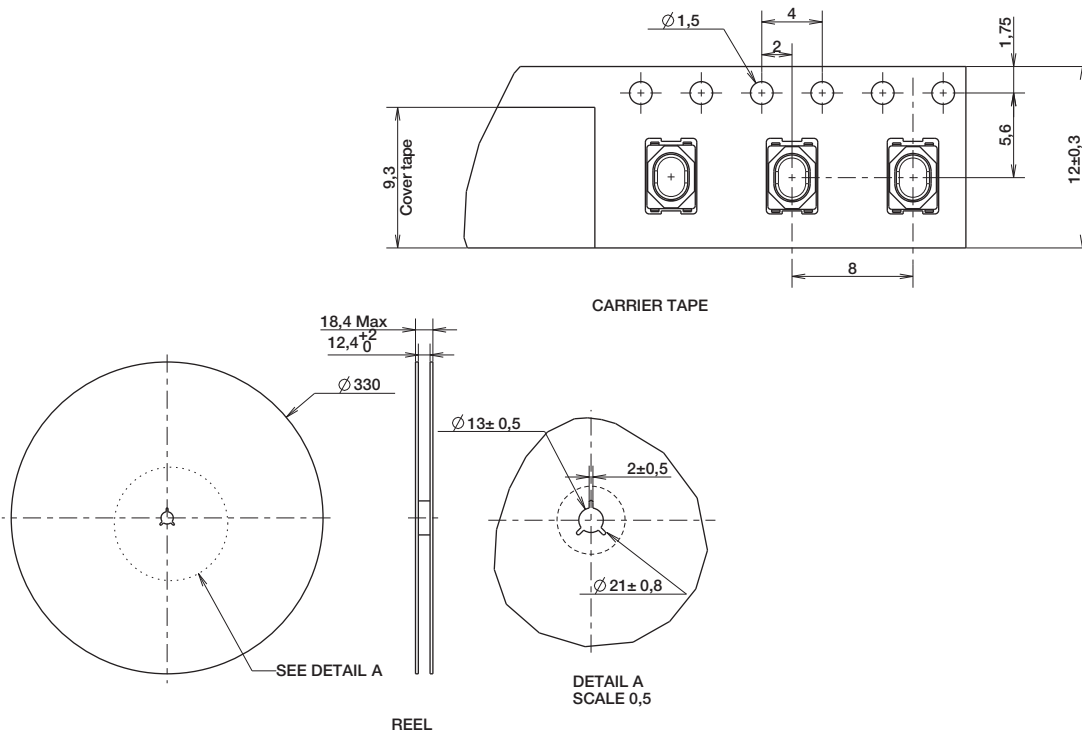
PTS810

Tactile Switches

B



TAPE & REEL



PTS 820 Series Microminiature SMT Top Actuated

Features/Benefits

- 3.9 x 2.9 mm footprint
- Three different heights
- High number of cycles
- Reduced footprint

Typical Applications

- Control panels
- Nomad devices
- Remote controls
- Keyless entry system



Specifications

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
 TERMINALS: J type for SMT
 TRAVEL: 0.2mm + 0.1mm / -0.05 mm

	Operating Force (gf)	Life Cycles	Height mm	Pegs
PTS820 J25M SMTR LFS	160 ± 50	200,000	2.5	No
PTS820 J25K SMTR LFS	250 ± 50	100,000	2.5	No
PTS820 J25MP SMTR LFS	160 ± 50	200,000	2.5	Yes
PTS820 J25KP SMTR LFS	250 ± 50	100,000	2.5	Yes
PTS820 J20M SMTR LFS	160 ± 50	200,000	2.0	No
PTS820 J20K SMTR LFS	250 ± 50	100,000	2.0	No
PTS820 J20MP SMTR LFS	160 ± 50	200,000	2.0	Yes
PTS820 J20KP SMTR LFS	250 ± 50	100,000	2.0	Yes
PTS820 J15M SMTR LFS	160 ± 50	200,000	1.5	No
PTS820 J15K SMTR LFS	250 ± 50	100,000	1.5	No
PTS820 J15MP SMTR LFS	160 ± 50	200,000	1.5	Yes
PTS820 J15KP SMTR LFS	250 ± 50	100,000	1.5	Yes

Packaging

Switches in reels of 2,500 pieces for 1.5 and 2.0 mm height
 Switches in reels of 2,300 pieces for 2.5 mm height
 Dimensions of reels according to EIA 481B
 External diameter 330 mm

Electrical

MAXIMUM VOLTAGE: 12 VDC
 MAXIMUM CURRENT DC: 50 mA
 DIELECTRIC STRENGTH: 100 VA C (1mn)
 CONTACT RESISTANCE: ≤ 100 mΩ
 INSULATION RESISTANCE: ≥ 100 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C

Process

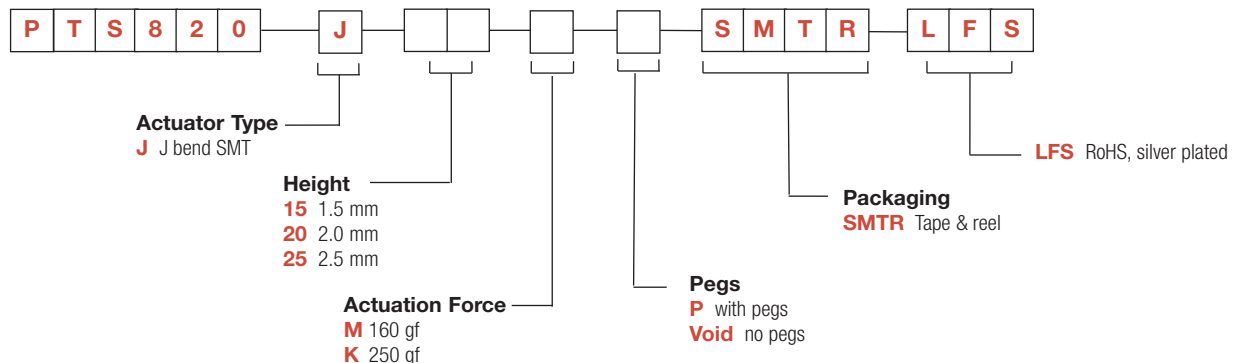
SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

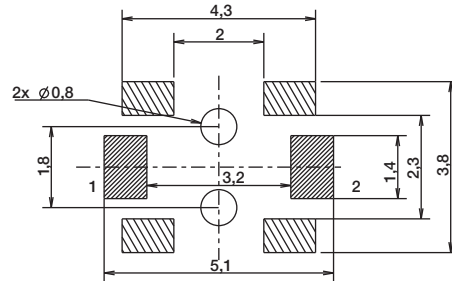
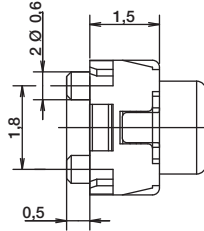
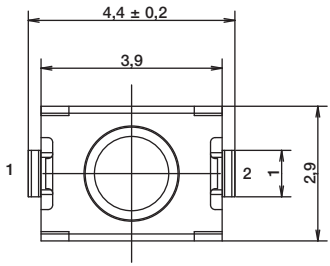
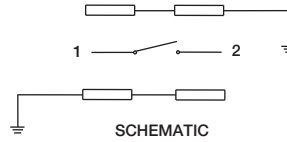
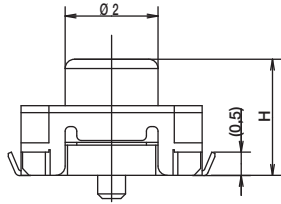


PTS 820 Series Microminiature SMT Top Actuated

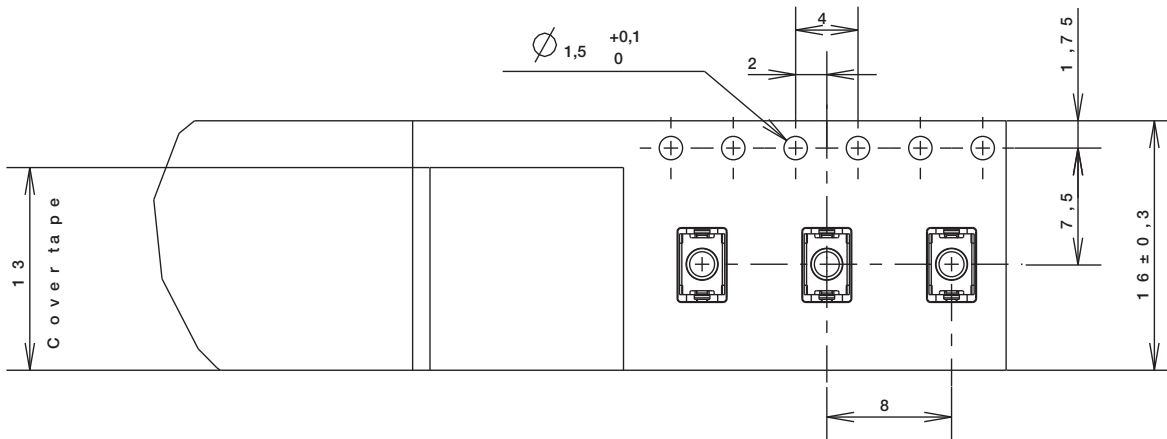
2.5 & 2.0 mm height (H) - version shown here with pegs

Tactile Switches

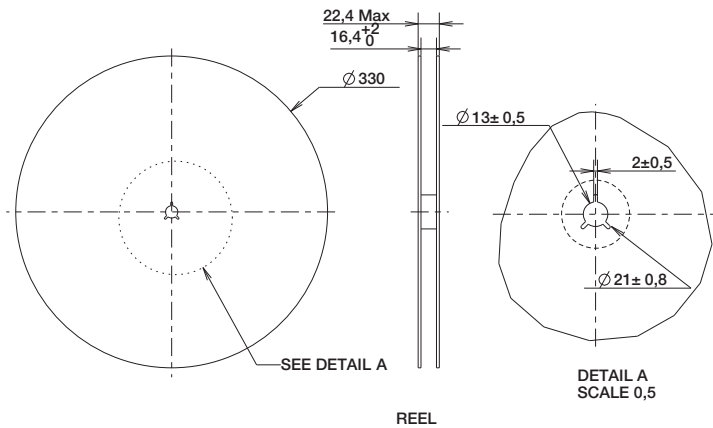
B



RECOMMENDED PCB LAYOUT

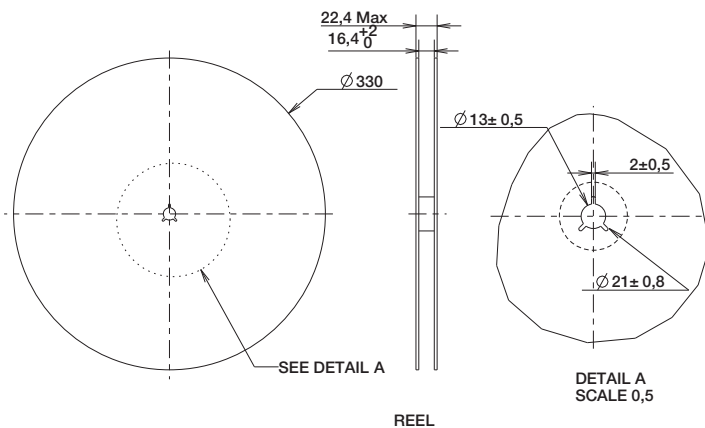
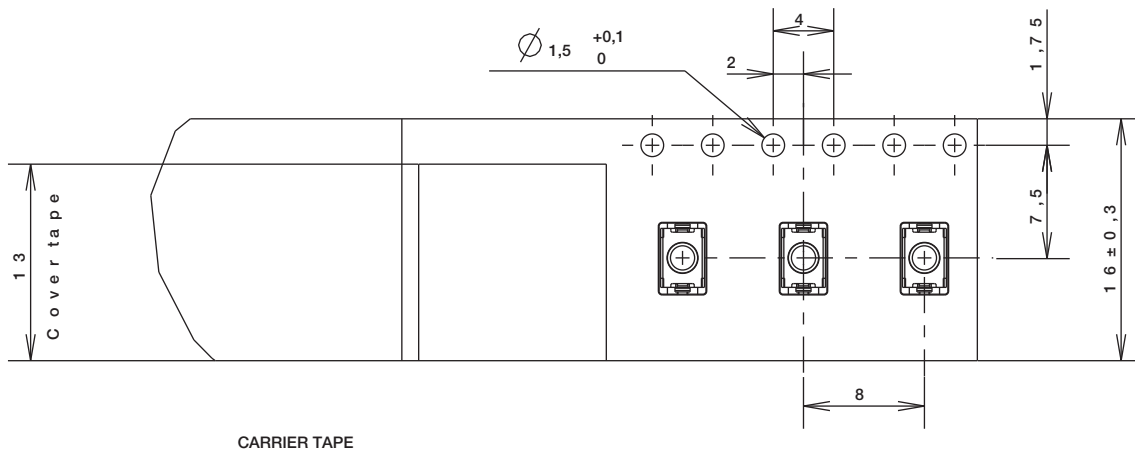
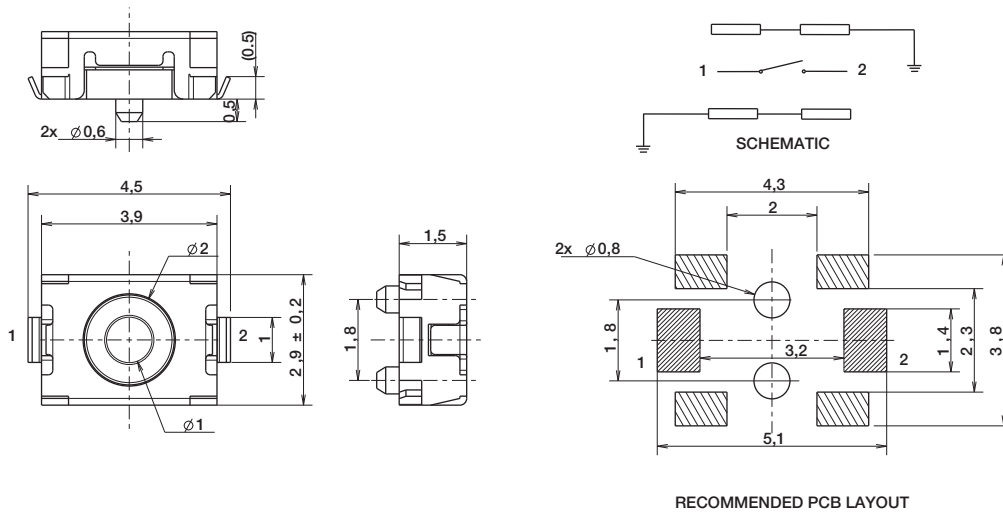


CARRIER TAPE



PTS 820 Series Microminiature SMT Top Actuated

1.5 mm height (H) - version shown here with pegs



Dimensions are shown: mm
Specifications and dimensions subject to change



B

Tactile Switches

PTS 830 Series Microminiature SMT Top Actuated



Features/Benefits

- 3.5 x 2.6 mm footprint
- High number of cycles
- Optional ground pin

Typical Applications

- Wearable electronics
- Nomad devices
- Remote controls
- Keyless entry system

B

Tactile Switches

Specifications

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
 TERMINALS: G type for SMT
 TRAVEL: 0.15 mm + 0.1 mm

	Operating Force (gf)	Life Cycles	Ground Pin
PTS830 GM140 SMTR LFS	160 ± 50	500,000	No
PTS830 GG140 SMTR LFS	450 ± 80	200,000	No
PTS830 GM140G SMTR LFS	160 ± 50	500,000	Yes
PTS830 GG140G SMTR LFS	450 ± 80	200,000	Yes

Packaging

Switches in reels of 9,500 pieces
 Dimensions of reels according to EIA 481B
 External diameter 330 mm

Electrical

MAXIMUM VOLTAGE: 12 VDC
 MAXIMUM CURRENT DC: 50 mA
 DIELECTRIC STRENGTH: 100 VA C (1mm)
 CONTACT RESISTANCE: ≤ 100 mΩ
 INSULATION RESISTANCE: ≥ 100 MΩ
 BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C

Process

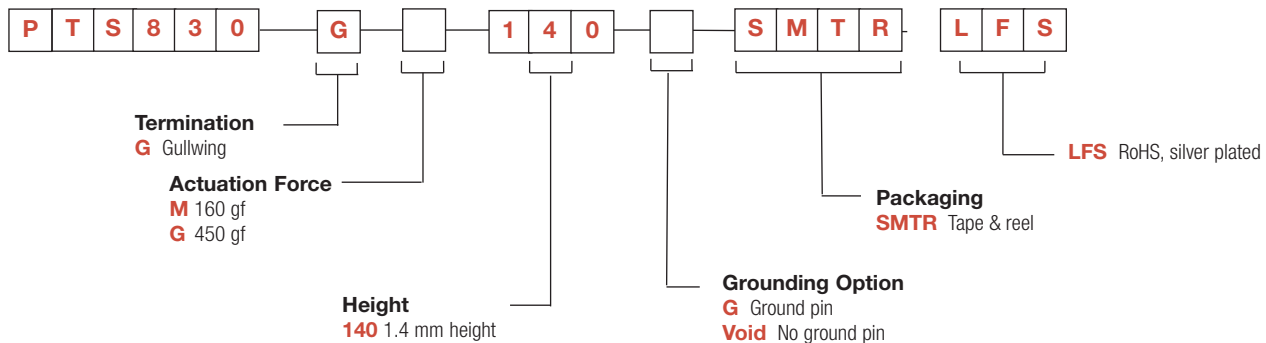
SOLDERING: This component is suited to the following methods:
 Infrared Reflow Soldering in accordance with IEC61760-1

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

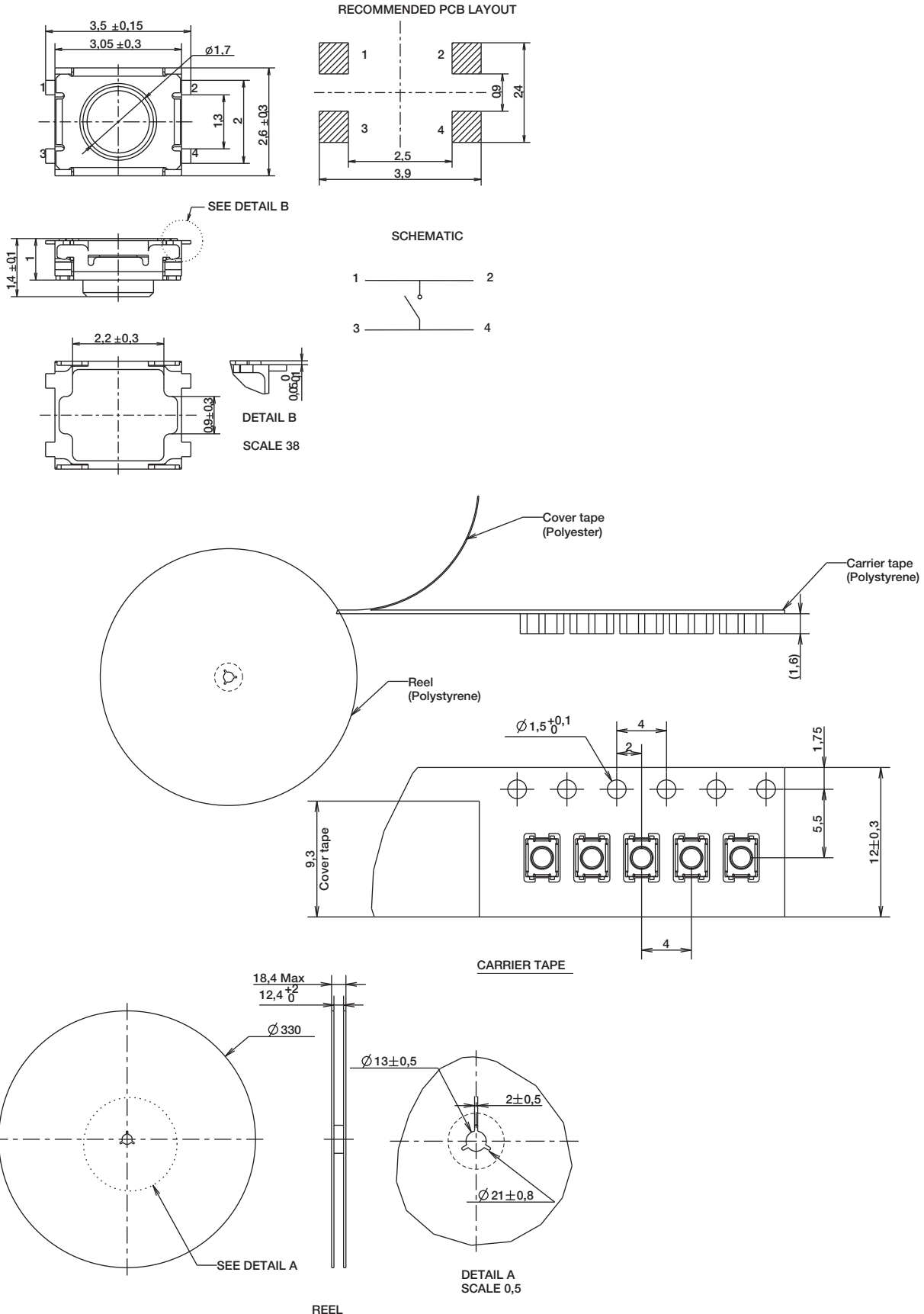
For any part number different from those listed above, please consult your local representative.



Dimensions are shown: mm
 Specifications and dimensions subject to change

PTS 830 Series Microminiature SMT Top Actuated

PTS830 GX 140 SMTR LFS



B

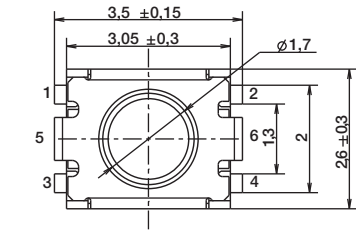
Tactile Switches

PTS 830 Series Microminiature SMT Top Actuated

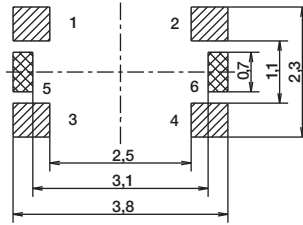
PTS830 GX 140 G SMTR LFS

Tactile Switches

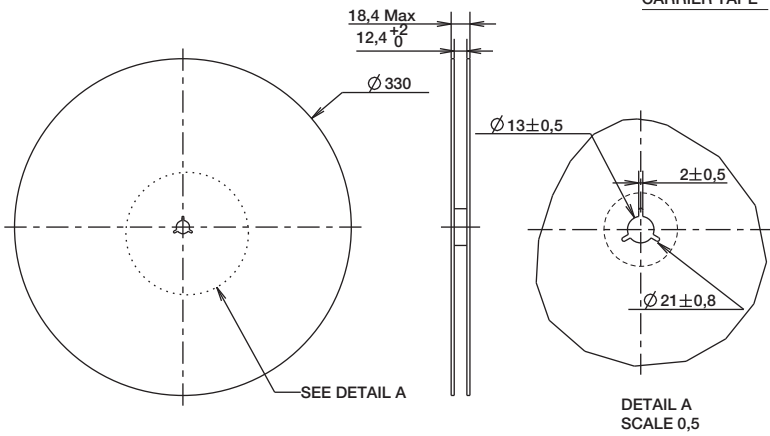
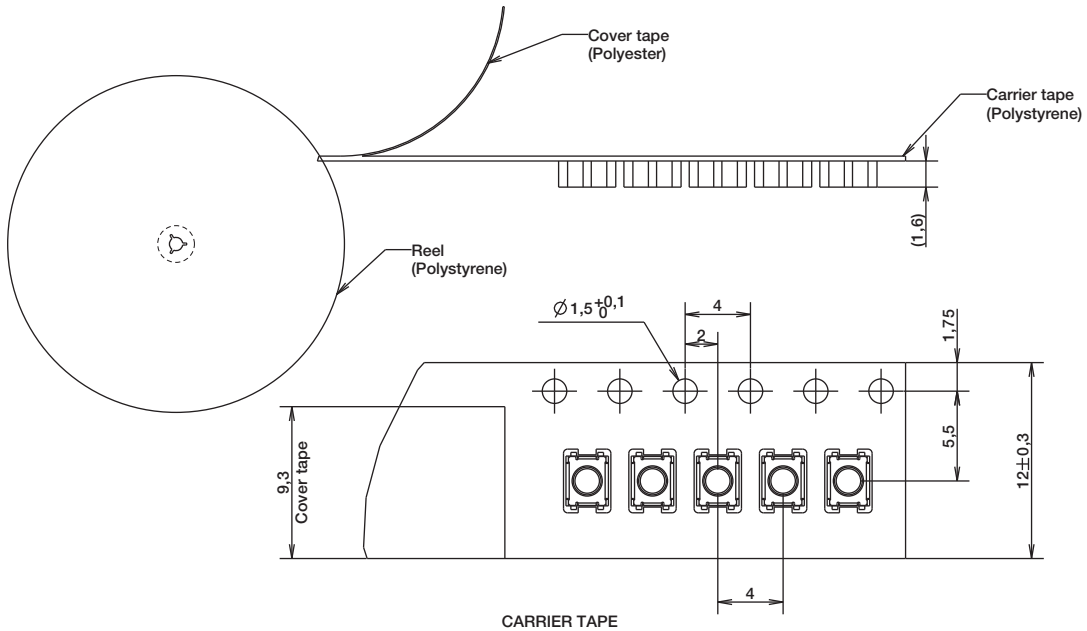
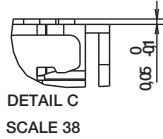
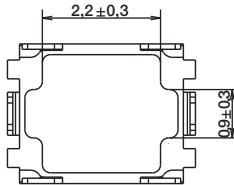
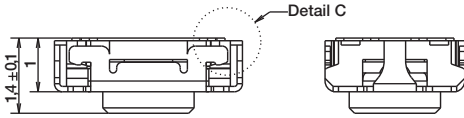
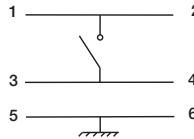
B



RECOMMENDED PCB LAYOUT



SCHEMATIC



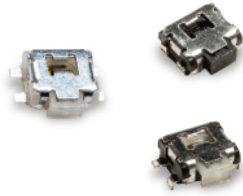
Dimensions are shown: mm
Specifications and dimensions subject to change



B

Tactile Switches

PTS 840 Series Microminiature SMT Side Actuated



Features/Benefits

- 3.5 x 3.55 mm footprint
- Front PIP leads option for strong shear resistance
- ESD pin option
- Reduced footprint

Typical Applications

- Nomad devices
- Remote controls
- Personal health diagnostics
- Consumer electronics

B

Tactile Switches

Specifications

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
TERMINALS: G and front PIP types for SMT
TRAVEL: 0.2mm + 0.2mm / -0.1 mm
LIFE: 100,000 cycles

Type	Operating Force (gf)	SMT Leads	Pegs
Without ground pin			
PTS840 GM SMTR LFS	160 -40/+70	G leads	No
PTS840 GK SMTR LFS	220 -70/+80	G leads	No
PTS840 PM SMTR LFS	160 -40/+70	P leads	No
PTS840 PK SMTR LFS	220 -70/+80	P leads	No
PTS840 GMP SMTR LFS	160 -40/+70	G leads	Yes
PTS840 GKP SMTR LFS	220 -70/+80	G leads	Yes
With ground pin			
PTS840 ESDGM SMTR LFS	160 -40/+70	G leads	No
PTS840 ESDGK SMTR LFS	220 -70/+80	G leads	No
PTS840 ESDPM SMTR LFS	160 -40/+70	P leads	No
PTS840 ESDPK SMTR LFS	220 -70/+80	P leads	No
PTS840 ESDGMP SMTR LFS	160 -40/+70	G leads	Yes
PTS840 ESDGKP SMTR LFS	220 -70/+80	G leads	Yes

Electrical

MAXIMUM VOLTAGE: 12 VDC
MAXIMUM CURRENT DC: 50 mA
DIELECTRIC STRENGTH: 250 VA C (1mm)
CONTACT RESISTANCE: ≤ 500 mΩ
INSULATION RESISTANCE: ≥ 100 MΩ
BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C

Process

SOLDERING: This component is suited to the following methods:
Infrared Reflow Soldering in accordance with IEC61760-1

Packaging

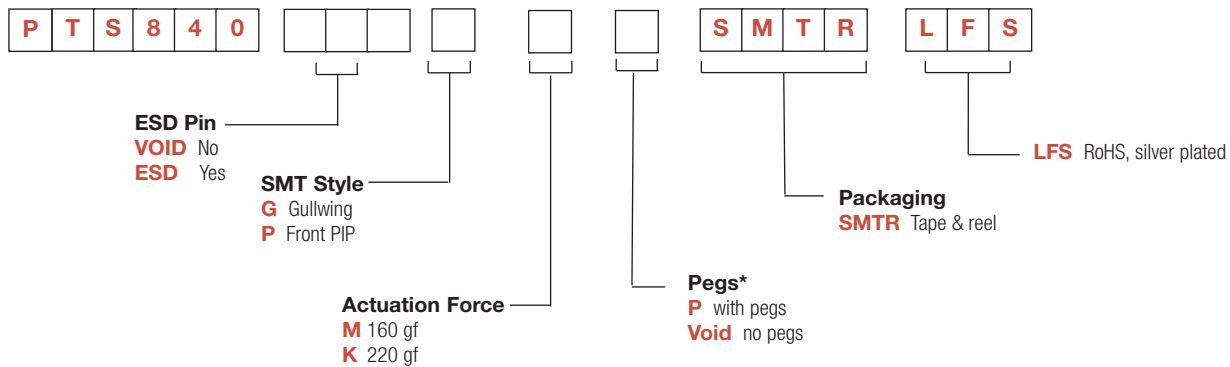
In reels of 3,500 pieces
Dimensions of reels according to EIA 481B
External diameter 330 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.



Design Recommendations

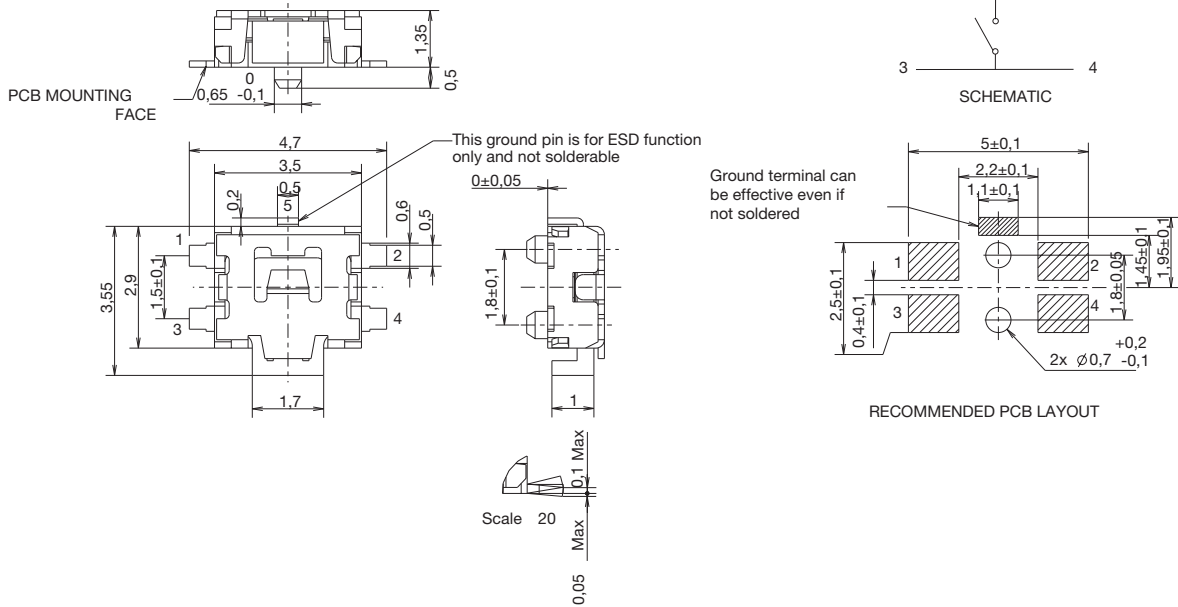
- "P" leads are recommended for applications where shear resistance is of importance
- When a precise alignment between application button and the switch is requested, version with pegs are the right choice to limit the possible floating of the switch during solderability.



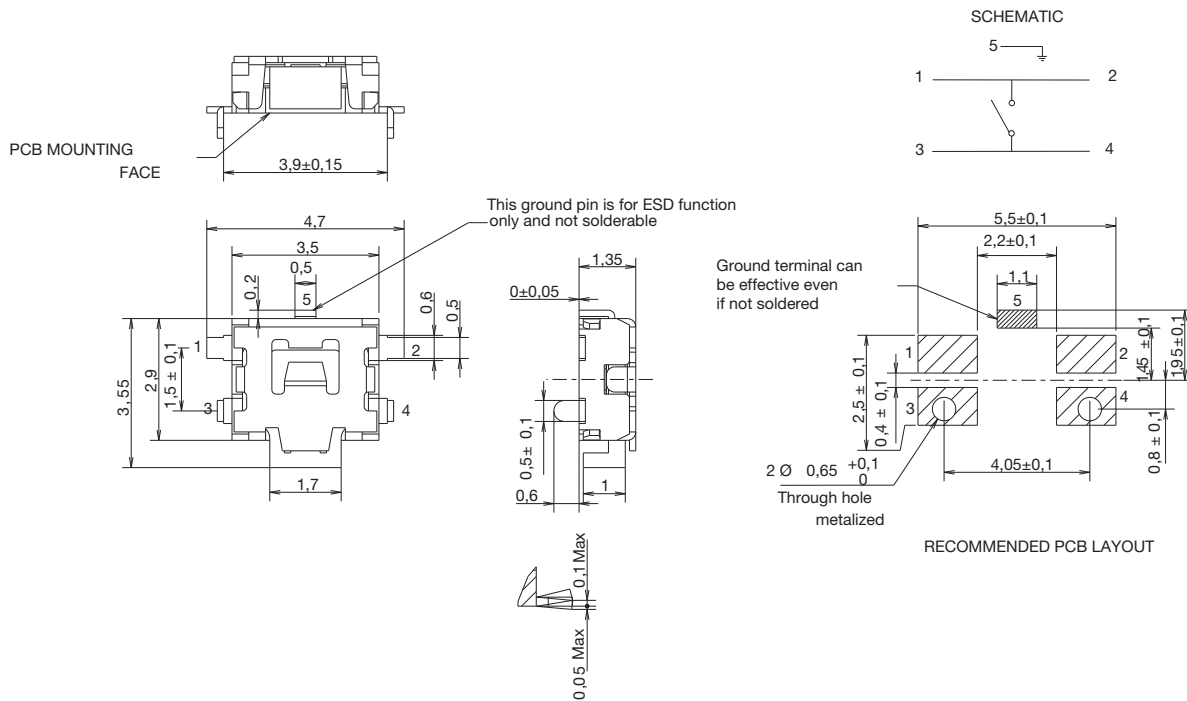
Dimensions are shown: mm
Specifications and dimensions subject to change

PTS 840 Series Microminiature SMT Side Actuated

Standard G SMT Leads with ESD and Peg options



P SMT Leads with ESD option

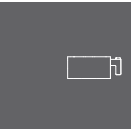


B

Tactile Switches

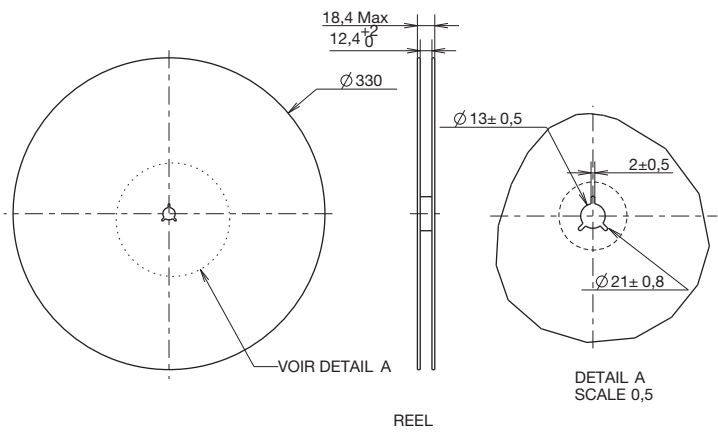
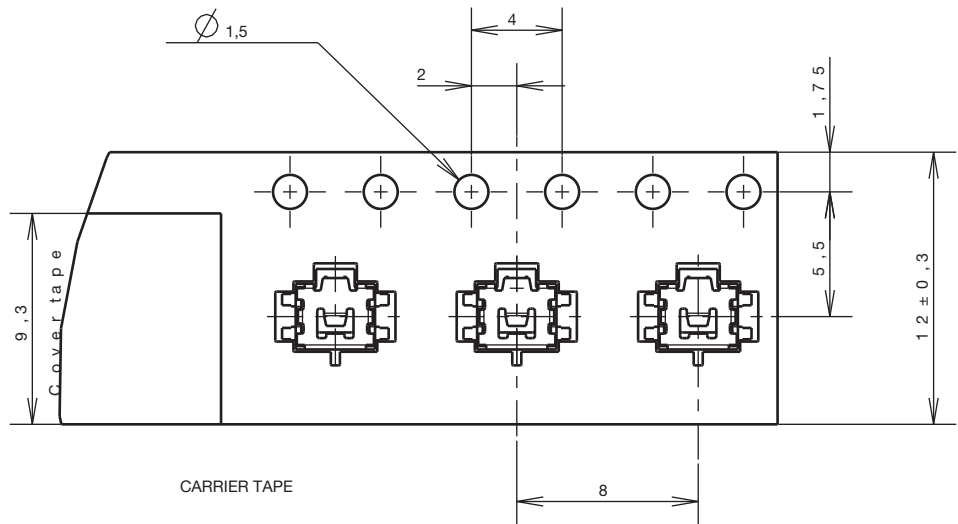
PTS 840 Series Microminiature SMT Side Actuated

TAPE & REEL



B

Tactile Switches



KSR Series Subminiature Tact Switch for SMT

Features/Benefits

- 4 actuation forces
- G terminations
- N.O. and N.C.
- Detect type available
- Rubber actuator
- IP50 sealed
- RoHS compliant and compatible

Typical Applications

- Automotive
- Medical equipment
- Industrial electronics
- Smart meters



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: Normally Open
TERMINALS: Gullwing type for SMT

Mechanical

Type	Operating force Newtons (grams)	Operating life (operations)	Travel (mm)
KSR211G LFS / KSR213G LFG	1,5 < 1,85 (185) < 2,2	100,000	0,25 ± 0,15
KSR221G LFS / KSR223G LFG	1,9 < 2,25 (225) < 2,6	100,000	0,3 ± 0,15
KSR231G LFS /KSR233G LFG	2,25 < 3,00 (300) < 3,75	100,000	0,35 ± 0,15
KSR251G LFS / KSR253G LFG	3,4 < 4,50 (450) < 5,6	100,000	0,5 ± 0,15
KSR221G NC LFS	1,5 < 2,25 (225) < 3	30,000	0,3 ± 0,15
KSR223G NC LFG	1,5 < 2 (200) < 2,5	30,000	0,3 ± 0,15

Overload: 20 Newtons
Detect switch versions are available. Please see Detect chapter
KSR2D/M series.

Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT DC:	50 mA	10 mA
MINIMUM CURRENT DC:	1 mA	1 mA

CONTACT RESISTANCE: ≤ 100 mΩ
INSULATION RESISTANCE: (100 V): 1G Ω (between terminals)
BOUNCE TIME: 1 ms max.

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

SOLDERING: Compatible with lead free reflow soldering process.

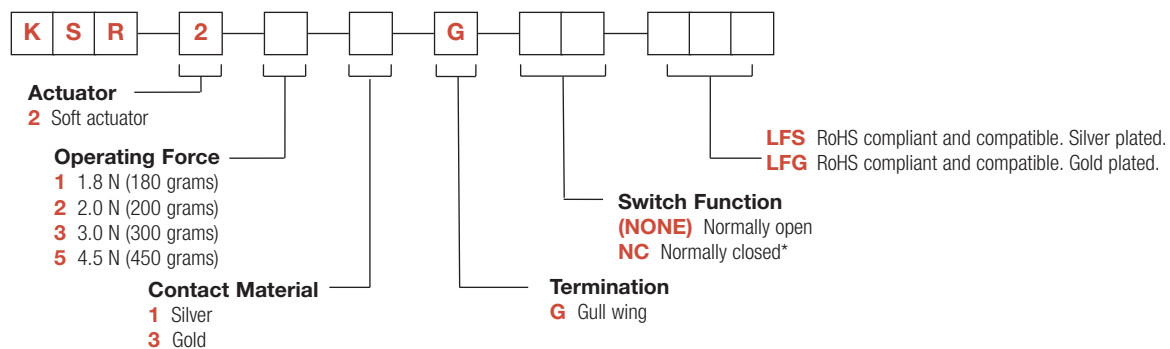
NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



*Available on KSR223G only.



Dimensions are shown: mm
Specifications and dimensions subject to change

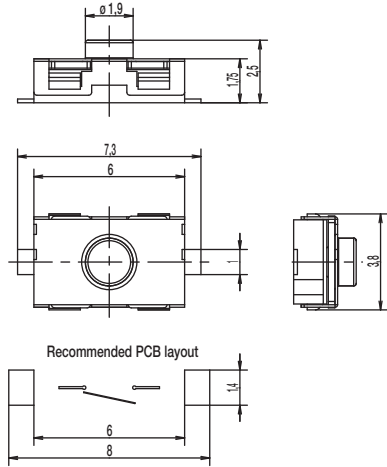
KSR Series Subminiature Tact Switch for SMT

KSR

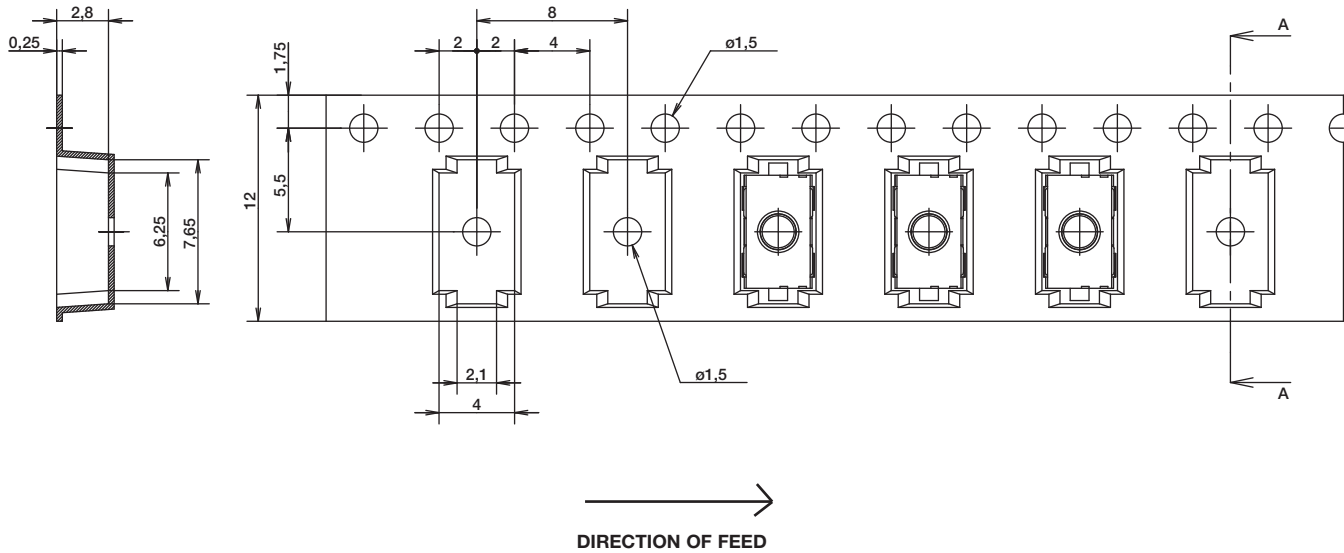


B

Tactile Switches



TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change

KSR Long Life-200,000 cycles-Gold and Silver Series Subminiature Tact Switch for SMT

Features/Benefits

- 4 actuation forces
- G terminations
- N.O.
- Detect type available
- Rubber actuator
- IP50 sealed
- RoHS compliant and compatible

Typical Applications

- Automotive
- Medical equipment
- Industrial electronics



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: Normally Open
TERMINALS: Gullwing type for SMT

Mechanical

Type	Operating force(Fa) Newtons (grams)	Operating life (operations)	Travel (mm)
Silver versions			
KSR212G LFS	1,5 < 1,85 (185) < 2,2	200,000	0,25 ± 0,15
KSR222G LFS	1,9 < 2,25 (225) < 2,6	200,000	0,3 ± 0,15
KSR232G LFS	2,25 < 3,00 (300) < 3,75	200,000	0,35 ± 0,15
KSR252G LFS	3,4 < 4,50 (450) < 5,6	200,000	0,5 ± 0,15
Gold versions			
KSR214G LFS	1,5 < 1,85 (185) < 2,2	200,000	0,25 ± 0,15
KSR224G LFS	1,9 < 2,25 (225) < 2,6	200,000	0,3 ± 0,15
KSR234G LFS	2,25 < 3,00 (300) < 3,75	200,000	0,35 ± 0,15
KSR254G LFS	3,4 < 4,50 (450) < 5,6	200,000	0,5 ± 0,15

OVERLOAD: 20 Newtons

Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 V dc	32 V dc
MINIMUM VOLTAGE:	20 m Vdc	20 m Vdc
MAXIMUM CURRENT DC:	50 mA	10 mA
MINIMUM CURRENT DC:	1 mA	1 mA

CONTACT RESISTANCE: ≤ 100 m Ω
INSULATION RESISTANCE (100 V): 1 G Ω (between terminals)
BOUNCE TIME: 1 ms max

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

SOLDERING: Compatible with lead free reflow soldering process.

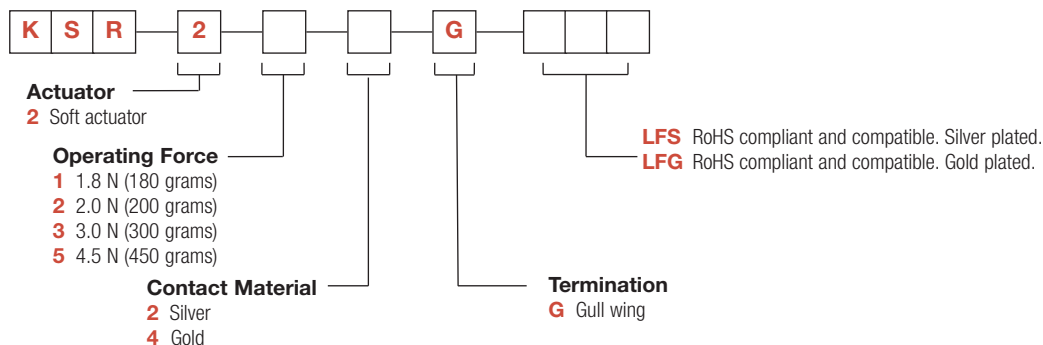
NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

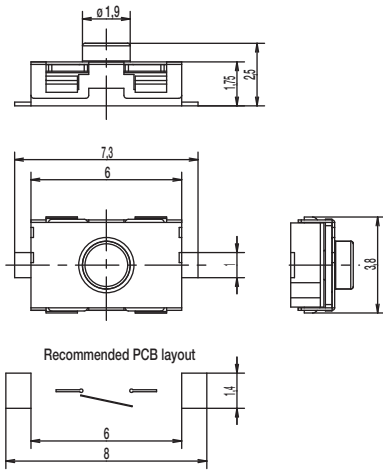
However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

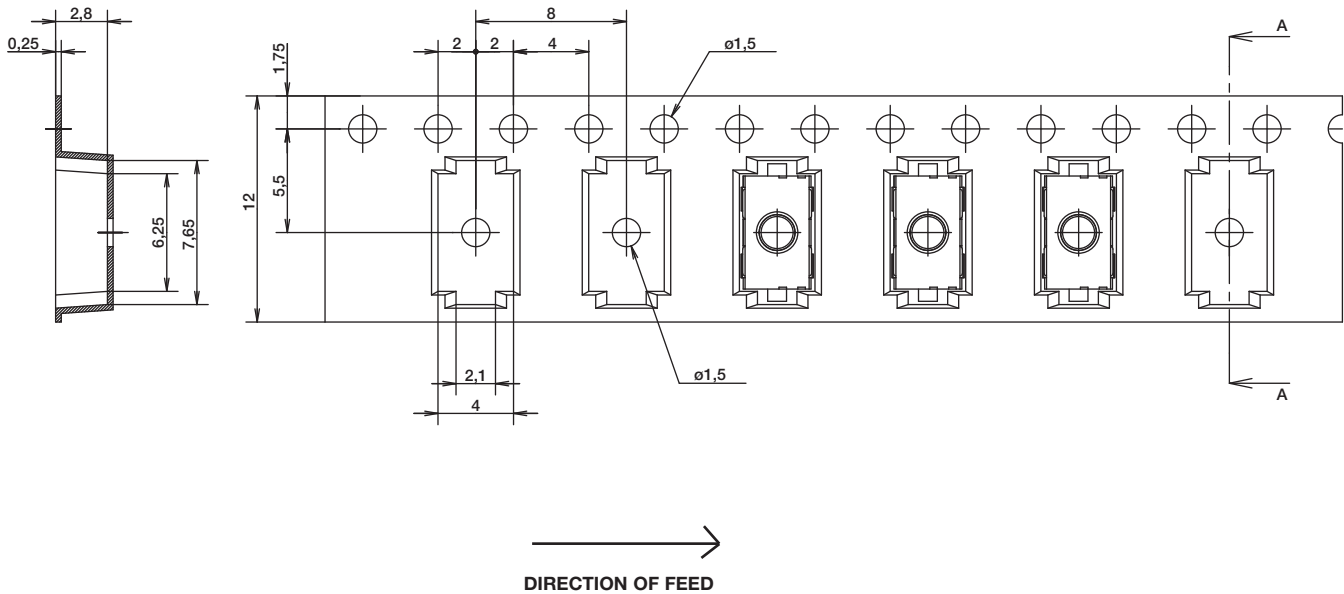


KSR Long Life-200,000 cycles-Gold and Silver Series Subminiature Tact Switch for SMT

KSR



TAPE & REEL



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

KSS Series Subminiature SMT Side Actuated

Features/Benefits

- Low profile of 1.7 mm
- Excellent tactile feel
- High shear force
- Range of actuation forces
- Large flat top
- RoHS compliant and compatible

Typical Applications

- Cellular phone
- Industrial electronics
- Health diagnostic electronics



B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: N.O.
TERMINALS: Gullwing
IP40 sealed

Mechanical

OVERLOAD: 20N
TACTILE FEELING: 2 and 4N: 25% min.
2.5N: 30% min.

Type	Operating force Newtons (grams)	Operating life (operations)	Travel (mm)
KSS221G	2.0 (200) ± 0.5	100,000	0,3 ± 0,15
KSS231G	2.5 (250) ± 0.5	100,000	0,3 ± 0,10
KSS241G	4.0 (400) ± 1.0	100,000	0,3 ± 0,15

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	1 mA
DIELECTRIC STRENGTH: ≥ 250 VDC		
CONTACT RESISTANCE: < 100 mΩ		
INSULATION RESISTANCE (100 VDC): ≥ 10 ⁹ Ω		
BOUNCE TIME: < 3 ms		

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

Infrared reflow soldering in accordance with IEC 61760-1

Packaging

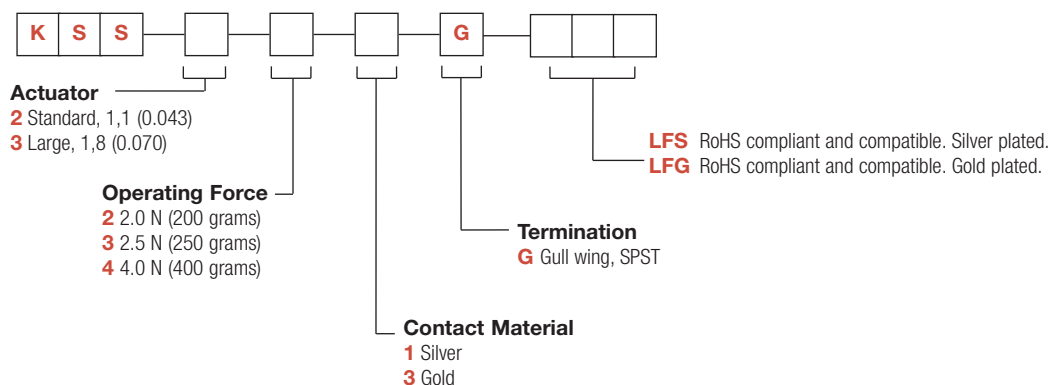
Tape and reels in reels of 3,000 pieces.
External diameter 330mm ± 2mm.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

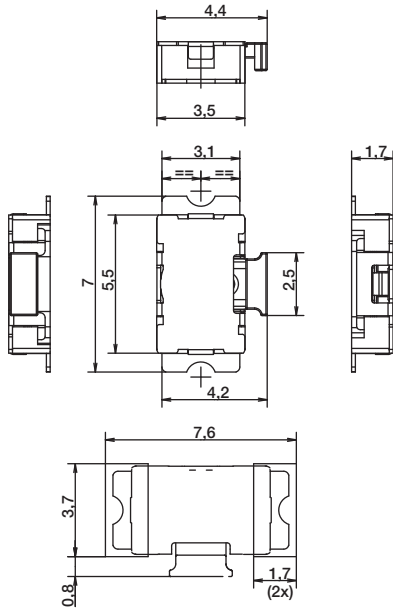


KSS Series Subminiature SMT Side Actuated

KSS

B

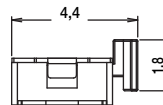
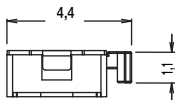
Tactile Switches



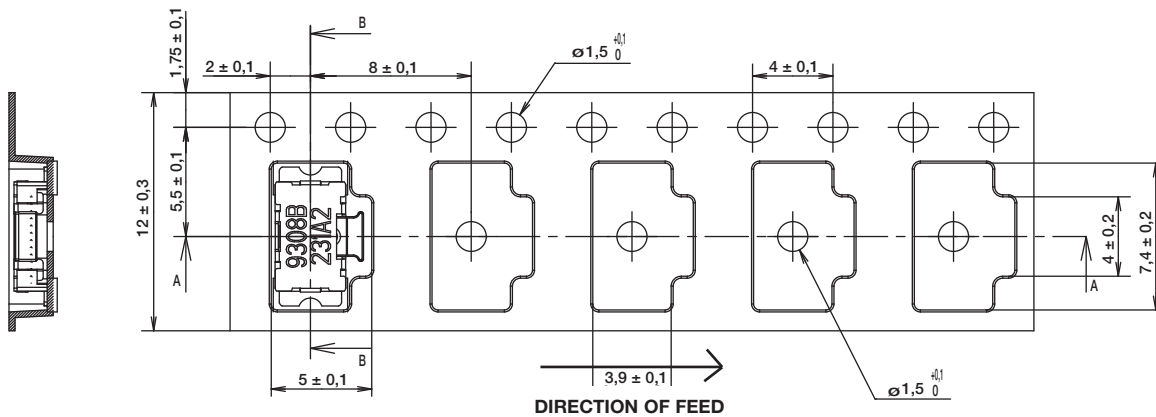
ACTUATOR

2 STANDARD, 1,1 (0.043)

3 LARGE, 1,8 (0.070)



TAPE & REEL



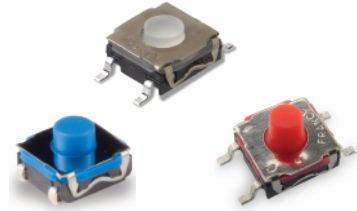
KSC Series Sealed Tact Switch for SMT

Features/Benefits

- Positive tactile feeling
- J or G terminations
- Various heights
- IP67

Typical Applications

- Automotive
- Cellular phones
- Industrial electronics
- Network infrastructure and IT
- Elevator



Specification

FUNCTION: Momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS: J bend & Gullwing type for SMT
 SEALING: IP67 except KSC5 (IP50)

Liability Limitation

This datasheet does not provide enough information for applications that require a certain level of quality or safety such as automotive, medical systems, or safety equipment. Please contact customer service for the contractual specification package.

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

- SOLDERING: Depending on the application, this component is suited to the following methods:
- Terminals being silver or gold plated over a nickel barrier, the use of slightly activated flux is suitable.
 - Soldering on double wave machine for vertical versions: soldering time ≤ 5 sec.
 - Cleaning according to typical washing processes.
 - Infrared Reflow Soldering in accordance with IEC 61760-1.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA*	0.1 mA

DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 Vrms
 CONTACT RESISTANCE: ≤ 100mΩ
 INSULATION RESISTANCE (100 V): ≥ 10M Ω
 BOUNCE TIME: ≤ 1 ms

* Ultra low current with 10 µA - 1 VDC version are available upon request for KSC2 and KSC4

Packaging

Tape and Reel (see series for quantity information)

NOTE: Specifications listed above are for switches with standard options.

KSC Product Range

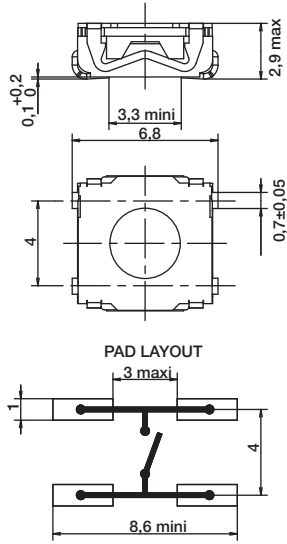
KSC1	KSC2	KSC3	KSC4	KSC5	KSC6	KSC7	KSC8	KSC9	KSC10
Without actuator	Soft actuator	Hard actuator	Soft actuator	Hard actuator	Hard actuator	Soft actuator	Hard actuator	Hard actuator	Soft actuator
H = 2.5 mm	H = 3.5 mm	H = 3.5 mm	H = 5.2 mm	H = 5.6 mm	H = 7.7 mm	H = 4.3 mm	H = 4.9 mm	H = 7.7 mm compatible with button	H = 4.9 mm
IP67	IP67	IP67	IP67	IP50	IP67	IP67	IP67	IP67	IP67



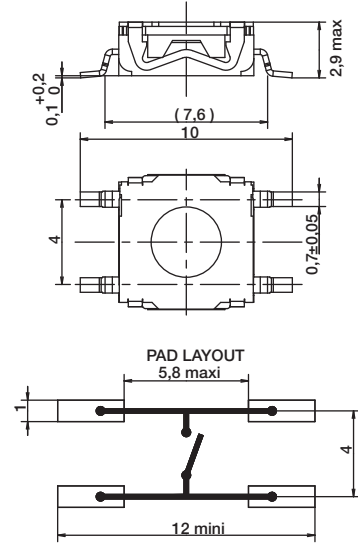
Note: KSC Series is subject to variants. Please contact customer service for other options.

KSC Series Sealed Tact Switch for SMT

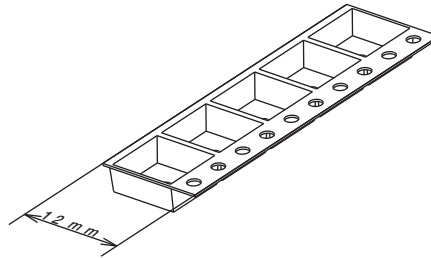
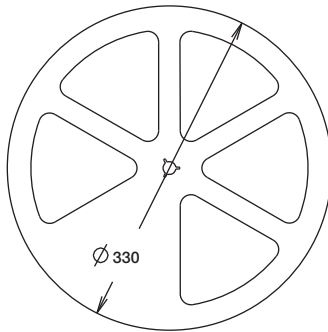
J BEND



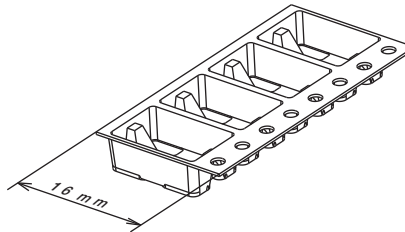
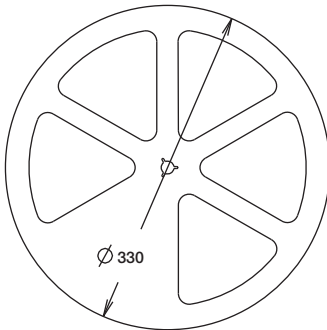
G GULLWING



12 MM



16 MM



12 mm	Pieces	16 mm	Pieces
KSC1J	2,000	KSC1G	2,000
KSC2J	2,000	KSC2G	2,000
KSC3J	2,000	KSC3G	2,000
		KSC4J & G	1,000
		KSC5J & G	1,000
		KSC6J & G	750
		KSC7J & G	1,000
		KSC8J & G	1,000
		KSC9J & G	750
		KSC10J & G	1,000



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

KSC1 Series Sealed Tact Switch for SMT

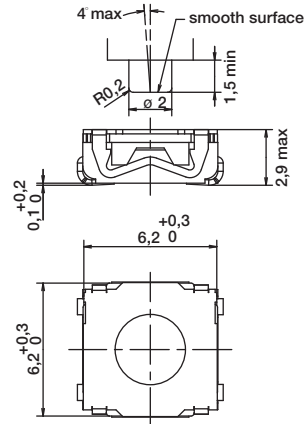
KSC1 without actuator 2,5 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC121	1.8 ± 0.65	200,000	0.3 ± 0.15
KSC141	3 ± 0.75	200,000	0.3 ± 0.15
KSC151	5.5 ± 1.4	100,000	0.35 ± 0.15

Packaging

Switches delivered on continuous tape & reels of 2,000 pieces
 Dimensions according to EIA RS-481/ IEC 60286-3 standard
 External diameter 330 ± 2 mm



B

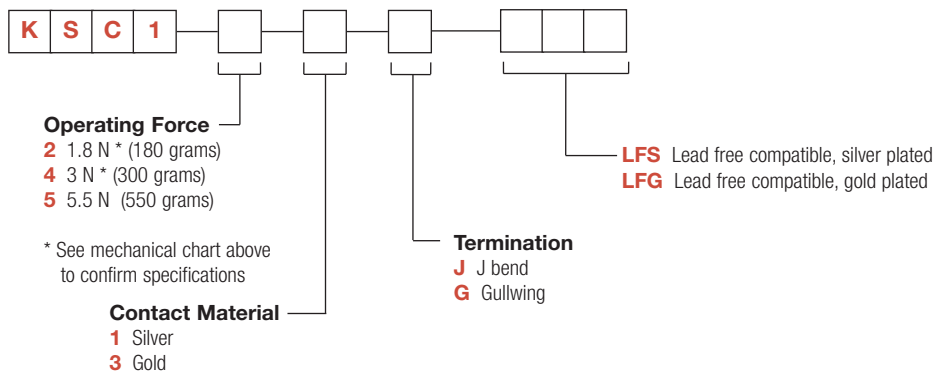
Tactile Switches

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



Dimensions are shown: mm
 Specifications and dimensions subject to change

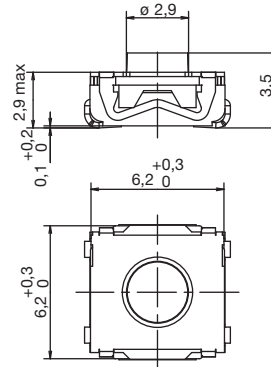
KSC2 Series Sealed Tact Switch for SMT

KSC2 soft actuator 3,5 mm high



Tactile Switches

Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC201	1.6 ± 0.6	5,000,000	0.3 ± 0.2
KSC221	2 ± 0.5	500,000	0.35 + 0.3/- 0.1
KSC222	2 ± 0.5	1,000,000	0.35 ± 0.15
KSC241	3.5 ± 0.9	300,000	0.5 ± 0.2
KSC251	5.55 ± 1.45	300,000	0.5 ± 0.2
KSC231 SPD	3.5 ± 0.9	300,000	0.5 ± 0.2
KSC241 SPD	3.55 ± 0.9	300,000	0.5 ± 0.2
KSC251 SPD	6.2 ± 1.55	100,000	0.6 ± 0.2



Packaging

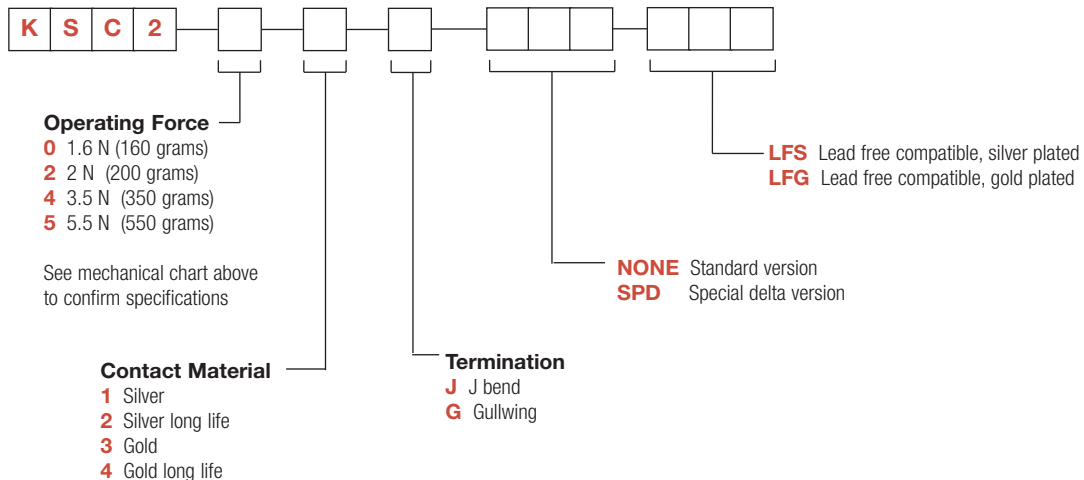
Switches delivered on continuous tape & reels of 2,000 pieces
 Dimensions according to EIA RS-481/ IEC 60286-3 standard
 External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



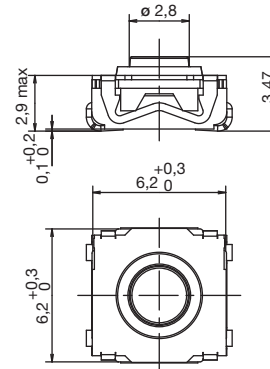
Dimensions are shown: mm
 Specifications and dimensions subject to change

KSC3 Series Sealed Tact Switch for SMT

KSC3 hard actuator 3,5 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC321	2 ± 0.4	300,000	0.2 + 0.3/- 0
KSC341	3 ± 0.75	300,000	0.2 + 0.3/- 0
KSC351	5 ± 1	100,000	0.25 + 0.3/- 0



Packaging

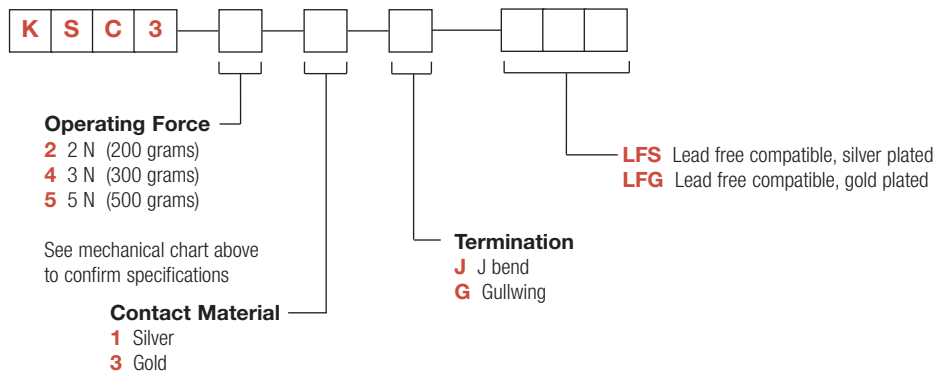
Switches delivered on continuous tape & reels of 2,000 pieces
Dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

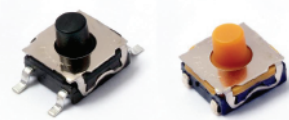
However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



KSC4 Series Sealed Tact Switch for SMT

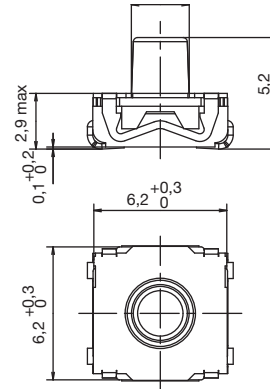
KSC4 soft actuator 5,2 mm high



B

Tactile Switches

Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC401 50SH	1.45 ± 0.55	5,000,000	0.5 ± 0.25
KSC411 70SH	1.4 ± 0.35	1,000,000	0.35 ± 0.20
KSC421 70SH	1.7 ± 0.45	300,000	0.5 ± 0.25
KSC422 70SH	1.7 ± 0.45	1,000,000	0.5 ± 0.25
KSC441 70SH	4 ± 1	300,000	0.75 ± 0.25
KSC442 70SH	4 ± 1	1,000,000	0.75 ± 0.25
KSC451 70SH	4.25 ± 0.75	300,000	0.8 ± 0.2
KSC441 SPD	3.5 ± 0.9	300,000	0.7 ± 0.2
KSC441 ST1	3.4 ± 1	300,000	0.7 ± 0.25
KSC441 ST2	3.4 ± 1	300,000	0.35 ± 0.20
KSC461 ST1	6.25 ± 1.75	100,000	1 ± 0.3
KSC461 ST2	6.25 ± 1.75	300,000	0.5 ± 0.2



Packaging

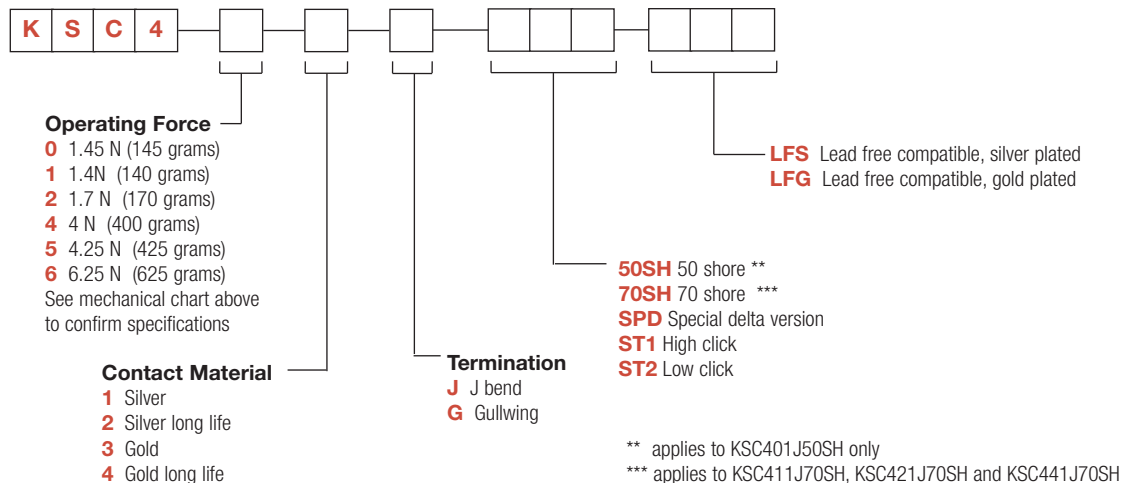
Switches delivered on continuous tape & reels of 1,000 pieces
Dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



Dimensions are shown: mm

Specifications and dimensions subject to change

KSC5 Series Tact Switch with Rocker Option for SMT

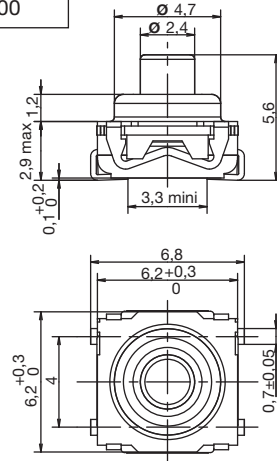
KSC5 hard actuator 5,6 mm high



Type	Operating force axial FA N (grams)	Operating force lateral FL N (grams) ±30%	Travel to make axial (mm)	Travel to make lateral (mm)	Life expectancy cycles, axial	Life expectancy cycles, lateral
KSC521	2 ± 0.5	1.2 - 2.6	0.25 ± 0.15	0.5 ± 0.25	100,000	10,000
KSC541	3 ± 0.75	1.8 - 3.8	0.25 ± 0.15	0.5 ± 0.25	100,000	10,000

Packaging

Switches delivered on continuous tape & reels of 1,000 pieces, dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm

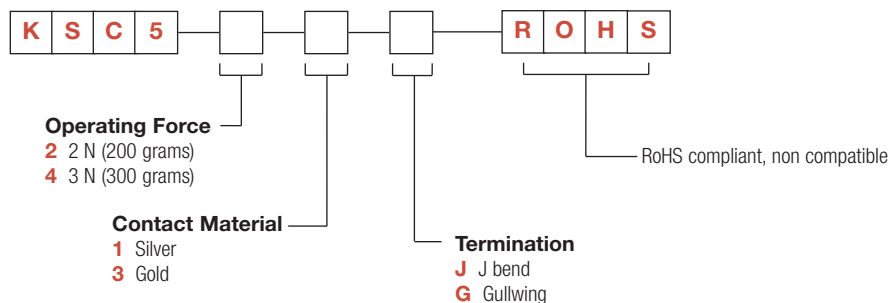


How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

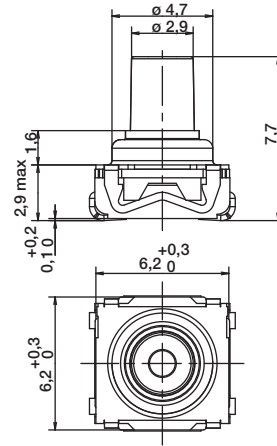


KSC6 Series Sealed Tact Switch for SMT

KSC6 hard actuator 7,7 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC621	1.7 ± 0.5	300,000	0.4 ± 0.2
KSC631	2.55 ± 0.65	300,000	0.4 ± 0.2
KSC641	3.4 ± 0.85	300,000	0.4 ± 0.2



Tactile Switches

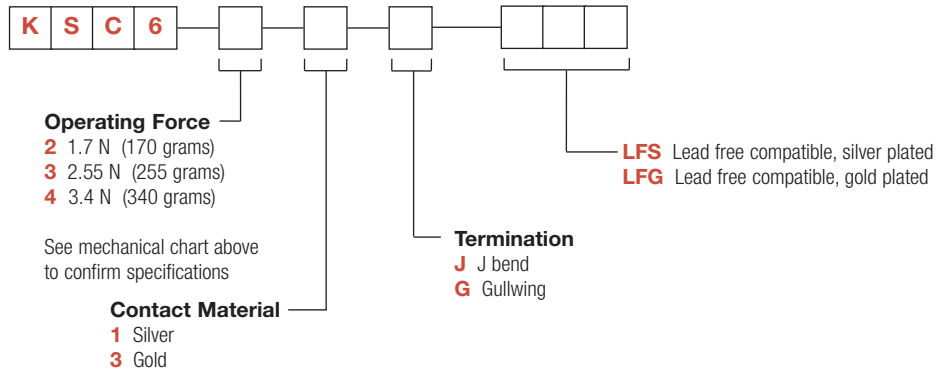
Packaging

Switches delivered on continuous tape & reels of 750 pieces
 Dimensions according to EIA RS-481/ IEC 60286-3 standard
 External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

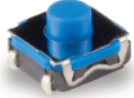
**However, please note that all the combinations of these options are not feasible.
 For any part number different from those listed above, please consult your local representative.**



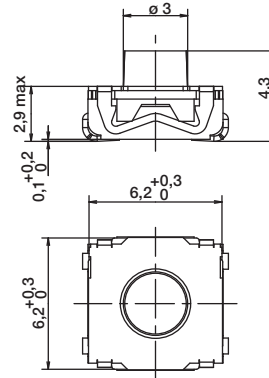
Dimensions are shown: mm
 Specifications and dimensions subject to change

KSC7 Series Tact Switch with Rocker Option for SMT

KSC7 soft actuator 4,3 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC701	1.6 ± 0.6	5,000,000	0.3 ± 0.2
KSC721	2.25 ± 0.55	300,000	0.3 ± 0.15
KSC741	3.9 ± 1	300,000	0.4 ± 0.2



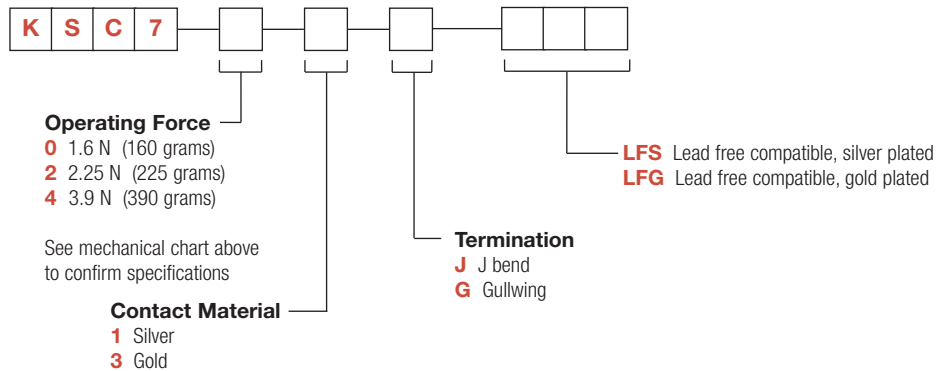
Packaging

Switches delivered on continuous tape & reels of 1,000 pieces
 Dimensions according to EIA RS-481/ IEC 60286-3 standard
 External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

**However, please note that all the combinations of these options are not feasible.
 For any part number different from those listed above, please consult your local representative.**



KSC8 Series Sealed Tact Switch for SMT

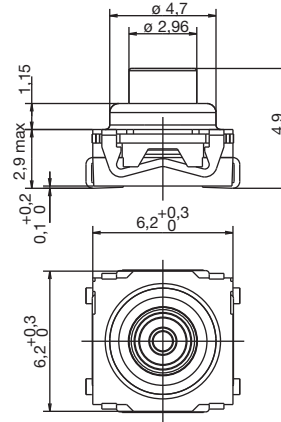
KSC8 hard actuator 4,9 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC821	3.15 ± 0.75	300,000	0.65 ± 0.2
KSC821 OL	1.7 ± 0.5	300,000	0.4 ± 0.2
KSC831 OL	2.55 ± 0.65	300,000	0.4 ± 0.2
KSC841 OL	3.4 ± 0.85	300,000	0.4 ± 0.2

Packaging

Switches delivered on continuous tape & reels of 1,000 pieces
Dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm

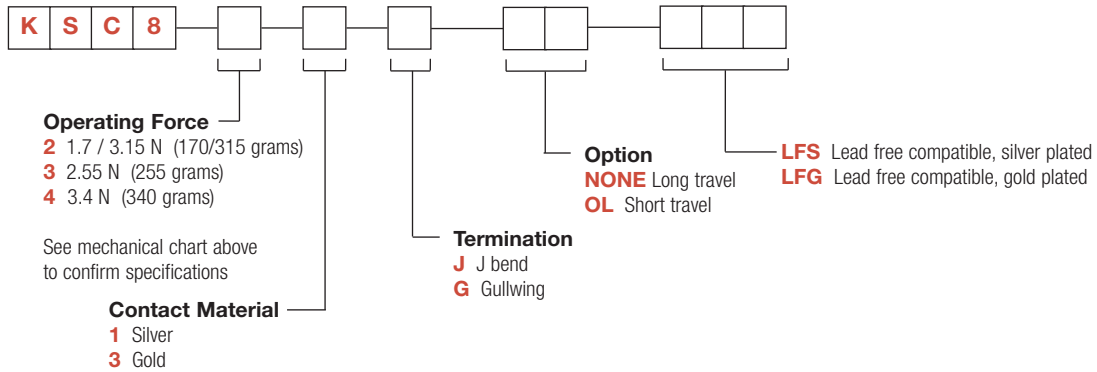


Tactile Switches

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.
For any part number different from those listed above, please consult your local representative.



Dimensions are shown: mm
Specifications and dimensions subject to change

KSC9 Series Sealed Tact Switches for SMT

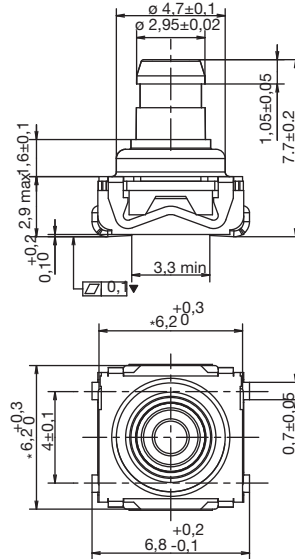
KSC9 hard actuator 7,7 mm high



Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC921	1.7 ± 0.5	300,000	0.4 ± 0.2
KSC931	2.25 ± 0.65	300,000	0.4 ± 0.2
KSC941	3.4 ± 0.85	300,000	0.4 ± 0.2

Packaging

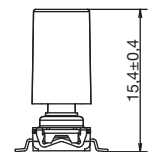
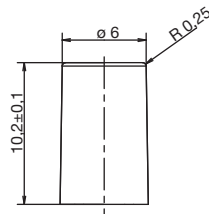
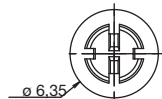
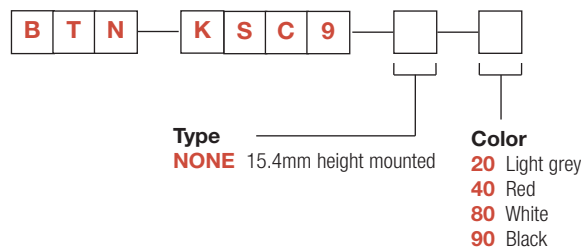
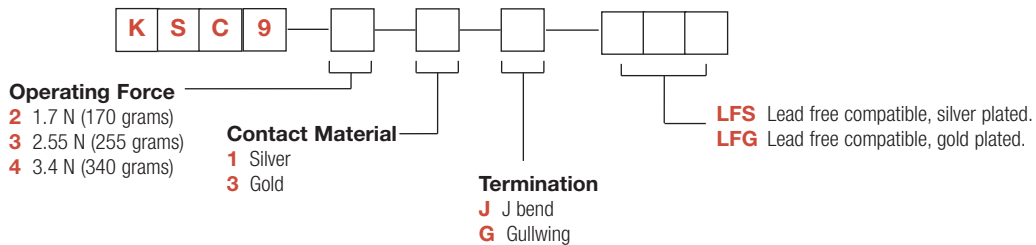
Switches delivered on continuous tape & reels of 750 pieces
Dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm



How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.



SWITCH WITH CAP



First Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

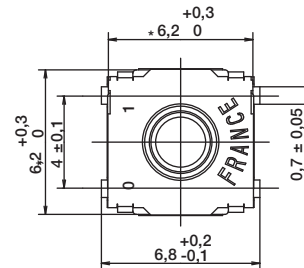
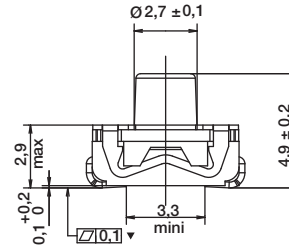
KSC10 Series Sealed Tact Switches for SMT

KSC10 soft actuator 4,9 mm high



Tactile Switches

Type	Operating force FA (Newtons)	Operating life (operations)	Travel (mm)
KSC1001	1.45 ± 0.55	5,000,000	0.45 ± 0.25



Packaging

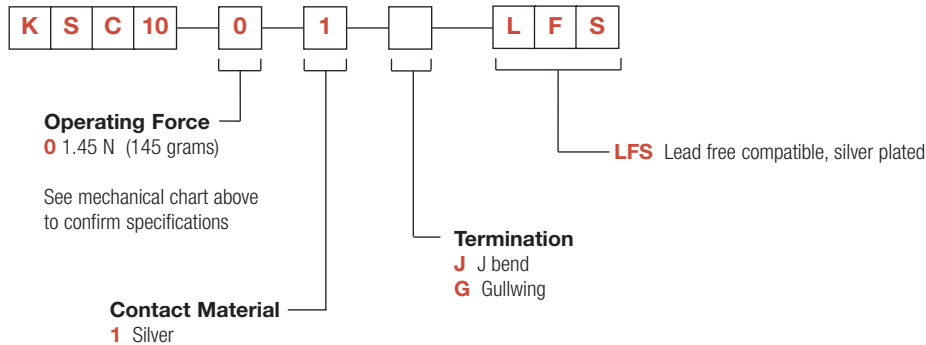
Switches delivered on continuous tape & reels of 1,000 pieces
Dimensions according to EIA RS-481/ IEC 60286-3 standard
External diameter 330 ± 2 mm

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



Note: KSC10 offered with yellow actuator as standard, hardness 55 Shore



Dimensions are shown: mm
Specifications and dimensions subject to change

KSC4V2 Series Side Actuated Sealed Tact Switch

Features/Benefits

- Full SMD side actuated
- Haptic adaptability
- Pin in paste terminations
- Tape & reel
- IP67

Typical Applications

- Automotive
- Industrial electronics
- Network equipment
- Telecommunications



Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS:
 2 pin in paste signal terminals
 3 SMD ground terminals

Mechanical

Type	Force (N)	Operating Life (operations)	Travel (mm)
KSC441V2SPDLFS	3.5 ± 1.0	300,000	0.7 ± 0.2
KSC421V270SHLFS	1.55 ± 0.45	300,000	0.5 ± 0.2

NOTE: Basic version is based on KSC441V2 SPDELTA LFS.
 Other configurations of haptics are available upon demand.

MISUSE OVERLOAD: 40N with back support
 SHEAR FORCE: 10N without back support

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	0.1 mA

DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 Vrms
 CONTACT RESISTANCE: ≤ 100 mΩ
 INSULATION RESISTANCE (100 V, initial stage): > 10⁹ Ω
 BOUNCE TIME: < 1 ms

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

SOLDERING: Depending on the application, this component is suited to the following methods:

- Cleaning according to typical washing processes.
- Infrared Reflow Soldering in accordance with IEC 61760-1.

TERMINALS: pin in paste, silver or gold plated

TOP PLATE: tin plated

MSL level: 1

Vacuum pick head mandatory

Packaging

In reels of 500 pieces.

Dimensions of reels according to EIA RS481 or IEC 2863.

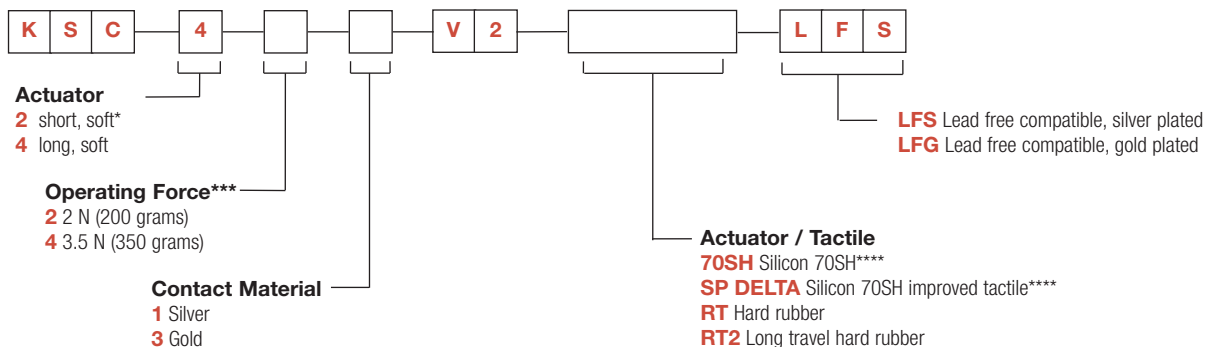
External diameter 330 mm ± 2 mm.

NOTE: This product is designed and manufactured for general electronic devices.
 For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

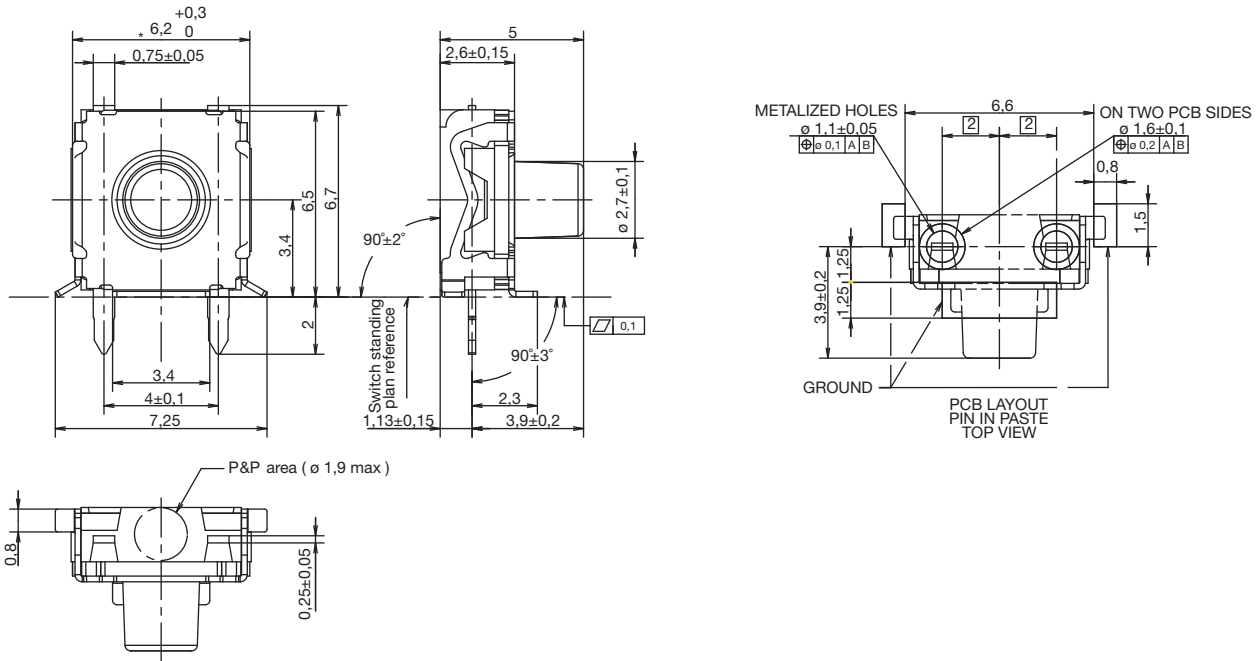


* KSC2 version available upon demand
 *** Force available upon demand (variant version)
 **** Available for KSC4 only

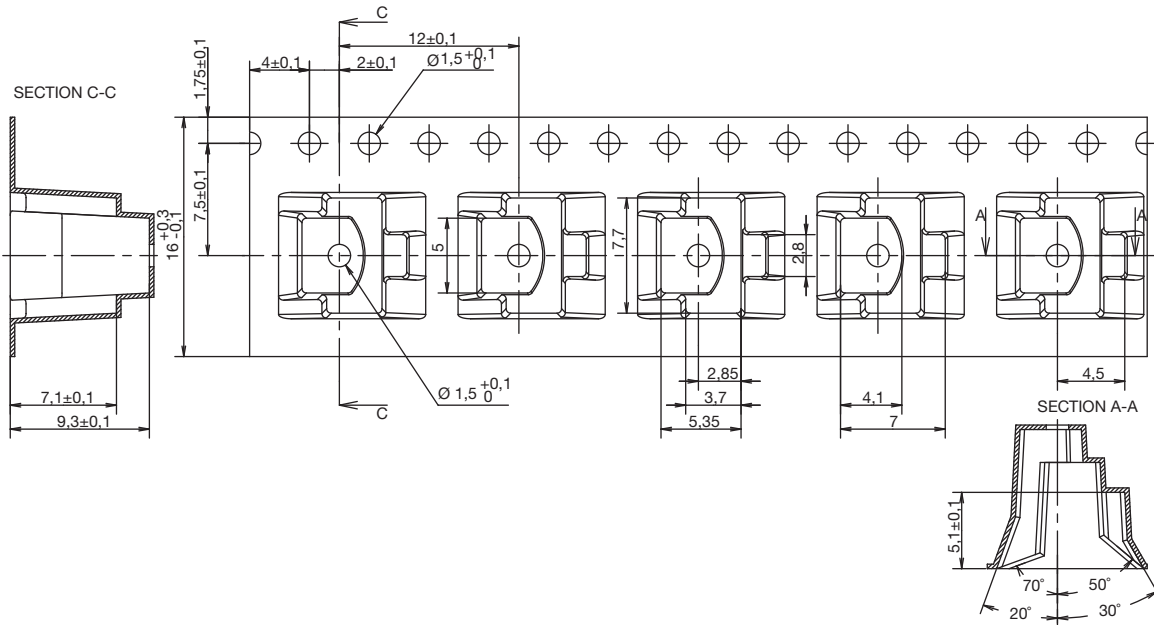
KSC4V2 Series Side Actuated Sealed Tact Switch

Tactile Switches

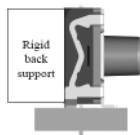
B



TAPE AND REEL



INTEGRATION



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

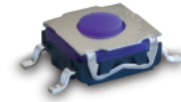
KSE Series Low Profile Tact Switch

Features/Benefits

- Low profile
- Cost efficient
- J or G terminations
- Tape and reel
- IP67

Typical Applications

- Smart meters
- Home appliances
- Consumer electronics
- Industrial electronics
- Telecommunications



Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: J bend & Gullwing type for SMT

Mechanical

Type	Operating Force FA (Newtons)		Operating Life Operations	Travel (mm)
	Min.	Max.		
KSEM31JLFS	1,6 ± 0,6		300,000	0,3 + 0,1/-0,2
KSEM31GLFS	1,6 ± 0,6		300,000	0,3 + 0,1/-0,2
KSEK43JLFS	2,25 ± 0,75		300,000	0,3 ± 0,2
KSEK43GLFS	2,25 ± 0,75		300,000	0,3 ± 0,2

NOTE: For cost effectiveness the tactile feeling is not specified and can change along production. If your application requires a defined tactile effect, please consider KSC series for your application.

Packaging

In reels of 2,000 pieces
Dimensions of reels according to EIA RS481 or IEC 2863.
External diameter 330 mm ± 2 mm.

Electrical

MAXIMUM POWER: 1 VA
MINIMUM/MAXIMUM VOLTAGE: 20 mV / 32 VDC
MINIMUM/MAXIMUM CURRENT: 1 mA / 50 mA
DIELECTRIC STRENGTH: (50 Hz, 1 min.): ≥ 250 V
CONTACT RESISTANCE: ≤ 100 mΩ
INSULATION RESISTANCE: (100 V): ≥ 10⁹ Ω
BOUNCE TIME: ≤ 1 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C
STORAGE TEMPERATURE: -55°C to 85°C

Process

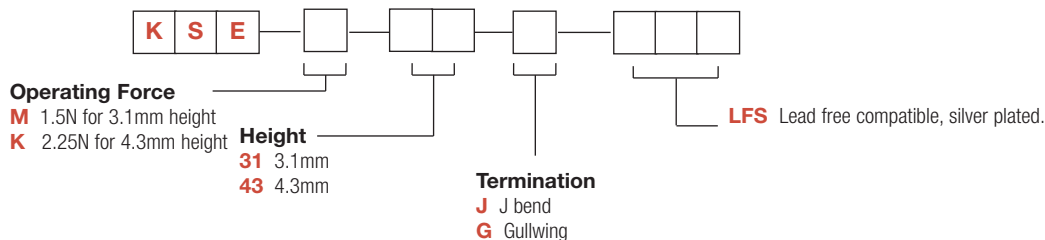
SOLDERING: Depending on the application, this component is suited to the following methods:
– Cleaning according to typical washing processes.
– Infrared Reflow Soldering in accordance with IEC 61760-1.

NOTE:

Specifications listed above are for switches with standard options. KSE series is not subject to adaptation and/or modification for specific use. If you require additional features, please refer to the KSC series. KSE is not recommended for applications requiring high level of performance such as aerospace, automotive and some industrial applications.

How To Order

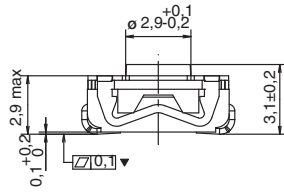
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



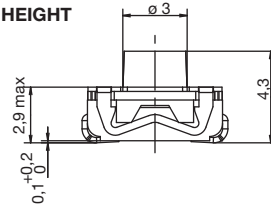
KSE Series Low Profile Tact Switch

HEIGHT

31 3.1 MM HEIGHT

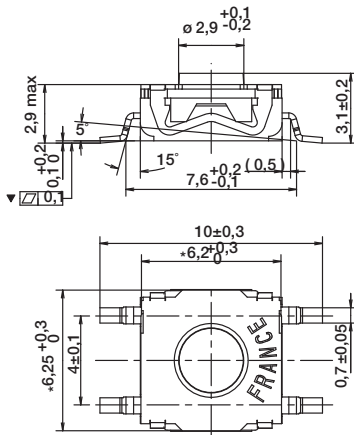


43 4.3 MM HEIGHT

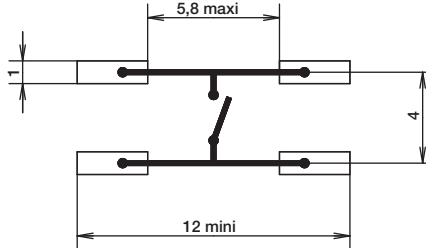


TERMINATION

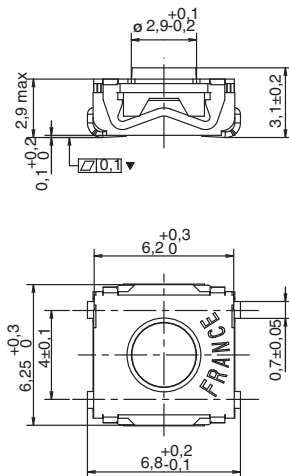
G GULLWING



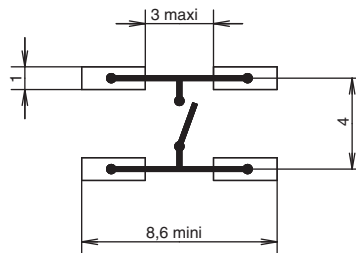
PAD LAYOUT



J J BEND



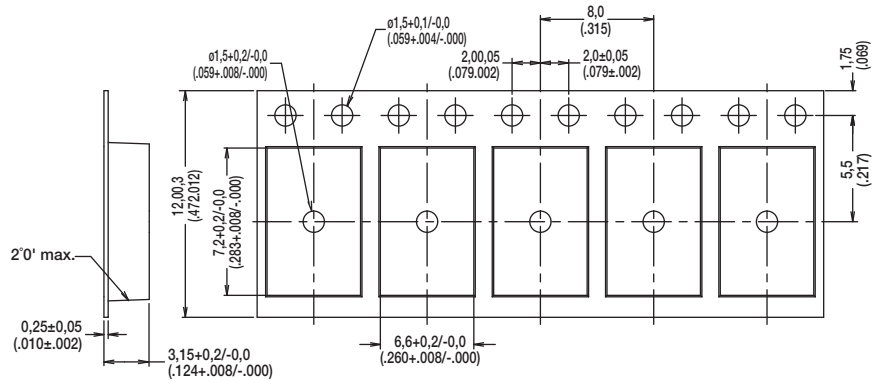
PAD LAYOUT



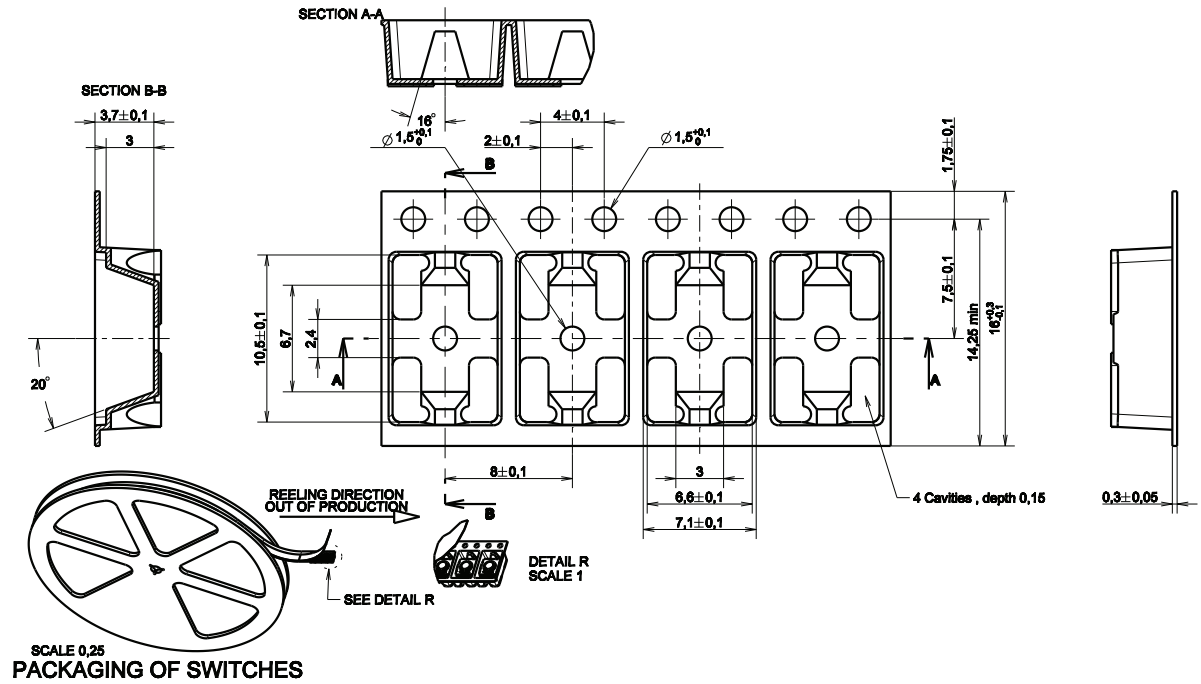
KSE Series Low Profile Tact Switch

TAPE & REEL

12 mm height



16 mm height



B
Tactile Switches

KT Series

Full SMT Top & Side Actuated Sealed Tact Switch



Features/Benefits

- Full SMT side-actuated tact switch
- SMT top-actuated tact switch with G or J terminations
- High shear force with extended bracket
- Easy to pick & place with top plate tab
- Rubber or hard plastic actuator
- Press fit or snap fit caps
- RoHS compliant and compatible

Typical Applications

- Telecommunications
- Computer products
- Instrumentation
- Power supply

Specification

CONTACT ARRANGEMENT: SPST, N.O.
TERMINALS: SMT termination

Electrical

CONTACT RATING: 1.0 VA max. @ 32 V AC or DC max.
ELECTRICAL & MECHANICAL LIFE: 100,000 make-and-break cycles at full load.
DIELECTRIC STRENGTH: 250 Vrms min. @ sea level.
CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA.
INSULATION RESISTANCE: 10⁹ Ω min.

Environmental

OPERATING TEMPERATURES: Ag version: -40°C to 90°C
Au version: -40°C to 125°C

Process

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).
DEGREE OF PROTECTION: IP57; protection against harmful dust deposits, full-scale voltage protection.

Packaging

Switches supplied in anti-static tape and reels per EIA 481-2. Tape and cover strip are conductive for use near statically sensitive components.

NOTE: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

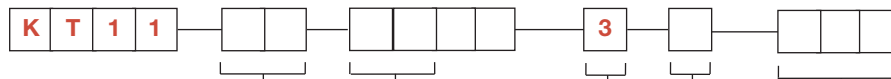
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

SWITCH



Actuator

- B0*** Soft, flush
- B1*** Soft, 0,64 mm
- B2*** Soft, 2,24 mm
- P2**** Hard, 2,36 mm
- P3**** Hard, 1,12 mm
- P4**** Hard, 3,96 mm
- S1***** ø0,1" for Press Fit Caps
- S2***** ø0,14" for Snap Fit Caps (with anti-rotation)

Orientation and Mounting Style

- SM** Top Gullwing
- JM** Top J Bend ****
- SAM** Right angle
- SA1M** Right angle with front solder pad
- SA2M** Right angle with front solder pad and pick & place tab
- SA3M** Right angle with pick & place tab

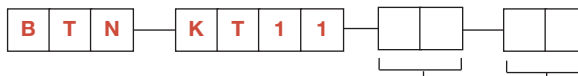
Contact Plating

- 4** Silver
- 5** Gold
- LFS** RoHS compliant and compatible. Silver plated
- LFG** RoHS compliant and compatible. Gold plated

* B0, B1 & B2 available with A, A1 & A3 mounting bracket only.
** P2, P3, P4 actuators suitable with A1 & A2 mounting bracket only.
*** S1 & S2 available with A1 & A2 mounting bracket only.
**** JM available with B0, B1, B2, P2, P3, P4 without mounting bracket.

BUTTON

To order buttons in bulk



Button Style

- 02** Press fit
- 03** Snap fit, high temperature

Button Color

- 90** Black
- 80** Ivory (natural)
- 40** Red

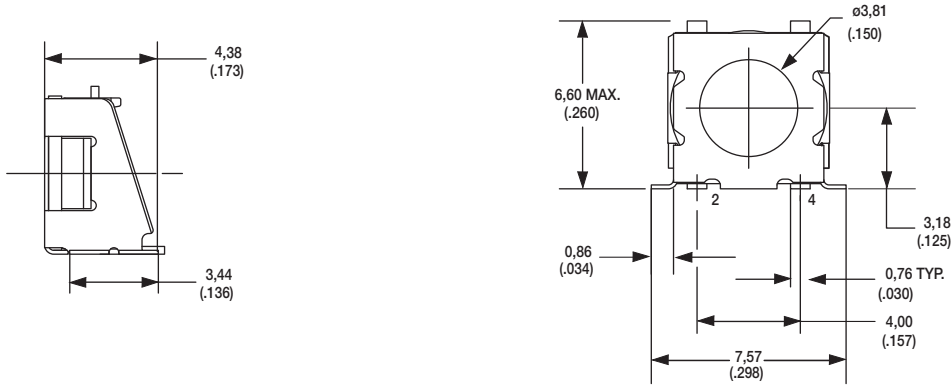


Dimensions are shown: mm
Specifications and dimensions subject to change

KT Series Full SMT Top & Side Actuated Sealed Tact Switch

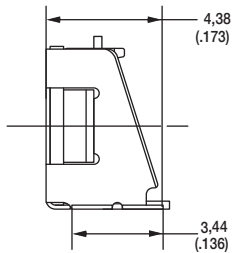
SERIES

KT11

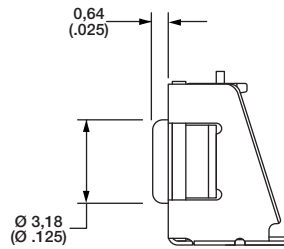


ACTUATOR

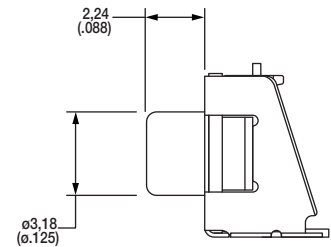
B0 SOFT, FLUSH*



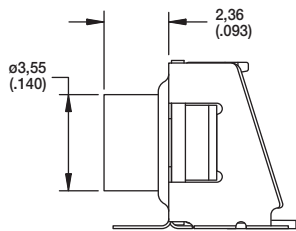
B1 SOFT, 0,64 mm*



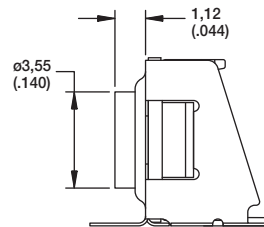
B2 SOFT, 2,24 mm*



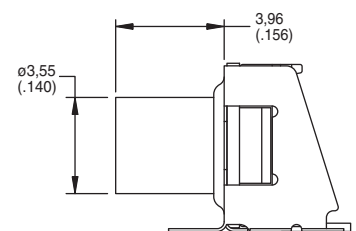
P2 HARD, 2,36 mm



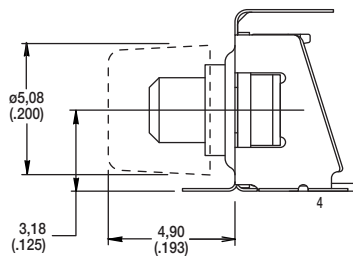
P3 HARD, 1,12 mm



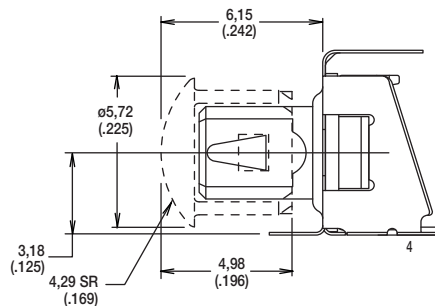
P4 HARD, 3,96 mm**



S1 \varnothing 0,1" FOR PRESS FIT CAPS***



S2 \varnothing 0,14" FOR SNAP FIT CAPS***



* B0, B1 & B2 available with A, A1 & A3 mounting bracket only.

** P2, P3, P4 actuators suitable with A1 & A2 mounting bracket only.

*** S1 & S2 available with A1 & A2 mounting bracket only.

**** JM available with B0, B1, B2, P2, P3, P4 without mounting bracket.



*Dimensions are shown: mm
Specifications and dimensions subject to change*

B

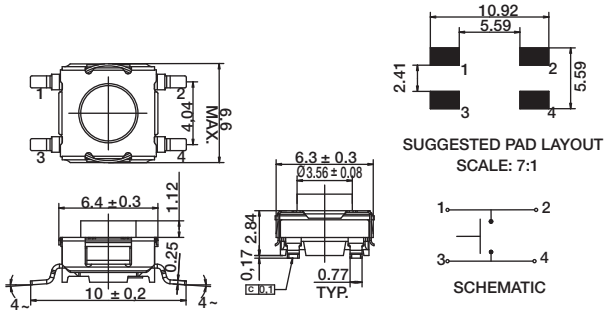
Tactile Switches

KT Series Full SMT Top & Side Actuated Sealed Tact Switch

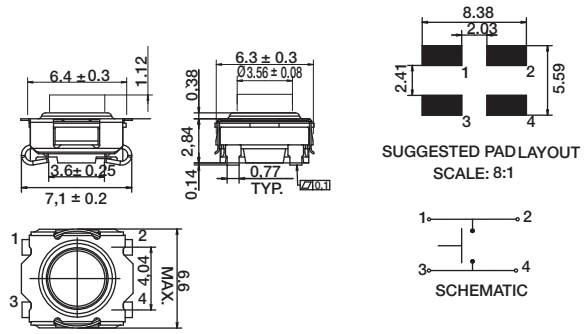
ORIENTATION & MOUNTING STYLE

Tactile Switches

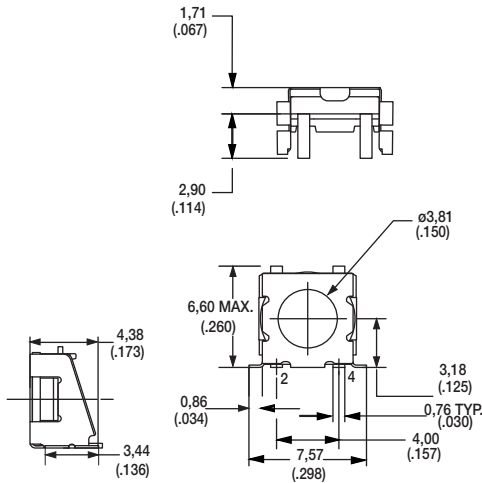
SM TOP GULLWING



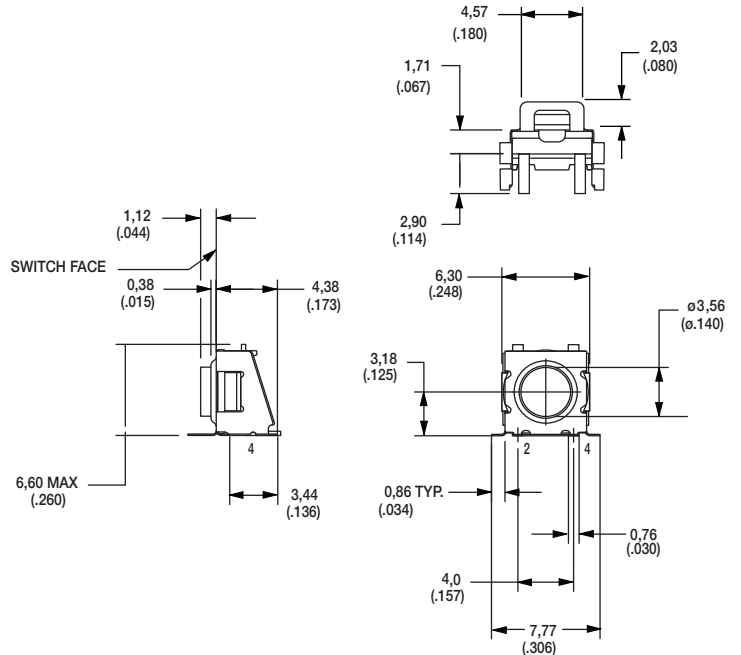
JM TOP J BEND



SAM RIGHT ANGLE



SA1M RIGHT ANGLE WITH FRONT SOLDER PAD



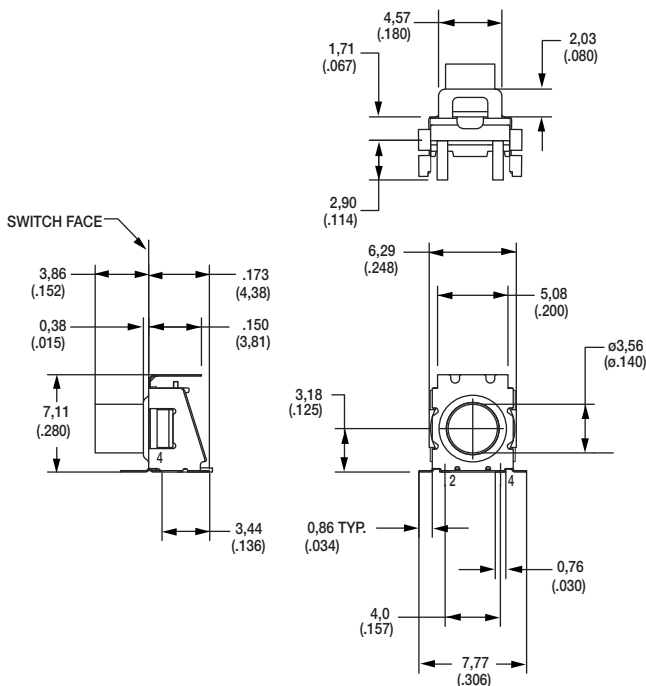
Dimensions are shown: mm
Specifications and dimensions subject to change



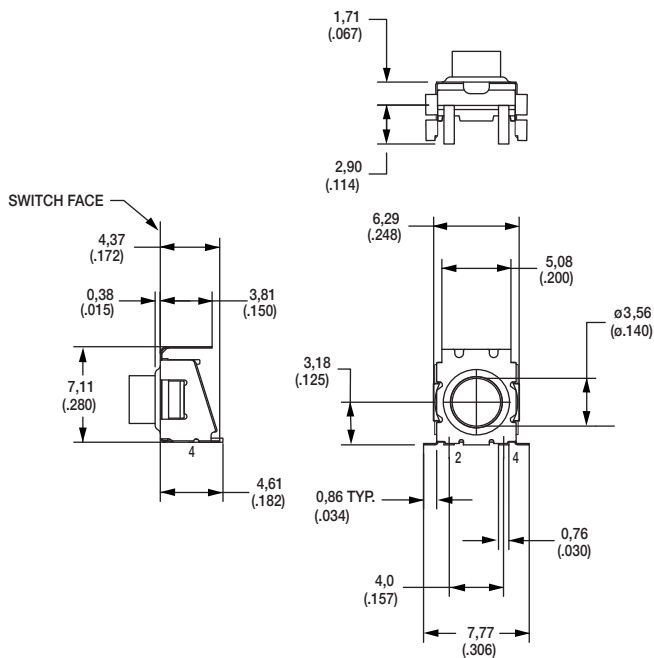
KT Series

Full SMT Top & Side Actuated Sealed Tact Switch

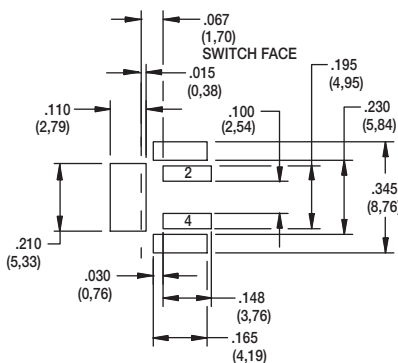
SA2M RIGHT ANGLE WITH FRONT SOLDER PAD AND PICK & PLACE TAB



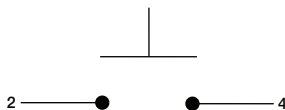
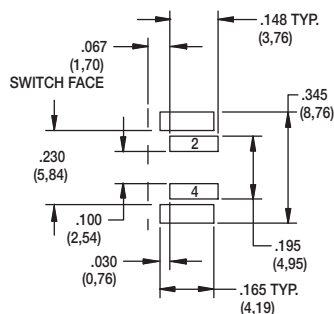
SA3M RIGHT ANGLE WITH PICK & PLACE TAB



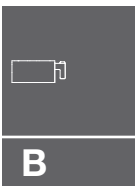
PAD LAYOUT
SA1M & SA2M MOUNTING BRACKET



PAD LAYOUT
SAM & SA3M MOUNTING BRACKET



SCHEMATIC



Dimensions are shown: mm
Specifications and dimensions subject to change

KT Series Full SMT Top & Side Actuated Sealed Tact Switch

BUTTON

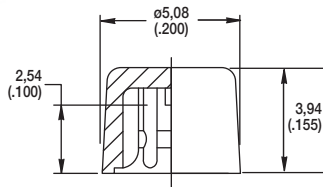
BUTTON

To order buttons in bulk

02 PRESS FIT

PART NUMBER	Internal Part Number	Button Color
BTN KT11 02 80	5081 01000	Ivory (Natural)
BTN KT11 02 90	5081 02000	Black
BTN KT11 02 40	5081 03000	Red

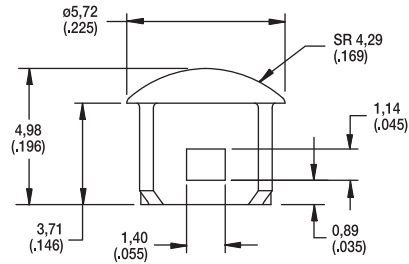
Materials: Nylon
Finish: Gloss



03 SNAP FIT, HIGH TEMPERATURE

PART NUMBER	Internal Part Number	Button Color
BTN KT11 03 80	685B 01000	Ivory (Natural)
BTN KT11 03 90	685B 02000	Black

Materials: Nylon
Finish: Gloss



K5AT Illuminated SMT Tact Switch

Features

- High bright LED's
- Gold plated dome contact offering superior contact reliability in time
- Excellent ergonomics: sharp tactile feel and audible click
- Reduced space usage on board "2 in 1"
- 40 N overload
- Tape and reel
- RoHS compliant and compatible

Typical Applications

- Application requiring illumination
- Server, storage
- Network infrastructure
- Telecom
- Medical



B

Tactile Switches

Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: Normally Open
 TERMINALS: SMT with positioning pegs;
 SMT without positioning pegs is available,
 contact Customer Service

Mechanical

Type	Operating force FA ¹ Newtons (grams)	Operating life (operations)	Travel (total travel) mm(mm)
K5AT WH 43GP	4.0 (400)	100,000	0,5 (0.8)

¹ Tolerances of operating force FA is ± 25%.

Packaging

Standard: 900 pcs per reel; Reel diameter 380 mm
 Reduced: 180 pcs per reel; Reel diameter 180 mm

Electrical

POWER MIN/MAX: 0.02VA / 1.0VA
 VOLTAGE MIN/MAX: 20mVdc – 32 Vdc
 CURRENT MIN/MAX: 0.1mA – 100mA
 CONTACT RESISTANCE: <100m Ω
 INSULATION RESISTANCE: >1G Ω initial, >10M Ω after damp heat
 BOUNCE TIME: <10ms

Environmental

OPERATING TEMPERATURE: -40°C to 125°C
 STORAGE TEMPERATURE: -55°C to 125°C
 RELATIVE HUMIDITY: 90 to 96% according to NF EN 60068-2-30
 PROTECTION: dust protection and flux tight (IP 40)
 OVERLOAD: 40N min

Process

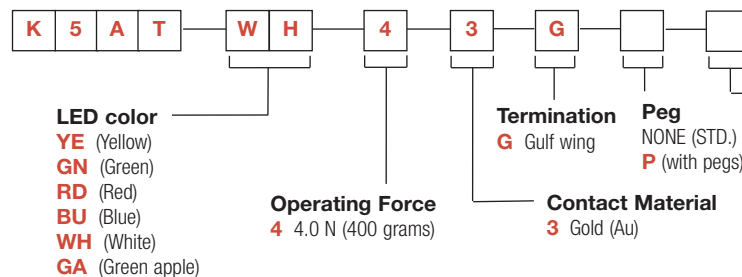
SOLDERING: Compatible with the lead free soldering profile.
 No washing

Materials

CONTACTS: Au over Ni
 SOLDERING: Au over Ni
 HOUSING: Thermoplastic UL94 V0

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



Packaging

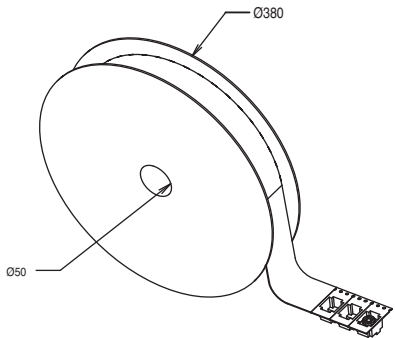
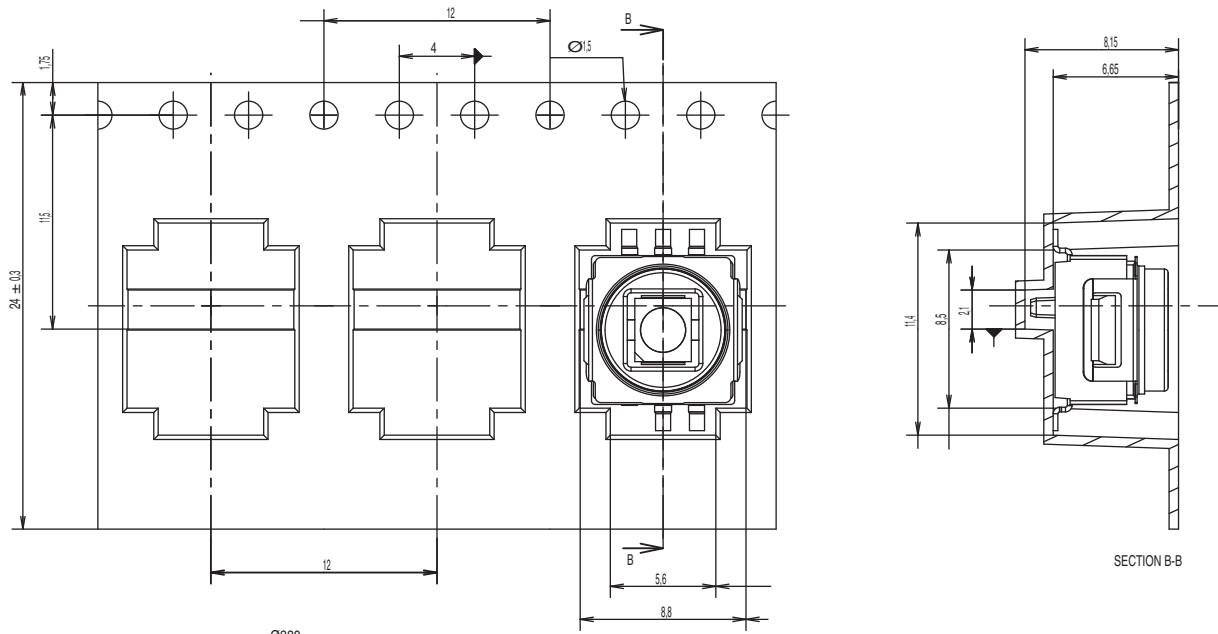
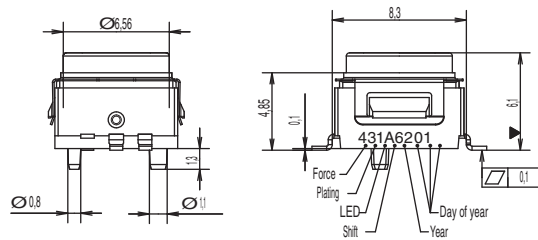
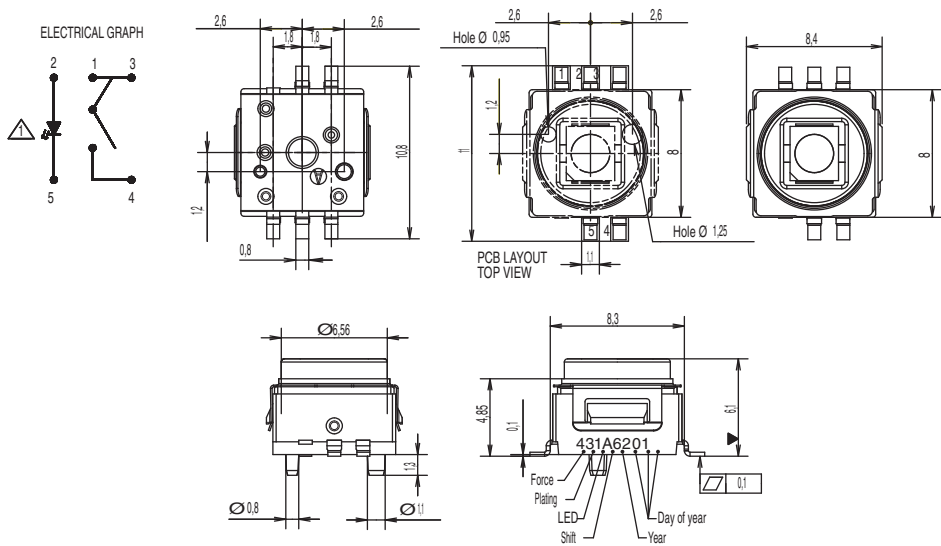
NONE (900 pieces per reel)
 R (reduced packaging 180 pieces per reel)

K5AT Illuminated SMT Tact Switch

K5AT

Tactile Switches

B



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



Lighted SMT Tact Switch with Rugged LED Mounting Process

Features

- LED assembly without soldering
- Various LED options
- No light perturbation
- Sound haptic
- Various climatic classes

Typical Applications

- Automotive
- Network equipment
- Telecommunications
- Medical equipment
- Industrial controls



Tactile Switches

Specification	Electrical	Silver	Gold
FUNCTION: momentary action	MAXIMUM POWER:	1.0 VA	0.2 VA
CONTACT ARRANGEMENT: 1 make control = SPST, N.O.	MAXIMUM VOLTAGE:	32 VDC	32 VDC
TERMINALS: Gullwing type for SMT, peg as option, 2 terminals for LED	MINIMUM VOLTAGE:	20 mV	20 mV
	MAXIMUM CURRENT:	50 mA	10 mA
	MINIMUM CURRENT:	1 mA	0.1 mA
	DIELECTRIC STRENGTH: (50 Hz, 1 min.)	≥ 250 Vrms	
	CONTACT RESISTANCE:	< 100mΩ	
	INSULATION RESISTANCE: (100 V, initial stage)	> 10 ⁹ Ω	
	BOUNCE TIME:	< 10 ms	
Mechanical	Environmental		
	OPERATING TEMPERATURE:	-40°C to +85°C (Silver)	-40°C to +125°C (Gold)
	STORAGE TEMPERATURE:	-55°C to +85°C (Silver)	-40°C to +125°C (Gold)
	Process		
	SOLDERING: Compatible with the lead free soldering profile.		
	No washing		
	MSL level: 5		
	NOTE:		
	The specifications show in the datasheet are for reference only and are not valid for design-in work. Please contact your sales representative to request drawings and product specifications.		
	For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.		

Specification
 FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make control = SPST, N.O.
 TERMINALS: Gullwing type for SMT, peg as option, 2 terminals for LED

Type	Actuation Force (N)	Operating Life (operations)	Total Travel (mm)
K8xx41G LFS	4.0	300,000	0.45±0.15

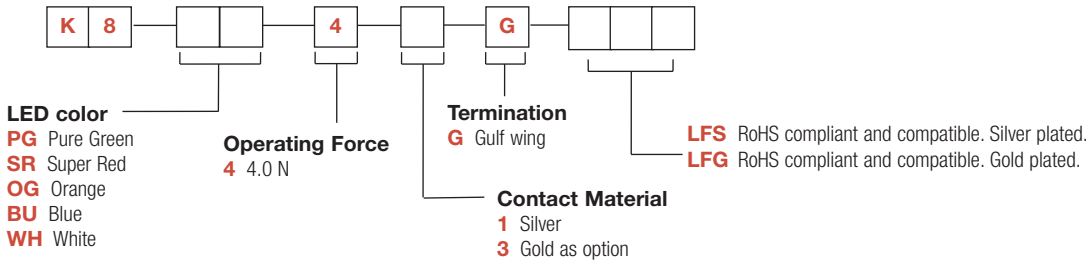
Tolerances on actuation force is ± 0.25%.
 SEALING LEVEL: IP40

Illumination Colors
 White, blue, pure green, orange, super red
 LED technical information available on product specification.
 For any extra color, please contact your sales representative.

Packaging
 In reels of 900 pieces under sealed foil.
 Dimensions of reels according to EIA RS481 or IEC 2863.
 External diameter 380 mm.

How To Order

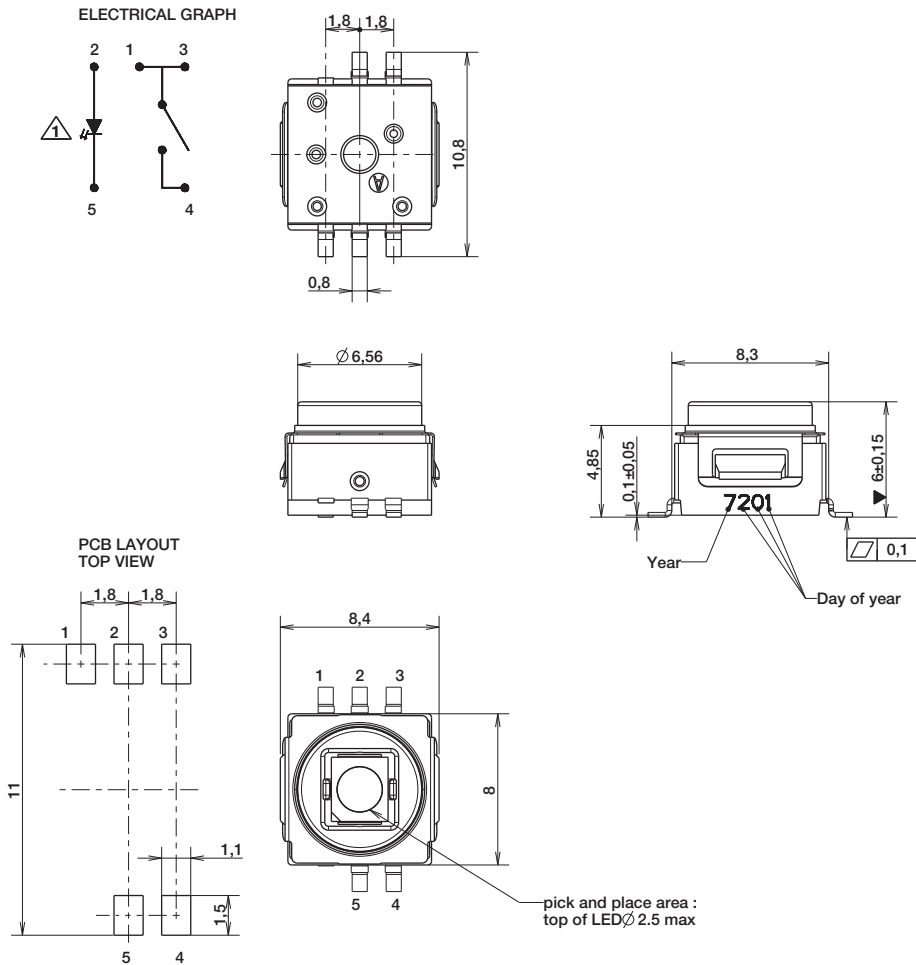
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and and place it in the appropriate box.



Dimensions are shown: mm
 Specifications and dimensions subject to change

K8 Lighted SMT Tact Switch with Rugged LED Mounting Process

PART NUMBER	REF LED	EMITTED COLOR	LUMINOUS INTENSITY (mcd) $I_f = 20 \text{ mA}$		CHROMATICITY COORDINATES OR PEAK WAVE LENGTH (typ) $I_f = 20 \text{ mA}$		FORWARD VOLTAGE V $I_f = 20 \text{ MA}$	
			min	typ	X	Y	min	max
K8WH41G	LW T67C-S2U1-5K8L	WHITE	224	560	0,33	0,33	3	4.1
K8BU41G	LB T67C-P2R1-35	BLUE	56	140	465 nm		3	4.1
K8PG41G	LP T676-L1M2-25	PURE GREEN	11.2	28	562 nm		1.8	2.4
K8SR41G	LP T676-Q1R2-1	SUPER RED	71	180	645 nm		1.8	2.3
K8OG41G	LO T676-R1S2-24	ORANGE	112	280	610 nm		1.85	2.35

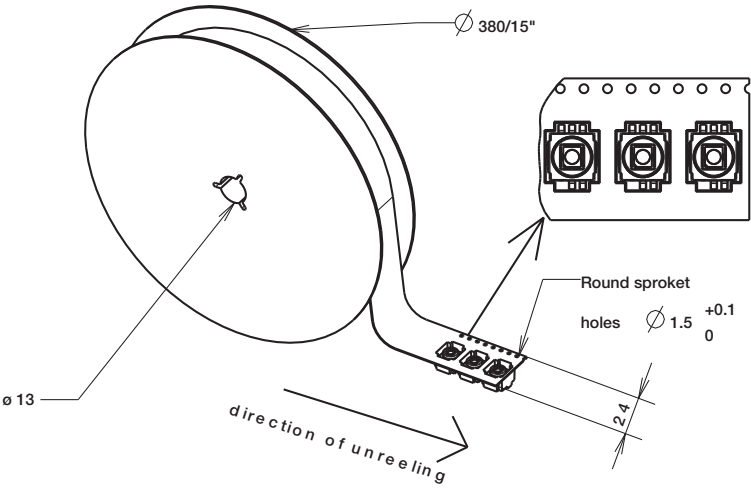


Dimensions are shown: mm
Specifications and dimensions subject to change



Lighted SMT Tact Switch with Rugged LED Mounting Process

TAPE & REEL



Tactile Switches

K5V Illuminated Tact Switch



Features

- Gold plated dome contact SPST/SPDT
- Excellent ergonomics
- High bright leds
- Reduced space usage on board
- 40 N overload
- Tape and reel
- RoHS compliant and compatible

Typical Applications

- When backlighting and switch are required to be a "2 in 1" component
- The dome contact secures a superior contact reliability in time
- The ergonomics of K5V provides a long travel, a sharp tactile feel and an audible click
- Server, storage, automotive, network infrastructure, medical

Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: Normally Open + Normally Closed
 TERMINALS:
 THT: Through hole terminals with positioning pegs
 SMT: Surface mount terminals with positioning pegs
 PM: Panel mount solder terminals with wire hole

Electrical

POWER MIN/MAX: 0.02VA / 1.0VA
 VOLTAGE MIN/MAX: 20mVdc – 32 Vdc
 CURRENT MIN/MAX: 0.1mA – 100mA
 CONTACT RESISTANCE: <150m Ω
 INSULATION RESISTANCE: >1G Ω initial, >10M Ω after damp heat
 BOUNCE TIME: <5ms

Mechanical

Version	Operating force FA ¹ Newtons (grams)	Operating life (operations)	Travel (total travel) mm(mm)
THT, SMT, PM	4.0 (400)	25,000	1.2 (2.4)

¹ Tolerances of operating force FA is ± 25%.

Environmental

OPERATING TEMPERATURE: -40°C to 85°C
 STORAGE TEMPERATURE: -50°C to 85°C
 RELATIVE HUMIDITY: 90 to 96% according to NF EN 60068-2-30
 PROTECTION: dust protection and flux tight
 OVERLOAD: 40N min

Packaging

THT:
 60 pieces per tray; 1800 pieces per box
 SMT:
 330 pieces per reel (reel ø 360mm); 1320 pieces per box
 PM:
 60 pieces per tray; 2100 pieces per box

Process

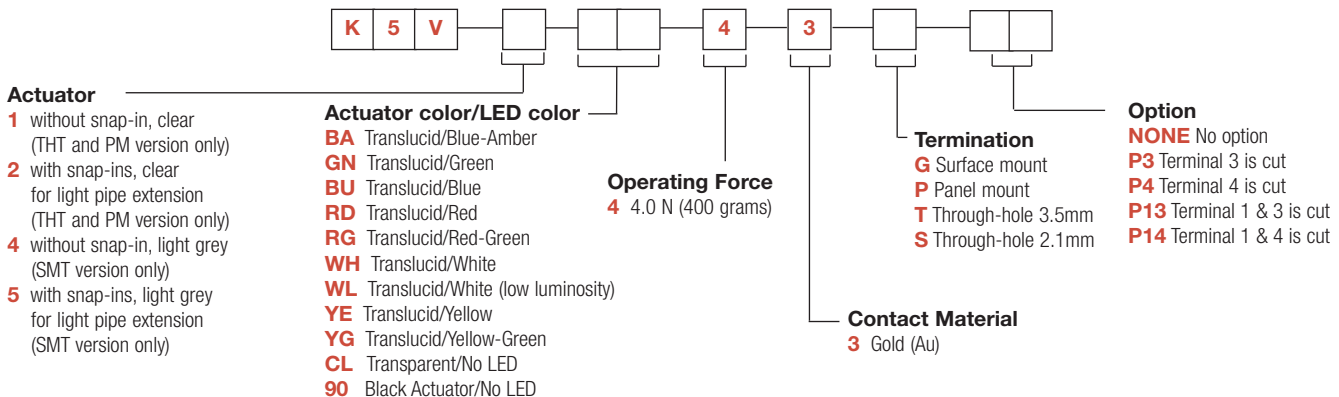
SMT
 Soldering: Compatible with the lead free soldering profile
 No washing
 THT
 Soldering: Compatible with the lead free soldering profile
 No washing
 PM
 Soldering: Low wattage soldering iron (25-50 watts max).
 Solder time 3 seconds max. No washing

Materials

LEAD FREE
 CONTACTS: Au over Ni
 SOLDERING: Au over Ni
 HOUSING: Thermoplastic UL94 V0

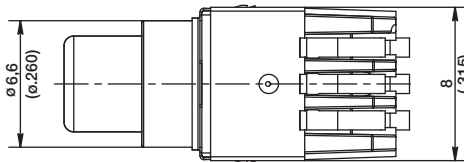
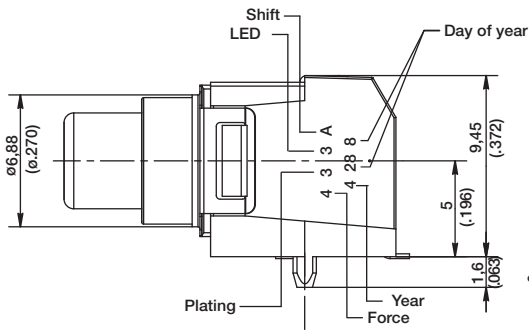
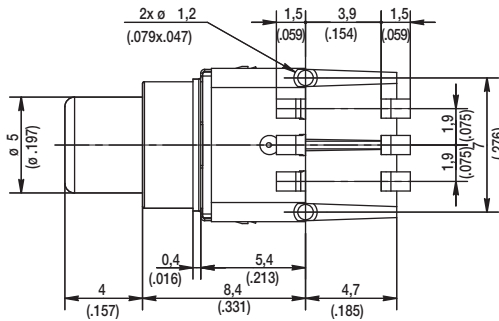
How To Order

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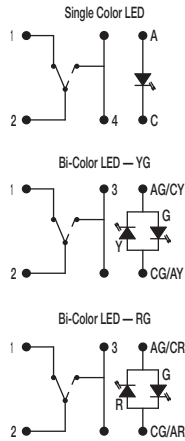


K5V Illuminated Tact Switch

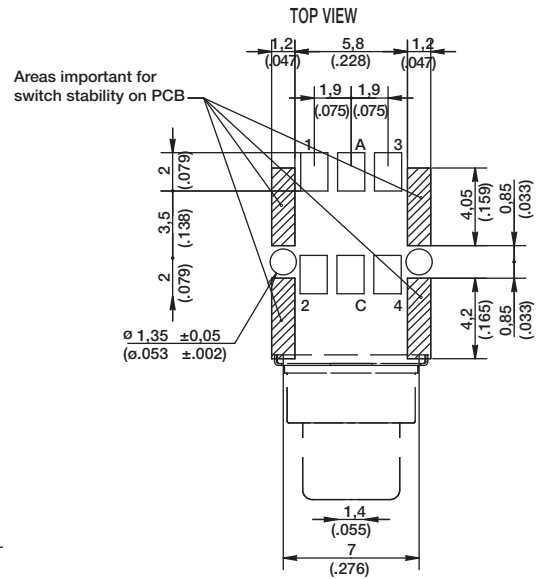
K5V SMT



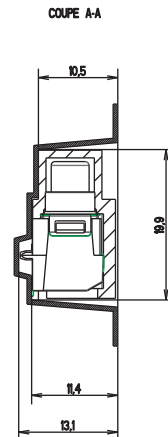
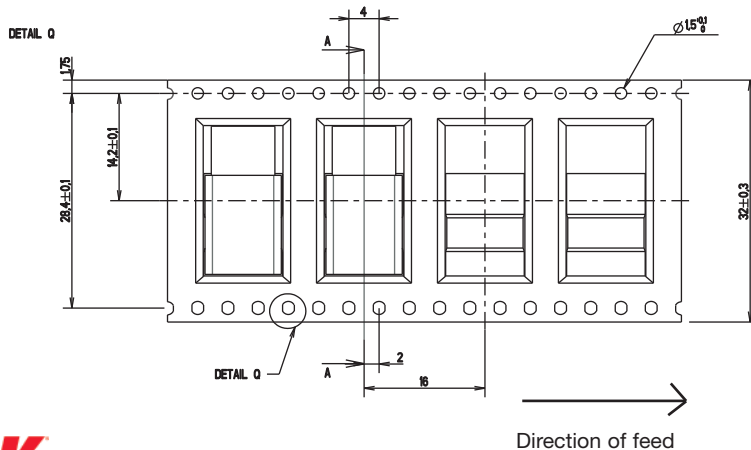
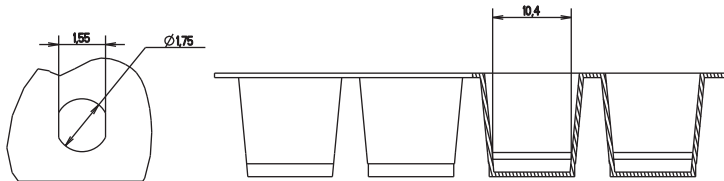
ELECTRICAL DIAGRAM



RECOMMENDED PCB LAYOUT (WITH HOLES)



TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change

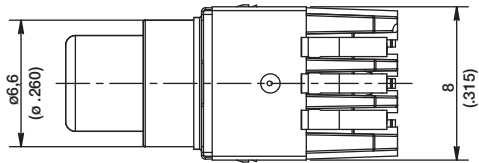
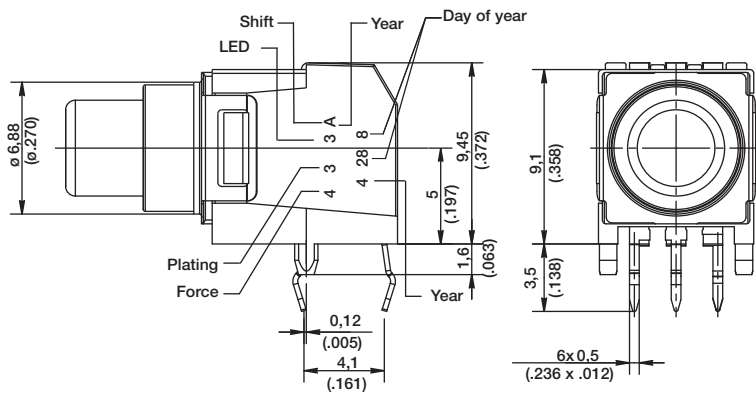
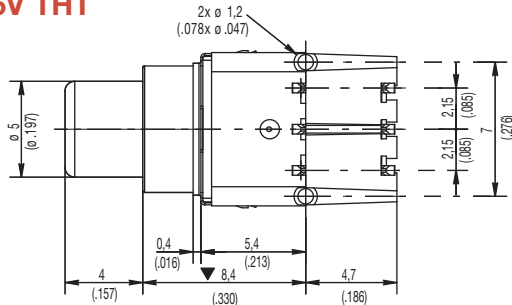


K5V Illuminated Tact Switch

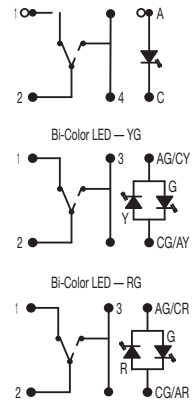
B

Tactile Switches

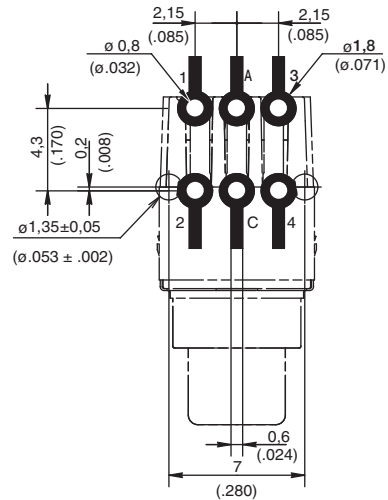
K5V THT



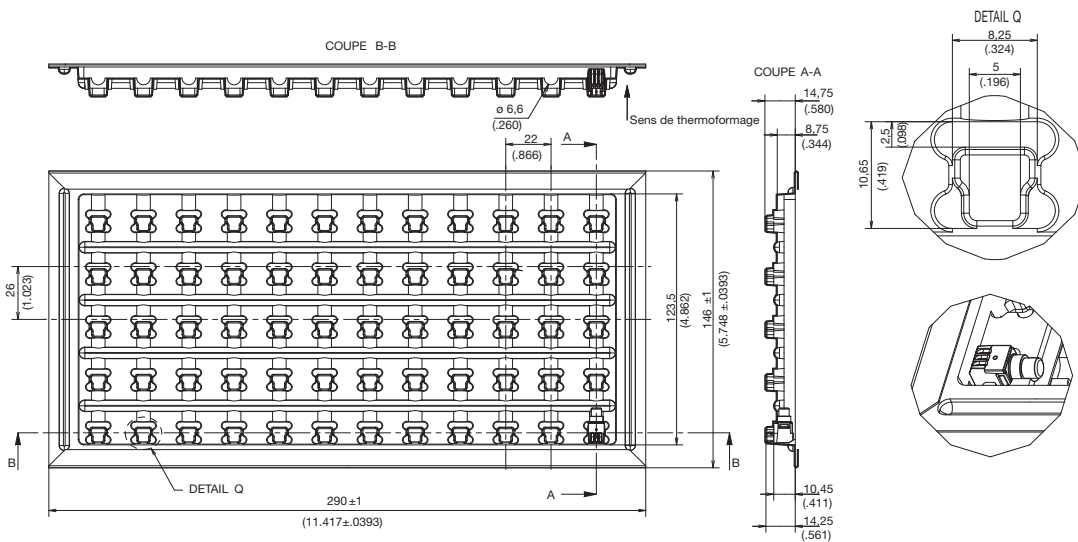
ELECTRICAL DIAGRAM



RECOMMENDED PCB LAYOUT (WITH HOLES) TOP VIEW



TRAY

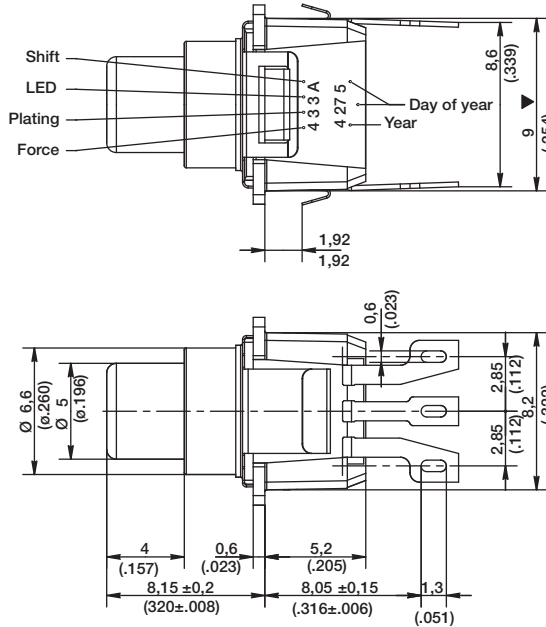


Dimensions are shown: mm
Specifications and dimensions subject to change

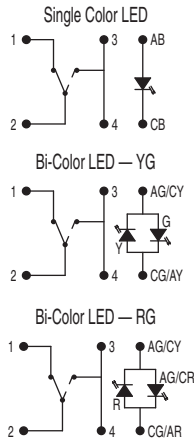
K5V Illuminated Tact Switch

K5V PM

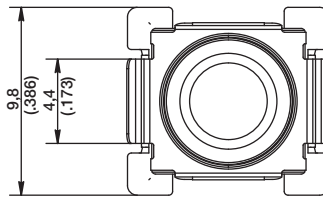
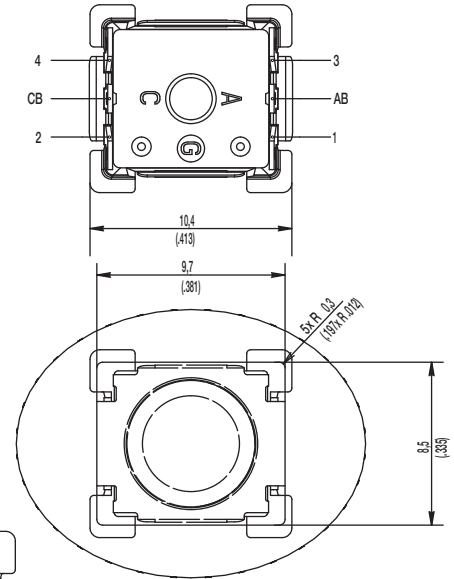
PRODUCT IDENTIFICATION AND DATE CODES



ELECTRICAL DIAGRAM



TERMINAL REFERENCES

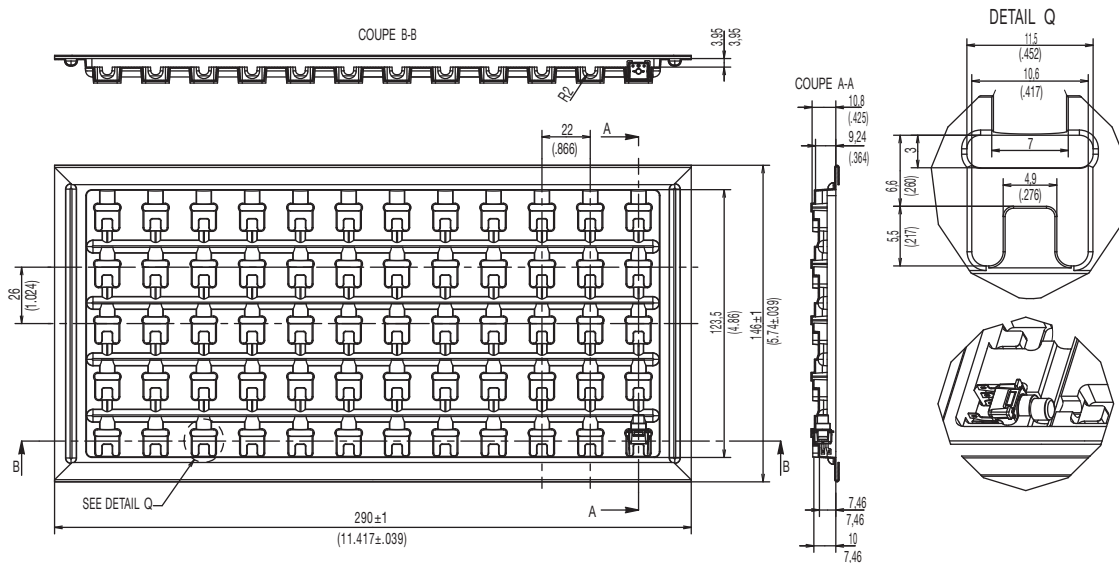


B

Tactile Switches

TRAY

SUITABLE FOR PANEL THICKNESS OF 1.8MM MAX



Dimensions are shown: mm
Specifications and dimensions subject to change

KSF & KSFI Series Soft Actuated Tact Switch



Features/Benefits

- Soft actuated switch
- Sealed front end
- Top and side actuated

Typical Applications

- Low profile keyboards
- Automotive interfaces
- Industrial control

B

Tactile Switches

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: THT pins

Mechanical

Type	Force (N)	Operating life (operations)	Travel (mm)
KSF0M211LFTR	1.5 ± 0.5	100,000	0.25 ± 0.1
KSF0M311LFTR	1.9 ± 0.5	100,000	0.25 ± 0.1
KSF0M411LFTR	3.0 ± 0.75	100,000	0.25 ± 0.1
KSF0M511LFTR	5.2 ± 1.0	100,000	0.25 ± 0.1
KSFI0V91170SH LFTR	3.4 ± 1.5	100,000	0.65 ± 0.25
KSF0M212 LFT	1.6 ± 0.4	300,000	0.25 ± 0.1
KSFI0M412 70SHLFT	3.2 ± 0.8	100,000	0.75 ± 0.25

Overload resistance: 40N, 1 time
Sealing: IP60 or IP67

NOTE: Other configurations of haptics and terminals are available upon demand. Please also refer to KSF and KSFI Mk2 catalogues pages for other options.

This product is designed and manufactured for general electronic devices. For systems where reliability and safety are required, please contact your sales representative to secure product integration and function to secure usage.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	1 mA
DIELECTRIC STRENGTH (50 Hz, 1 min.): > 250 Vrms		
CONTACT RESISTANCE: < 100 m Ω		
INSULATION RESISTANCE (100 V, initial stage): > 10 ⁹ Ω		
BOUNCE TIME: < 1 ms		

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-40°C to 125°C

Process

SOLDERING

Packaging

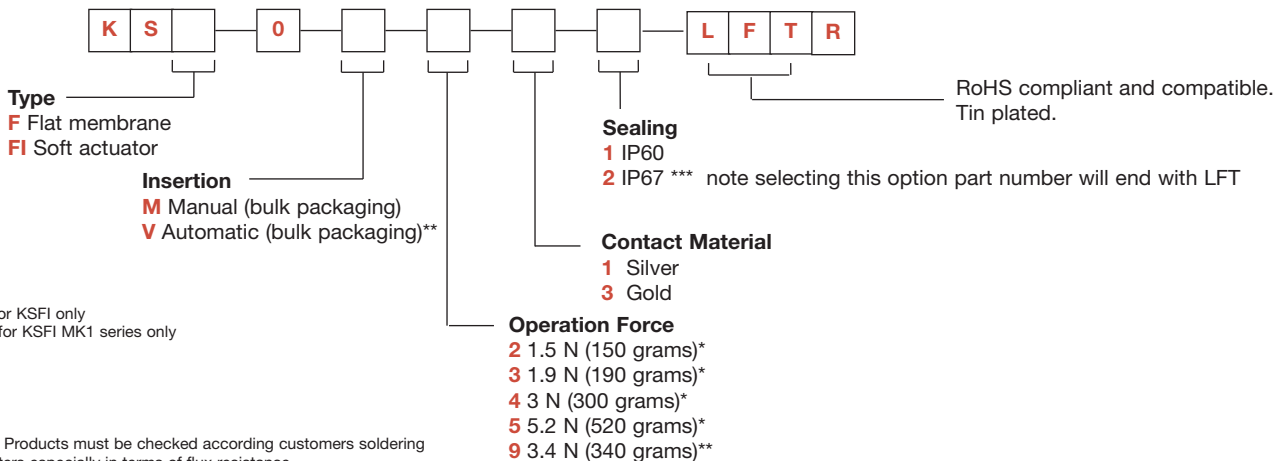
In boxes of 250 pieces (V type) or 500 pieces (M type).

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

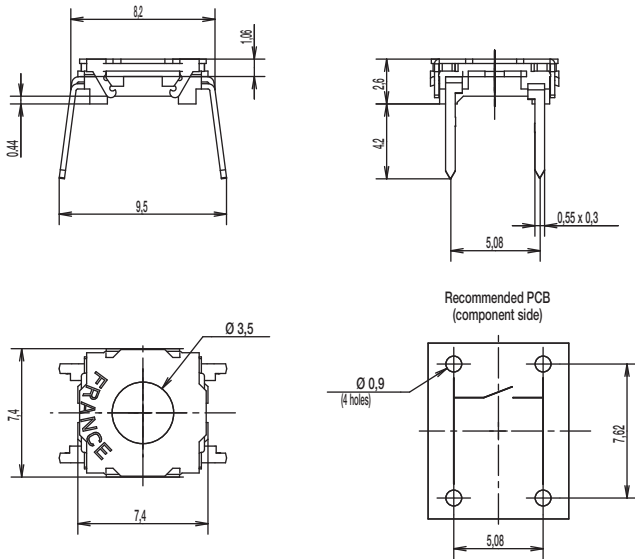


* valid for KSFI only
 ** valid for KSFI MK1 series only

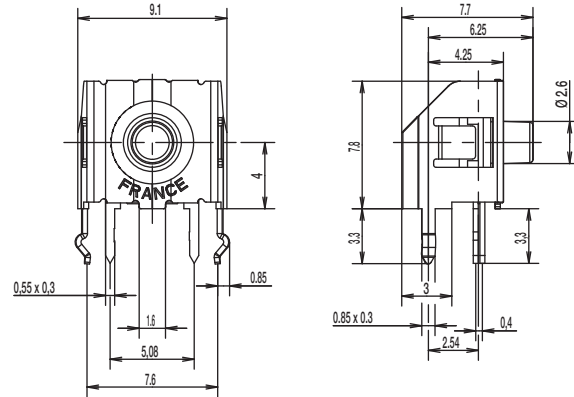
***NOTE:** Products must be checked according customers soldering parameters especially in terms of flux resistance.

KSF & KSFI Series Soft Actuated Tact Switch

KSF



KSFI 0V



B

Tactile Switches

KSA & KSL Series Sealed Tact Switch



Features/Benefits

- Designed for automatic or manual insertion
- Cambered terminals to ensure self retention
- Top or side actuated
- Large choice of caps
- RoHS compliant and compatible

Typical Applications

- Automotive
- Industrial
- Telecommunication networks

B

Tactile Switches

Specification

CONTACT ARRANGEMENT: SPST, N.O.
 DOUBLE OVERMOLDING ON TERMINAL
 SEALING: IP60
 TERMINALS: PC pins, ground pin optional

Mechanical

Type	Actuation force N	Operating life (operations)	Travel to make
KSA0M211	1,4 ± 0,4	100,000	0,5 ± 0,2
KSA0M311	1,4 ± 0,4	1,000,000	0,5 ± 0,2
KSA0M411	3 ± 0,75	100,000	0,6 ± 0,2
KSA0M511	5 ± 1,5	100,000	0,7 ± 0,2
KSA0M911	3 ± 0,75	500,000	0,6 ± 0,2
KSL0M211	1,4 ± 0,4	100,000	0,5 ± 0,2
KSL0M311	1,4 ± 0,4	1,000,000	0,5 ± 0,2
KSL0M411	3 ± 0,75	100,000	0,6 ± 0,2
KSL0M511	5 ± 1,5	100,000	0,7 ± 0,2
KSL0M911	3 ± 0,75	500,000	0,6 ± 0,2

NOTE: Other versions in terms of force, termination length and corrosion protection available. Please contact your sales representative.
 This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	1 mA
DIELECTRIC STRENGTH: 250 Vrms		
CONTACT RESISTANCE: ≤ 100m Ω		
INSULATION RESISTANCE (100 V): ≥ 10 ⁹ Ω		
BOUNCE TIME: ≤ 1 ms		

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-40°C to 85°C	-55°C to 125°C

Process

Wave soldering compatible with lead free soldering profile.

Packaging

Can be delivered in tubes of 65 pieces for automatic insertion or in boxes of 500 pieces for manual insertion (250 pieces for KSL, KSLV, KSAV).

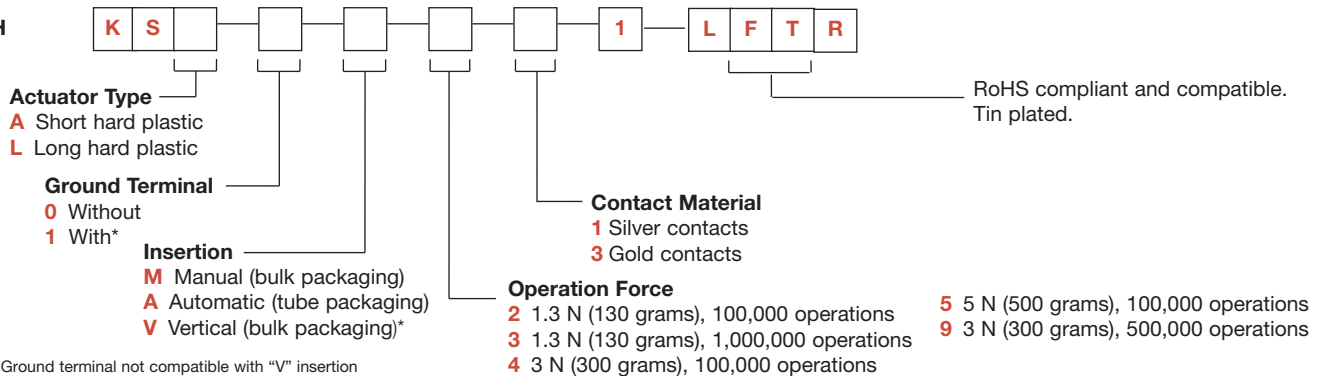
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

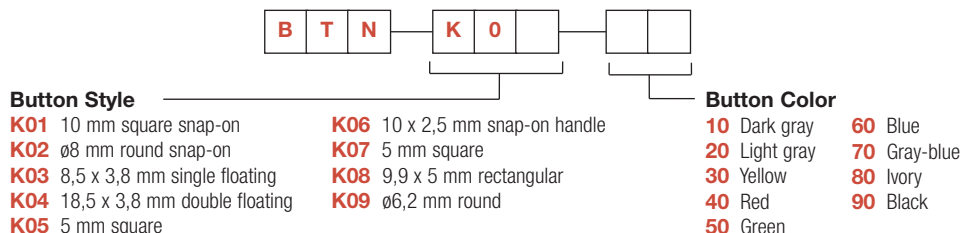
For any part number different from those listed above, please consult your local representative.

SWITCH



*Note: "1" Ground terminal not compatible with "V" insertion

BUTTONS Buttons must be ordered separately and will be supplied in bulk.



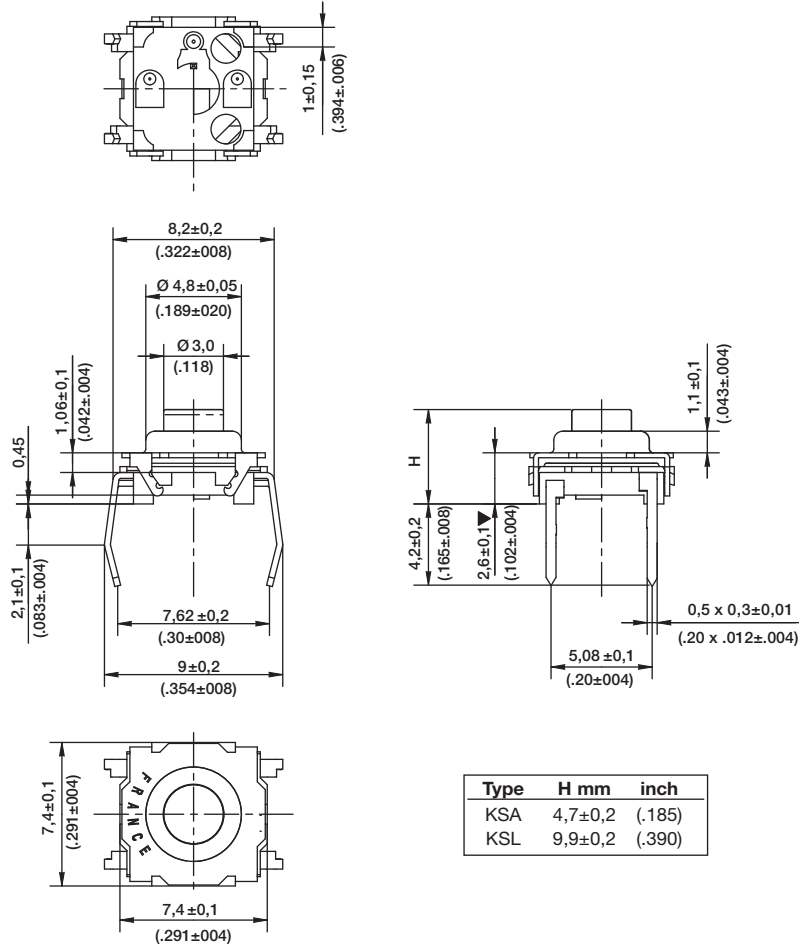
*NOTE: Please note that all buttons are not RoHS compliant. Please check the compliance with your C&K sales representative.



KSA & KSL Series Sealed Tact Switch

ACTUATOR TYPE

KSA & KSL

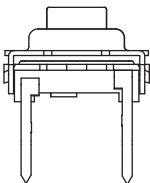


B

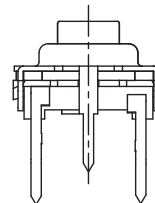
Tactile Switches

GROUND TERMINAL

0 WITHOUT



1* WITH



*Not compatible with "V" insertion



Dimensions are shown: mm
Specifications and dimensions subject to change



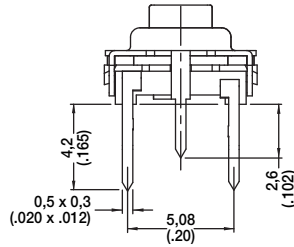
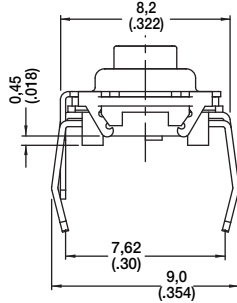
26 jul 16

KSA & KSL Series Sealed Tact Switch

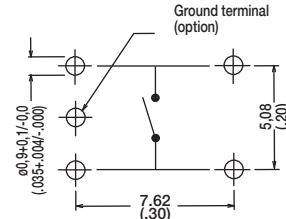
INSERTION

Tactile Switches

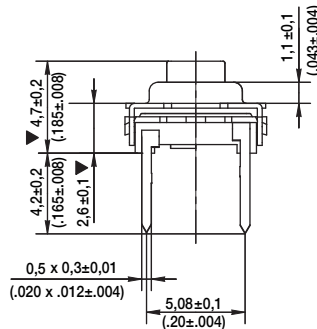
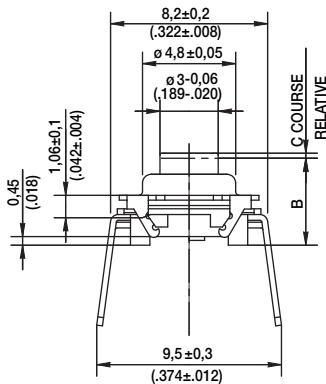
M MANUAL (BULK PACKAGING)



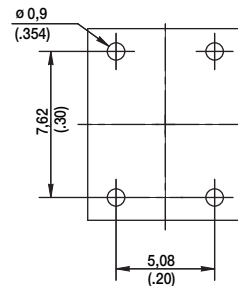
PCB LAYOUT



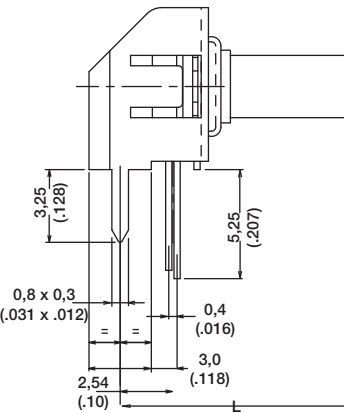
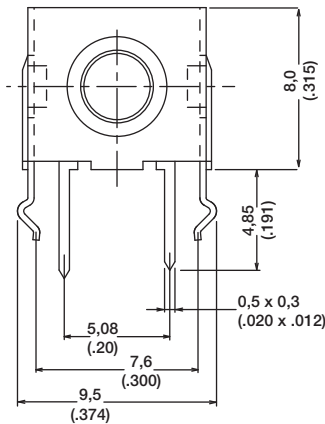
A AUTOMATIC (TUBE PACKAGING, 65 PIECES PER TUBE)



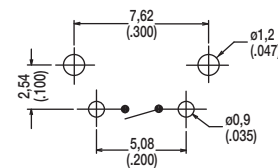
PCB LAYOUT



V VERTICAL



PCB LAYOUT



DIMENSION L

Type	L mm	inch
KSA0V	5,8	.228
KSL0V	11,1	.437

OPERATING FORCE

OPTION CODE	OPERATING FORCE
2	1.3 N (130 grams) 100,000 operations
3	1.3 N (130 grams) 1,000,000 operations
4	3.0 N (300 grams) 100,000 operations
5	5.0 N (500 grams) 100,000 operations
9	3.0 N (300 grams) 500,000 operations



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



KSA & KSL Series Sealed Tact Switch

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
1	Silver contacts
3	Gold contacts

SEALING

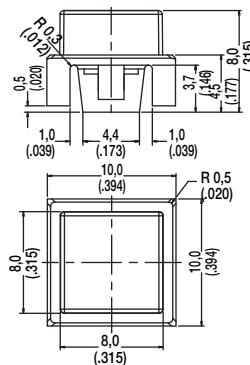
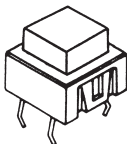
OPTION CODE	SEALING
1	Sealing level IP60

BUTTONS

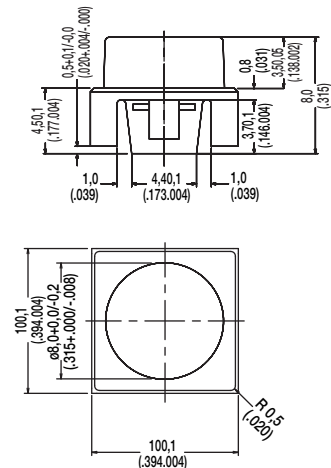
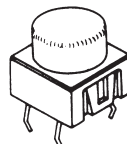
Buttons must be ordered separately and will be supplied in bulk.

BUTTON TYPE	KSA	KSL	KSAV	KSLV
K01	X			
K02	X			
K03	X	X	X	X
K04	X	X	X	X
K05		X		X
K06	X			
K07		X		X
K08		X		X
K09		X		X

K01



K02



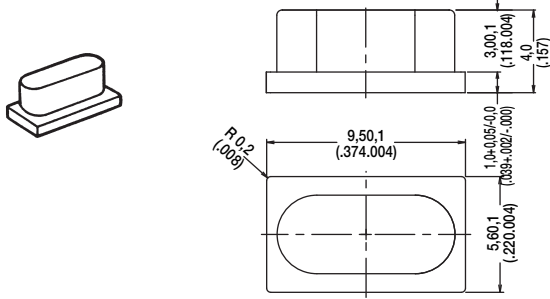
Dimensions are shown: mm
Specifications and dimensions subject to change

KSA & KSL Series Sealed Tact Switch

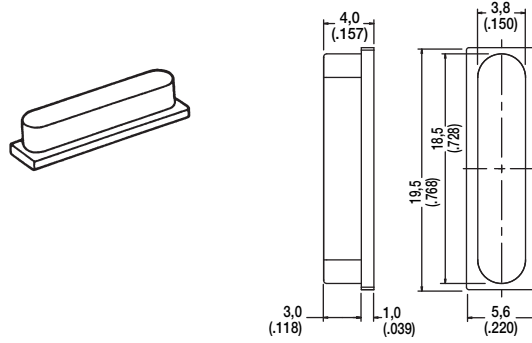
Tactile Switches

B

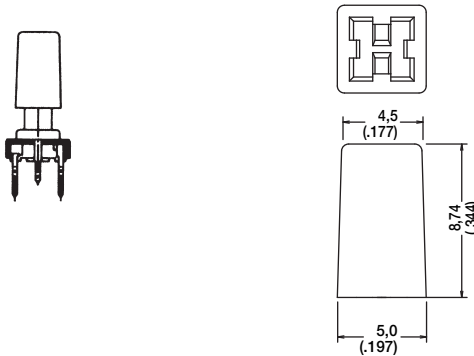
K03



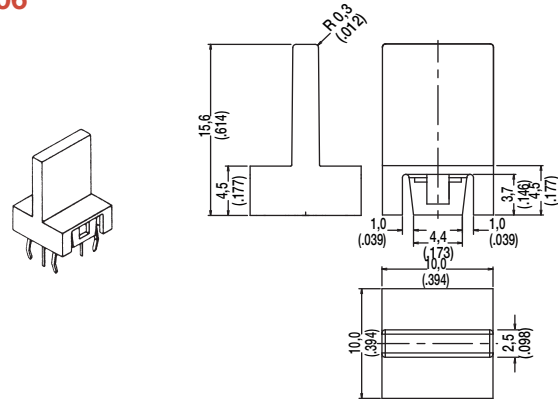
K04



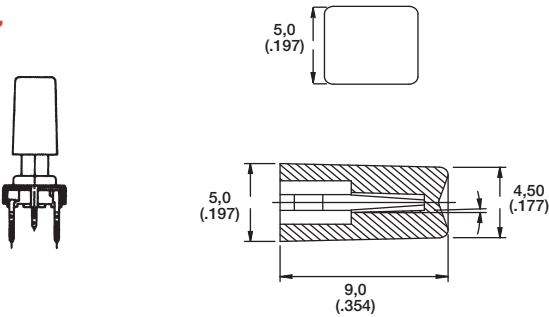
K05



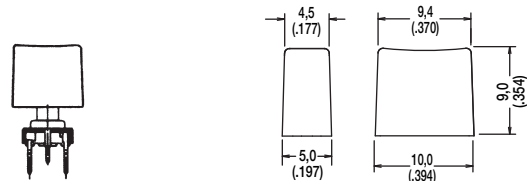
K06



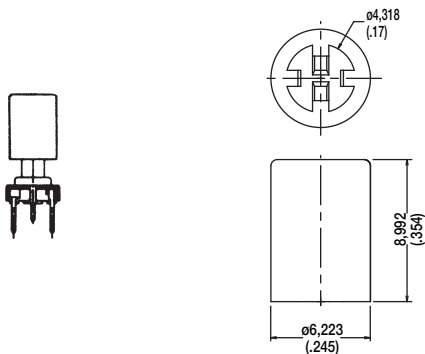
K07



K08



K09



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

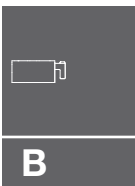
KSA & KSL MKII Series High Performance Sealed Tact Switch

Features/Benefits

- Highest tact switch sealing performance
- Improved sealing through a modification of the crimping technique and to a double overmolding of the terminal
- Totally sealed
- Up to 1M operations
- RoHS compliant and compatible

Typical Applications

- Automotive
- Industrial
- Telecommunication networks
- Household appliances
- Heating control systems



B

Tactile Switches

Specification

CONTACT ARRANGEMENT: SPST, N.O.
TERMINALS: PC pins
SEALING: IP65
Double overmold on terminals

Mechanical

Type	Actuation force N (grams)	Operating life (operations)	Travel to make
KSA0M212	1,3 ± 0,3	100,000	0,5 ± 0,15
KSA0M312	1,3 ± 0,3	1,000,000	0,5 ± 0,15
KSA0M412	3,25 ± 0,5	100,000	0,6 ± 0,25
KSA0M512	5 ± 1,25	100,000	0,7 ± 0,25

Packaging

Delivered in boxes of 500 pieces (250 pieces for KSL)

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Other versions in terms of force, termination length and corrosion protection available.
Please contact your sales representative.

This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment.
Please contact your sales representative to get contractual specification package.

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	1 mA
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100m Ω	
INSULATION RESISTANCE (100 V):	≥ 10 ⁹ Ω	
BOUNCE TIME:	≤ 1 ms	

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-40°C to 85°C	-55°C to 125°C

Process

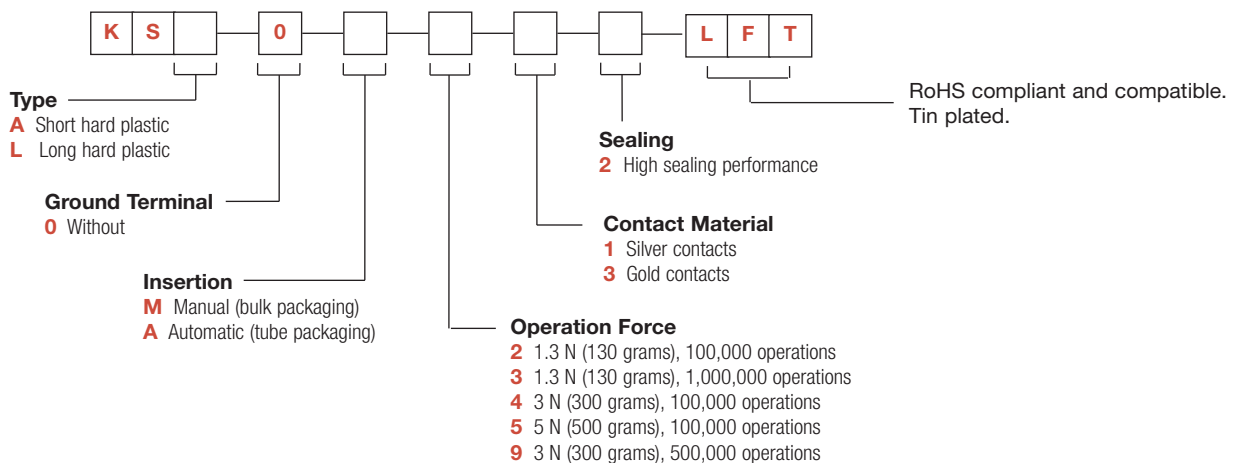
Wave soldering compatible with lead free soldering profile.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



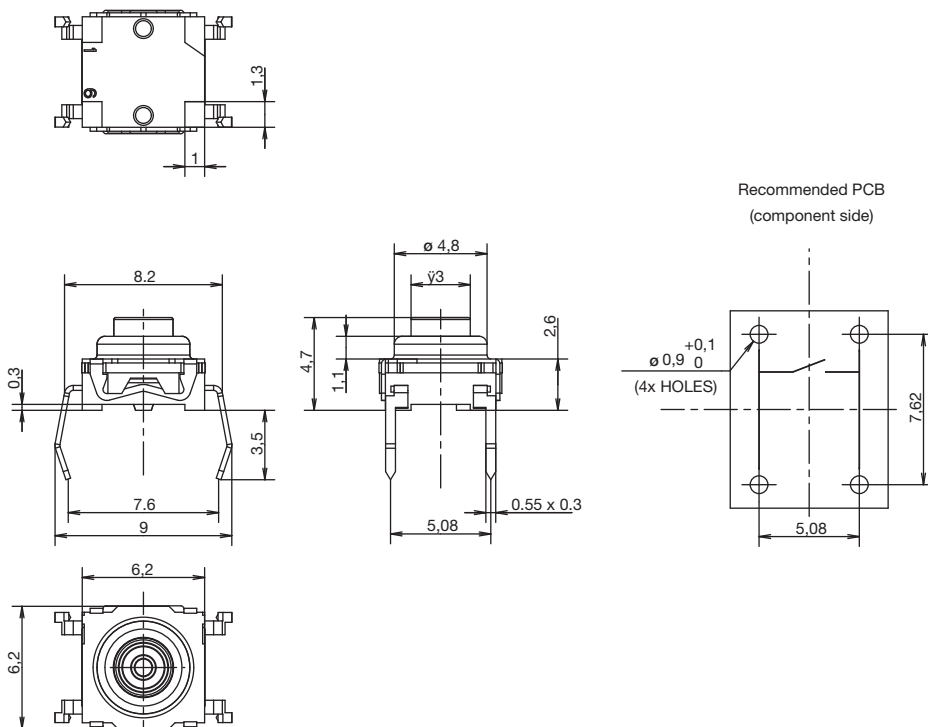
Dimensions are shown: mm
Specifications and dimensions subject to change

KSA & KSL MKII Series High Performance Sealed Tact Switch

TYPE 

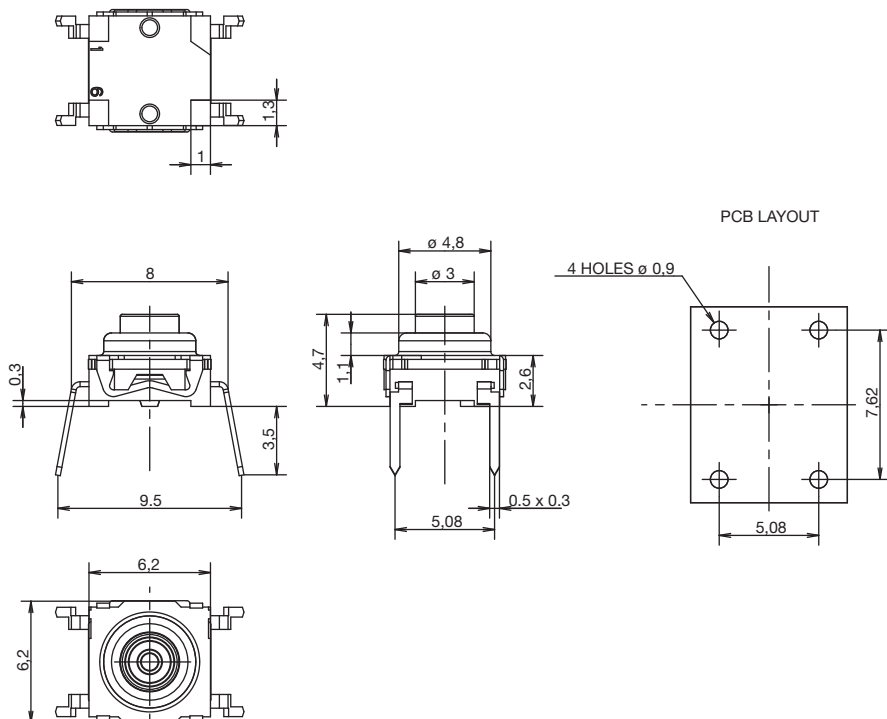
KSA & KSL

MANUAL INSERTION



KSA & KSL

AUTOMATIC INSERTION



Tactile Switches

B



Dimensions are shown: mm
Specifications and dimensions subject to change

KSJ Series Spherical Actuator Tact Switches

Features/Benefits

- Spherical actuator allows actuation force off center $\pm 30^\circ$ with regard to vertical
- RoHS compliant and compatible
- Designed for mechanisms
- Compliant side actuation

Typical Applications

- Automotive
- Cranes, off road, railway
- Factory automation
- Security systems



B

Tactile Switches

Specification

FUNCTION: Momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 DISTANCE BETWEEN BUTTON CENTERS (min.): 7.62 (0.300)
 TERMINALS: PC pins
 SEALING: IP60

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-40°C to 85°C	-55°C to 125°C

Packaging

Delivered in boxes of 250 pieces.

Mechanical

Type	Actuation force N (grams)	Operating life (operations) axial	Operating life (operations) radial	Travel to make (mm)
KSJ0M21160SH	2 ± 0,5	100,000	30,000	0,6 ± 0,3
KSJ0M41180SH	3,0 ± 0,8	100,000	30,000	0,55 ± 0,25
KSJ0M21180SH	2 ± 0,5	100,000	30,000	0,35 ± 0,2
KSJ0M91180SH	3,9 ± 0,8	100,000	30,000	0,7 ± 0,25

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	1 mA
DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 Vrms		
CONTACT RESISTANCE: ≤ 100 m Ω		
INSULATION RESISTANCE (100V): $\geq 10^9$ ohms		
BOUNCE TIME: ≤ 1 ms		

Process

Wave soldering, compatible with lead free soldering profile.

NOTE: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

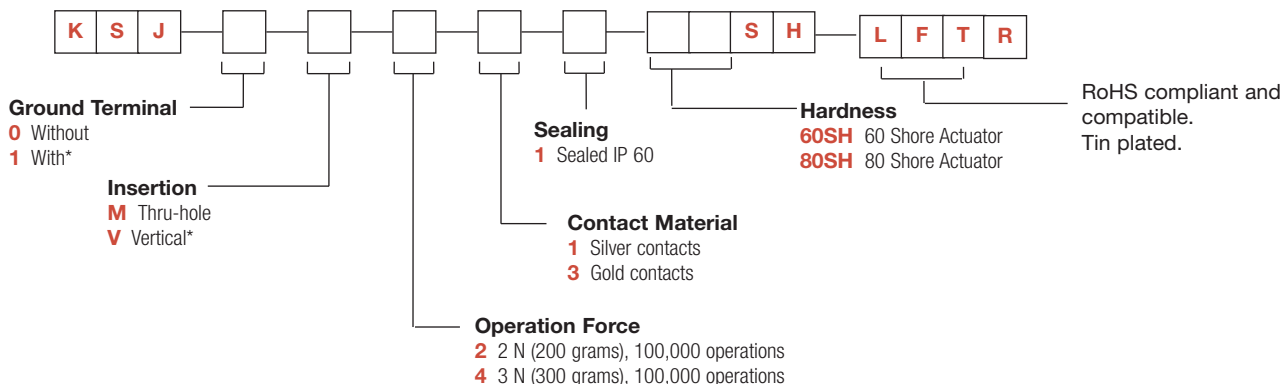
* Please contact your C&K representative for any question regarding the product intergration.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

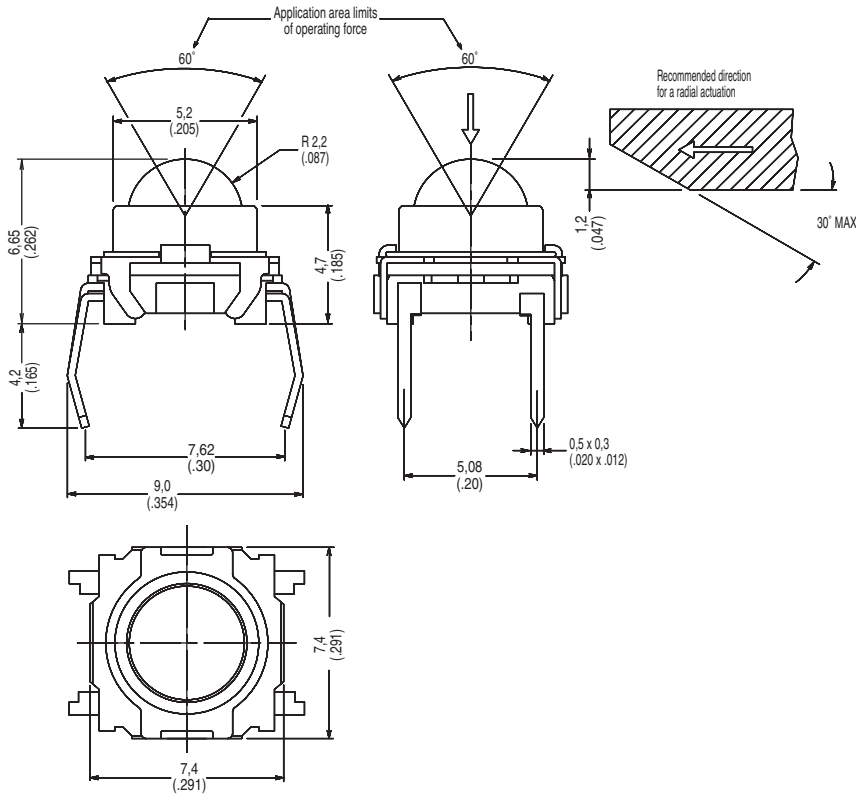
For any part number different from those listed in the table above, please consult your local representative.



*Note: "1" ground terminal option not available with "V" version. The bracket for the "V" version plays this role.

KSJ Series Spherical Actuator Tact Switches

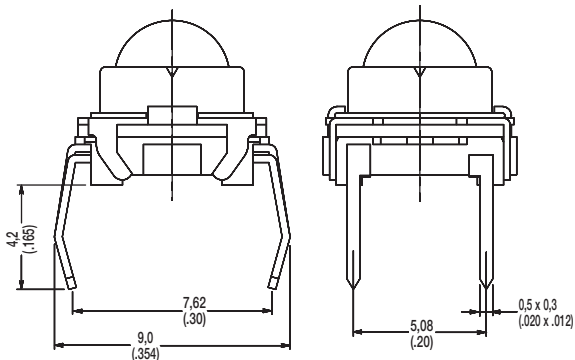
KSJ



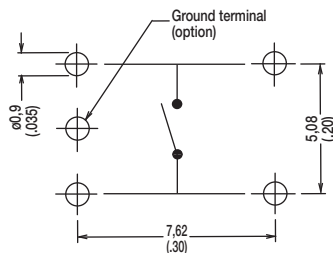
KSJ0M211

INSERTION

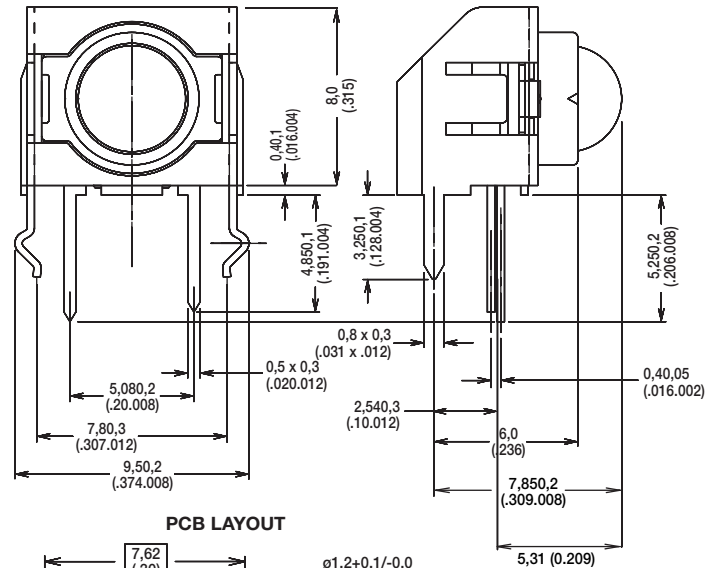
M THRU-HOLE



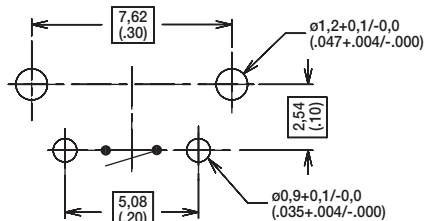
PCB LAYOUT



V VERTICAL



PCB LAYOUT



First Angle
Projection



26 jul 16

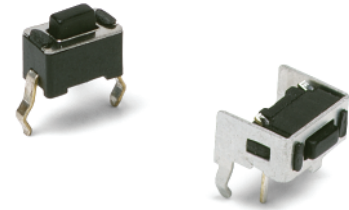
PTS635 Series 3,5 mm Tact Switches

Features/Benefits

- Compact size 6 x 3.5 mm
- Variety of switch heights
- Choice of actuation force
- RoHS compliant and compatible

Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial



B

Tactile Switches

Specification

FUNCTION: Momentary action
CONTACT ARRANGEMENT: SPST, N.O.
TERMINALS: PC pins

Mechanical

ACTUATION FORCE: PTS635L models: 130 grams.
PTS635H models: 200 grams.
LIFE EXPECTANCY: 20,000 operations.

Electrical

CONTACT RATING: 50 mA @ 12 V DC.
DIELECTRIC STRENGTH: 250 V AC min.
CONTACT RESISTANCE: 100 mΩ max. initial.
INSULATION RESISTANCE: 10¹¹Ω min.

Environmental

OPERATING TEMPERATURE: -40°C to 60°C

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Process

SOLDERING: Preheating to 100°C for 45 sec. max. Keep flux flush with top surface of PCB; do not apply to component side of PCB and area where terminals are located. Soldering to 255°C for 5 sec. max. Clean by brushing on solder surface. Do not clean switch with solvents.

Materials

BASE: 6/6 nylon or glass filled polyester (PBT) (UL 94V-0).
ACTUATOR: 6/6 nylon or polyacetal (UL 94HB).
COVER PLATE: PTS635S and PTS635V models: Tin plated stainless steel
DOME CONTACTS: Phosphor bronze, silver clad.
STATIONARY CONTACTS: Brass, silver plated.
TERMINALS: Brass, silver plated. Insert molded.

Packaging

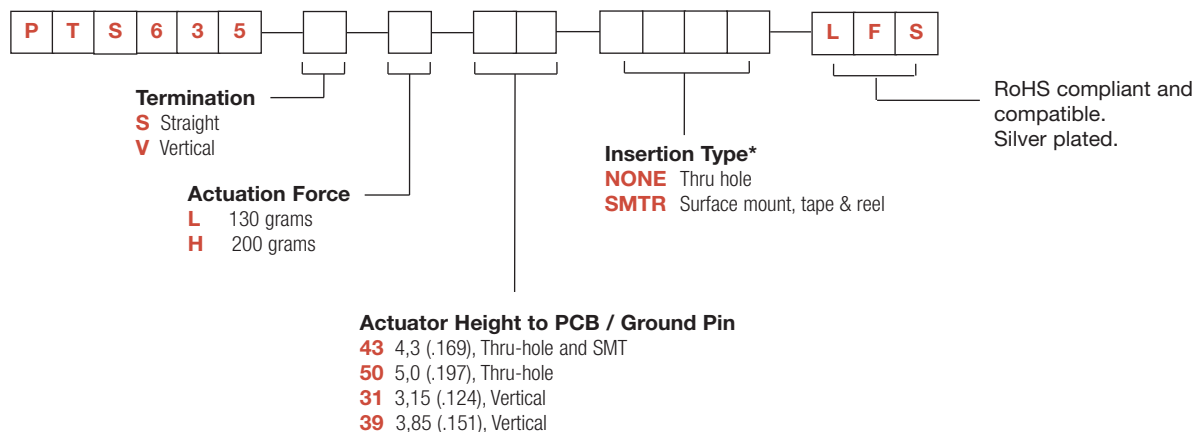
Bulk packaging.

Tape & reel for:

PTS635Sx43SMTR, 1700 pcs per reel

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

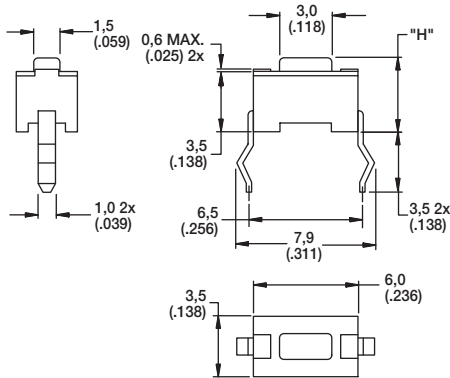


* SMTR only available with PTS635 43 Actuator Height options.

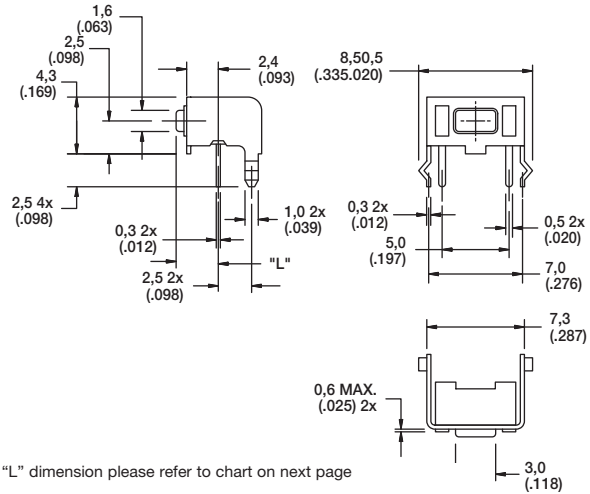
PTS635 Series 3,5 mm Tact Switches

SERIES

PTS635



For "H" dimension please refer to chart on next page



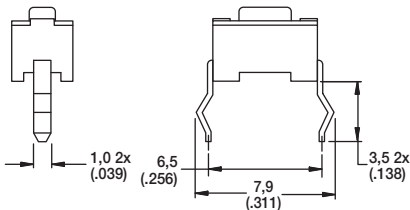
For "L" dimension please refer to chart on next page

Tactile Switches

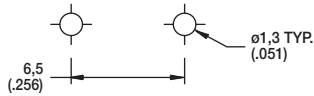
B

TERMINATION

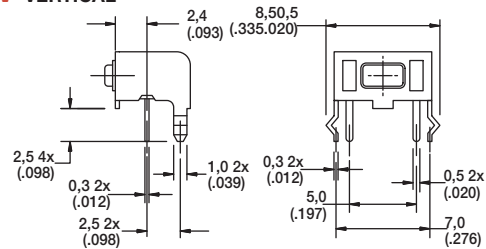
S STRAIGHT



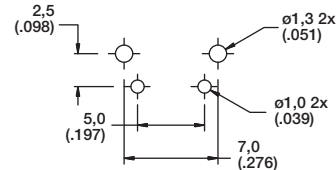
PCB LAYOUT



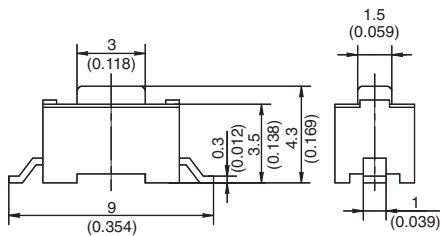
V VERTICAL



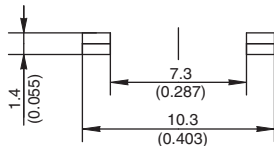
PCB LAYOUT



SMT 43



PCB LAYOUT



Dimensions are shown: mm
Specifications and dimensions subject to change

PTS635 Series 3,5 mm Tact Switches

ACTUATION FORCE



OPTION CODE	FORCE
L	130 grams
H	200 grams

ACTUATOR HEIGHT

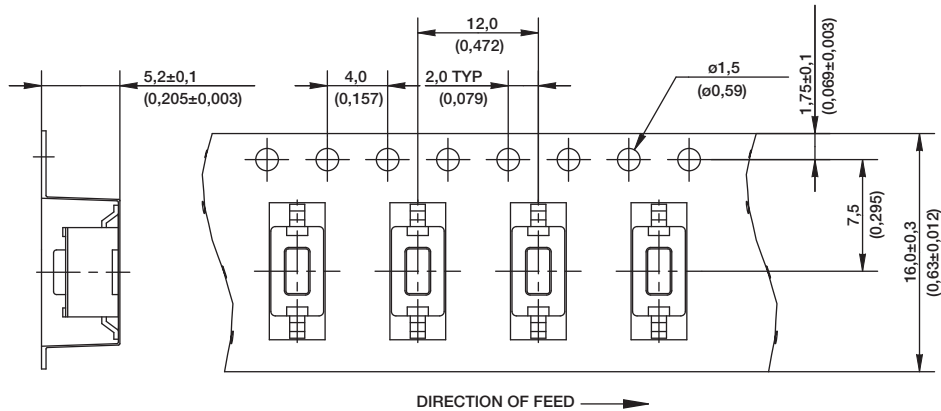


OPTION CODE	HEIGHT "H" or LENGTH "L"	TERMINATION	SCHEMATIC
43	4,3 (.169)	Thru-hole & SMT	1 2
50	5,0 (.197)	Thru-hole	1 2
31	3,15 (.124)	Vertical	1 2
39	3,85 (.151)	Vertical	3 4

INSERTION TYPE



SMTR 43



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

PTS641 Series SMT Top Actuated Switches



Features/Benefits

- 6.3 x 6.3 mm footprint
- Multiple heights
- Ground pin option

Typical Applications

- Metering
- White goods
- Home and garden equipment

B

Tactile Switches

Specification

FUNCTION: Momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST N.O.
TERMINALS: G type for SMT

Mechanical

TRAVEL:
0.20 mm ±0.15 mm for 160 & 250 gf
0.30 mm ±0.15 mm for 320 gf
OPERATING LIFE: 100,000 cycles
OPERATION FORCE:
160 gf ±50 gf blue actuator
250 gf ±50 gf red actuator
320 gf ±80 gf black actuator

Packaging

Switches in reels of 1,500 pieces.
Dimensions of reels according to EIA 481B
External diameter 330 mm

Electrical

MAXIMUM VOLTAGE: 12 VDC
MAXIMUM CURRENT DC: 50 mA
DIELECTRIC STRENGTH: 250 VA C (1mm)
CONTACT RESISTANCE: 100 m Ω
INSULATION RESISTANCE: ≥ 100 M Ω
BOUNCE TIME: < 5 ms

Environmental

OPERATING TEMPERATURE: -20°C to 85°C

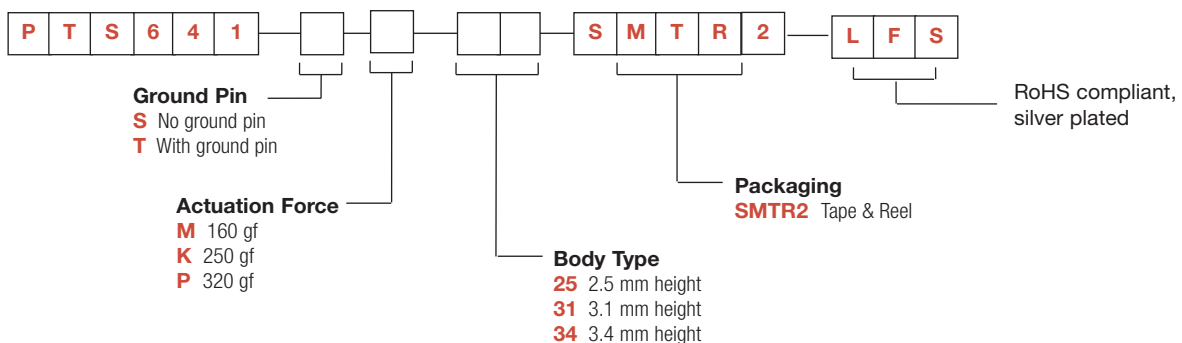
Process

SOLDERING: This component is suited to the following methods:
Infrared Reflow Soldering in accordance with IEC61760-1

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

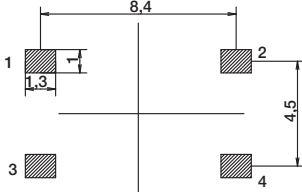
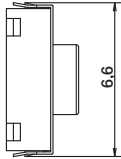
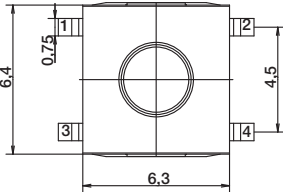
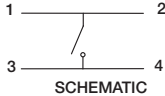
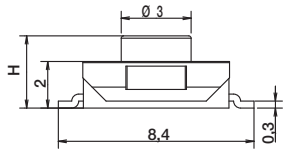
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



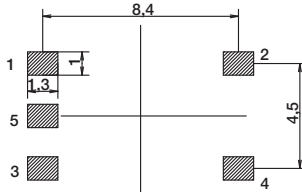
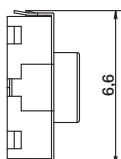
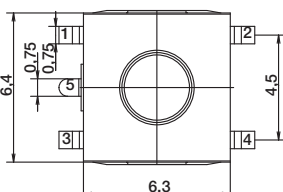
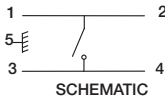
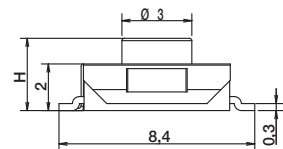
PTS641 Series SMT Top Actuated Switches

NO GROUND PIN H = 2.5, 3.1, or 3.4 mm



RECOMMENDED PCB LAYOUT

GROUND PIN H = 2.5, 3.1, or 3.4 mm



RECOMMENDED PCB LAYOUT

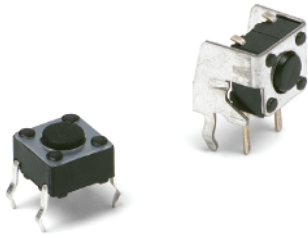


B
Tactile Switches



Dimensions are shown: mm
Specifications and dimensions subject to change

PTS645 Series 6 mm Tact Switches



Features/Benefits

- Compact size 6 x 6 mm
- Variety of actuator lengths
- Choice of actuation force
- RoHS compliant and compatible

Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial

B

Tactile Switches

Specification

FUNCTION: Momentary action
CONTACT ARRANGEMENT: SPST, N.O.
TERMINALS: PC pins

Mechanical

ACTUATION FORCE: 130 grams, 160 grams, 200 grams, 260 grams
LIFE EXPECTANCY: 100,000 operations.

Electrical

CONTACT RATING: 50 mA @ 12 V DC.
DIELECTRIC STRENGTH: 250 V AC min.
CONTACT RESISTANCE: 100 mΩ max. initial.
INSULATION RESISTANCE: 10¹¹ Ω min.

Environmental

OPERATING TEMPERATURE: -20°C to 60°C

Process

SOLDERING: Preheating to 100°C for 45 sec. max. Keep flux flush with top surface of PCB; do not apply to component side of PCB and area where terminals are located. Soldering to 255°C for 5 sec. max. Clean by brushing on solder surface. Do not clean switch with solvents.

Packaging

Bulk packaging.

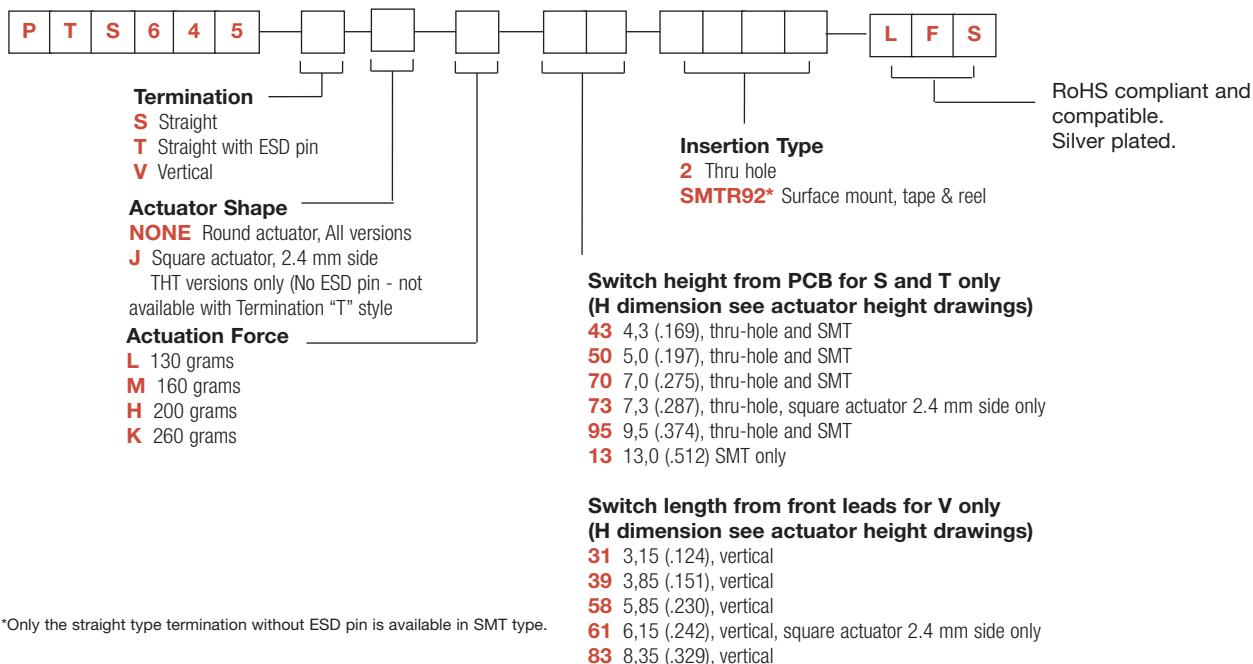
Tape & reel for the SMT type:

Reels of 1,000 pieces for 4,3 and 5,0 mm height
Reels of 700 pieces for 7,0 mm height
Reels of 500 pieces for 9,5 mm height
Reels of 400 pieces for 13,0 mm height

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



*Only the straight type termination without ESD pin is available in SMT type.

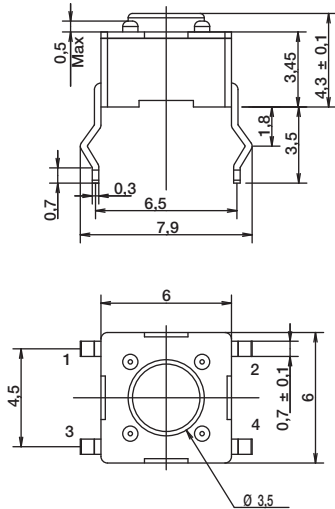


Dimensions are shown: mm
Specifications and dimensions subject to change

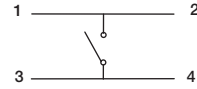
PTS645 Series 6 mm Tact Switches

TERMINATION

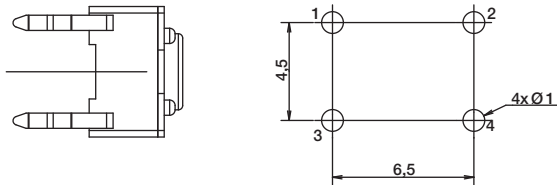
S STRAIGHT



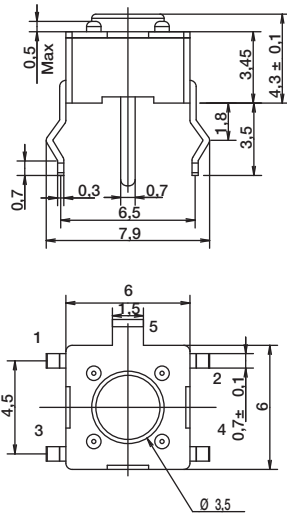
SCHEMATIC



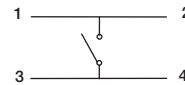
PCB LAYOUT



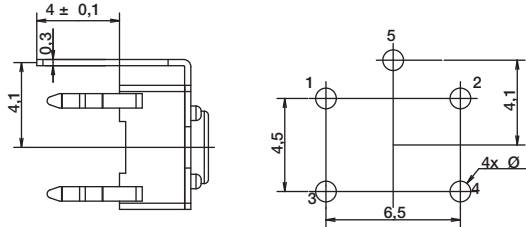
T STRAIGHT WITH ESD PIN



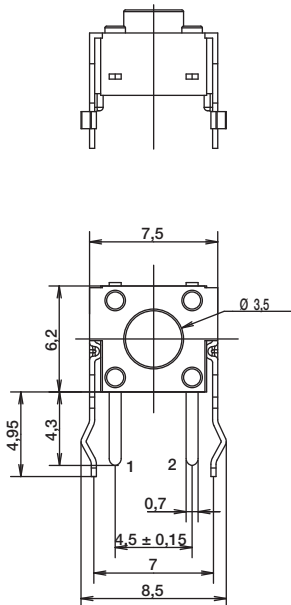
SCHEMATIC



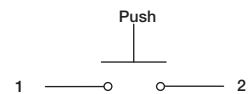
PCB LAYOUT



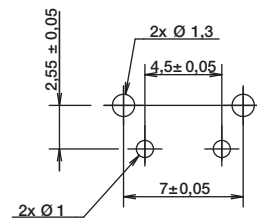
V VERTICAL



SCHEMATIC



PCB LAYOUT



Dimensions are shown in mm
Specifications and dimensions subject to change

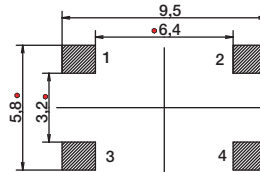
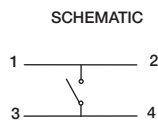
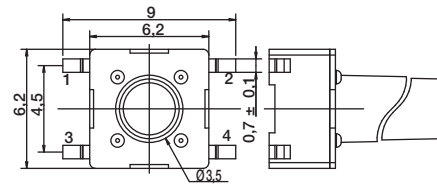
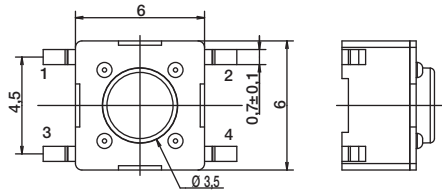
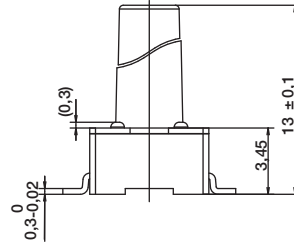
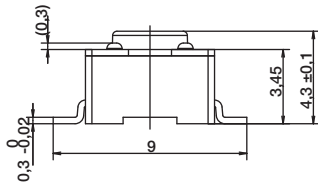
PTS645 Series 6 mm Tact Switches

TERMINATION

SMT

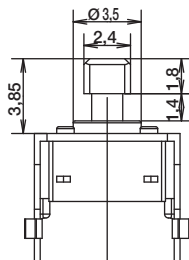
FOR 4.3, 5.0, 7.0, 9.5 MM HEIGHT

13.0 MM HEIGHT ONLY

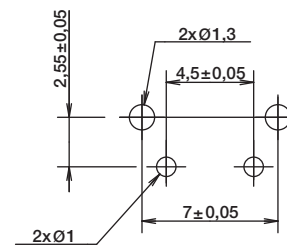
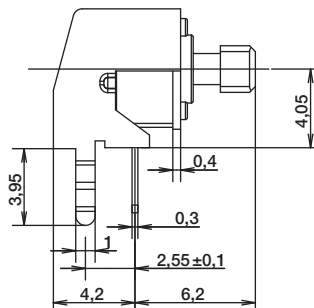
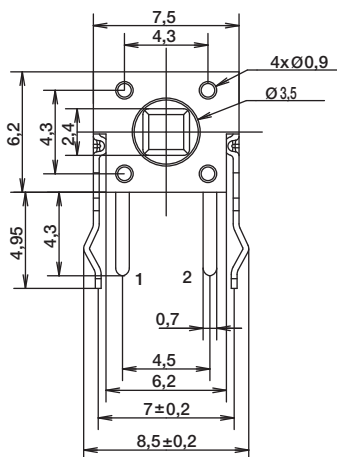
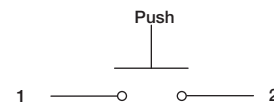


PCB LAYOUT

ACTUATOR SHAPE



SCHEMATIC



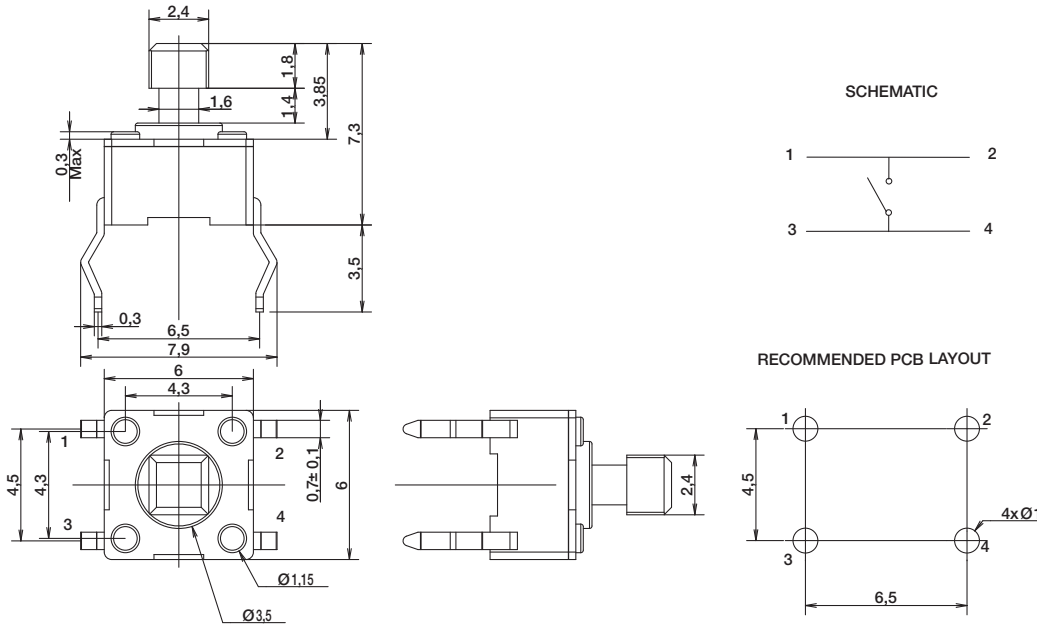
RECOMMENDED PCB LAYOUT



Dimensions are shown: mm
Specifications and dimensions subject to change

PTS645 Series 6 mm Tact Switches

ACTUATOR SHAPE



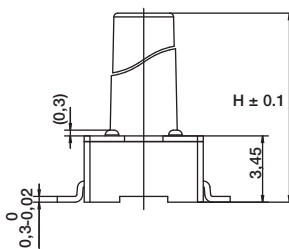
B

Tactile Switches

ACTUATION FORCE

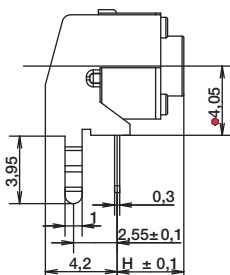
OPTION CODE	FORCE
L	130 grams Black
M	160 grams Blue
H	200 grams Gray
K	260 grams Red

ACTUATOR HEIGHT



Switch height from PCB for S and T only

OPTION CODE	DIMENSION H	TERMINATION	SCHEMATIC	
			Without EMC pin	With EMC pin
43	4,3 (.169)	Thru-hole and SMT		
50	5,0 (.197)	Thru-hole and SMT		
70	7,0 (.275)	Thru-hole and SMT		
95	9,5 (.374)	Thru-hole and SMT		
13	13,0 (.512)	SMT		



Switch length from front leads for V only

OPTION CODE	DIMENSION H	TERMINATION	SCHEMATIC	
			Without EMC pin	With EMC pin
31	3,15 (.124)	Vertical		
39	3,85 (.151)	Vertical		
58	5,85 (.230)	Vertical		
83	8,35 (.329)	Vertical		



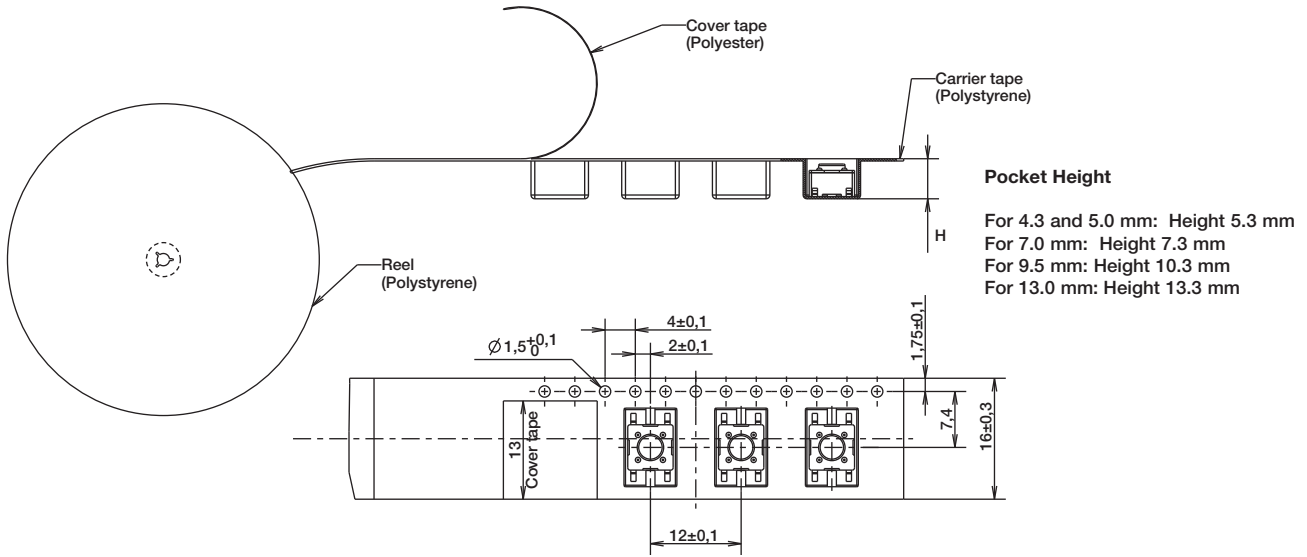
Dimensions are shown: mm
Specifications and dimensions subject to change

PTS645 Series 6 mm Tact Switches

TAPE & REEL

B

Tactile Switches



PTS645 V SMT Series 6 mm SMT Side Actuated Tact Switch

Features/Benefits

- Full SMT processing
- Strong PCB soldering pads
- Compact 6 x 6 mm design

Typical Applications

- Consumer Products
- Set Top and Access Boxes
- Instrumentation
- Home and Garden Equipment



B

Tactile Switches

Specification

FUNCTION: Momentary action
CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
TERMINALS: G type for SMT
TRAVEL: 0.25 mm +0.2/-0.1 mm
OPERATING LIFE: 100,000 cycles

Mechanical

Part Number	Operating Force (gf)	Actuator Color
PTS645 VN13 SMTR92 LFS	100 ± 30	Dark grey
PTS645 VM13 SMTR92 LFS	160 ± 50	Yellow green

Electrical

MAXIMUM VOLTAGE: 12 V DC
MAXIMUM CURRENT: 50 mA
DIELECTRIC STRENGTH: 100 V AC (1mn)
CONTACT RESISTANCE: ≤ 100 mΩ
INSULATION RESISTANCE: ≥ 100 MΩ
BOUNCE TIME: ≤ 10 ms

Environmental

OPERATING TEMPERATURE: -20°C to 70°C
STORAGE TEMPERATURE: -30°C to 80°C

Process

SOLDERING: This component is suited to the following methods:
Infrared Reflow Soldering in accordance with IEC61760-1

Recommended solder paste thickness is ≥ 15µm

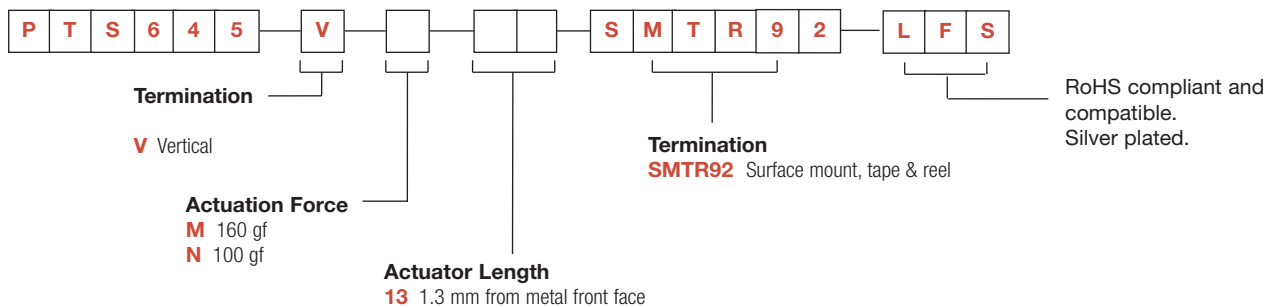
Packaging

In reels of 650 pieces
Dimensions of reels according to EIA 481B
External diameter 330 mm

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



PTS125 Series 12 mm Tact Switches



Features/Benefits

- THT and SMT terminations
- Various heights
- Snap fit actuator option

Typical Applications

- Consumer products
- Instrumentation
- Computer products
- Industrial



B

Tactile Switches

Specification

FUNCTION: Momentary action
 CONTACT ARRANGEMENT: 1 make contact SPST, N.O.
 TERMINALS: PC pins for THT and G type for SMT
 TRAVEL: 0.30 mm ± 0.15 mm

Mechanical

OPERATING LIFE: 200,000 cycles
 OPERATING FORCE: 180 gf ± 50
 250 gf ± 50

Electrical

MAX VOLTAGE: 12 VDC
 MAX CURRENT: 50 mA
 DIELECTRIC STRENGTH: 250 V AC (1mn)
 CONTACT RESISTANCE: <100 mΩ
 INSULATION RESISTANCE: >100MΩ
 BOUNCE TIME: < 5 ms

NOTE: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

Environmental

OPERATING TEMPERATURE: -20°C to 70°C

Process

SOLDERING: This component is suited to the following methods:
 Infrared reflow soldering in accordance with IEC 61760-1 for SMT version
 Wave soldering compatible with lead free soldering profile

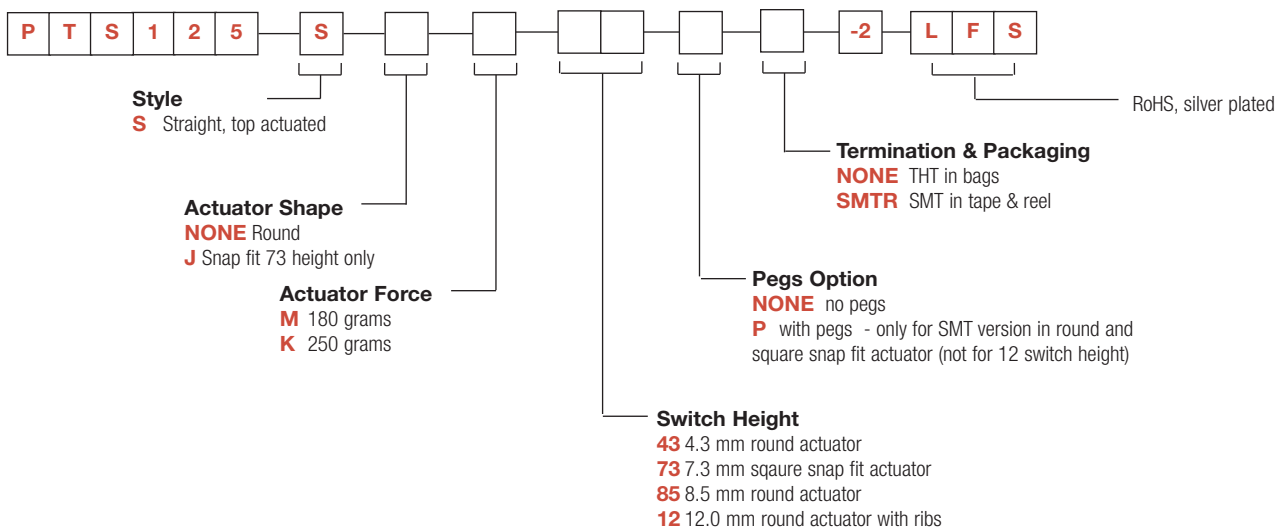
Packaging

Soldering Style	Height	Packaging	Parts per Packaging
THT	All heights	Plastic bag	500
SMT	4.3 mm	tape & reel	900
SMT	4.3 mm with pegs	tape & reel	600
SMT	7.3 mm	tape & reel	500
SMT	7.3 mm with pegs	tape & reel	500
SMT	8.5 mm	tape & reel	500
SMT	8.5 mm with pegs	tape & reel	400
SMT	12 mm	tape & reel	250

Dimensions of reels according to EIA 481B. External diameter 330 mm.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



Other heights with the round actuator are available upon request. Different minimum order quantities than the stand may apply.



Dimensions are shown: mm
 Specifications and dimensions subject to change

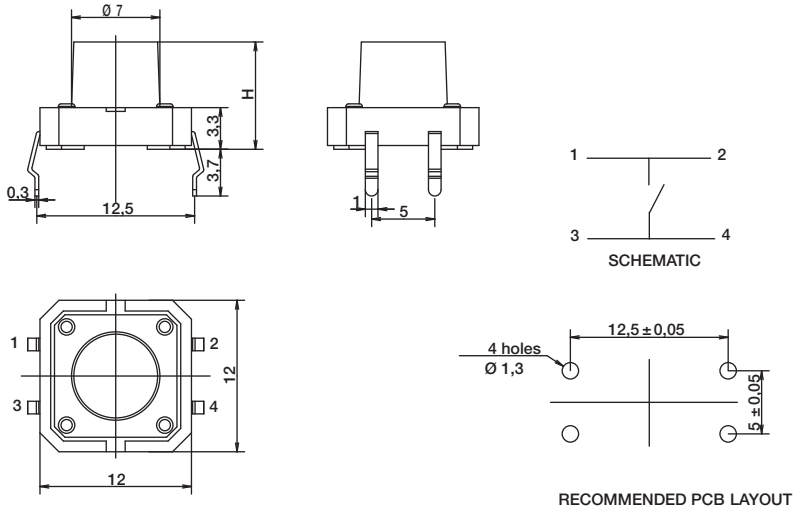
PTS125 Series

12 mm Tact Switches

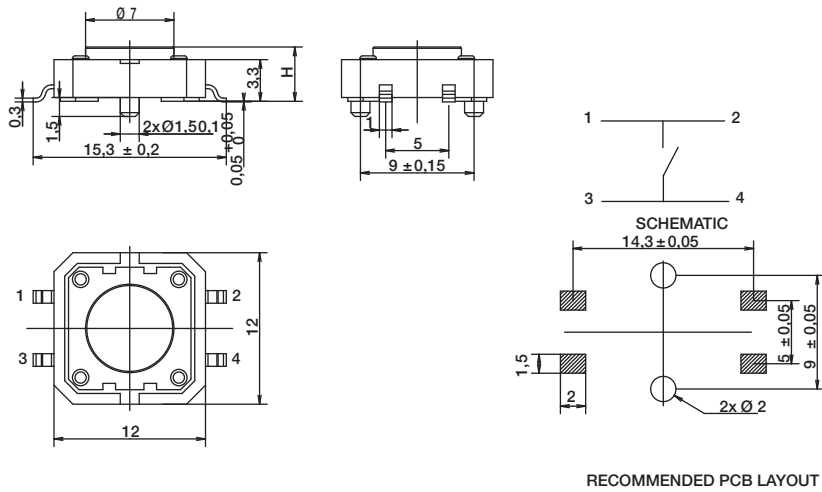
THT VERSION WITH ROUND ACTUATOR H= 4.3 & 8.5 MM (other height upon request)

B

Tactile Switches

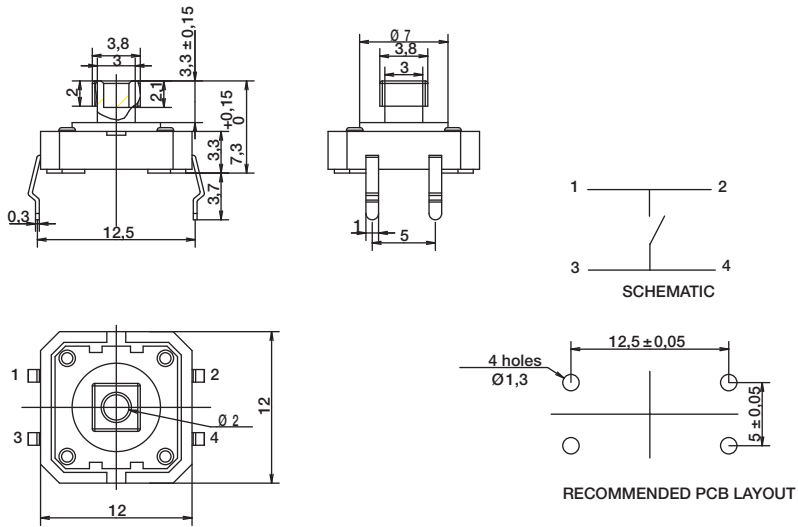


SMT VERSION WITH ROUND ACTUATOR AND PEGS H= 4.3 & 8.5 MM (other height upon request)

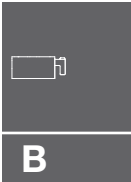
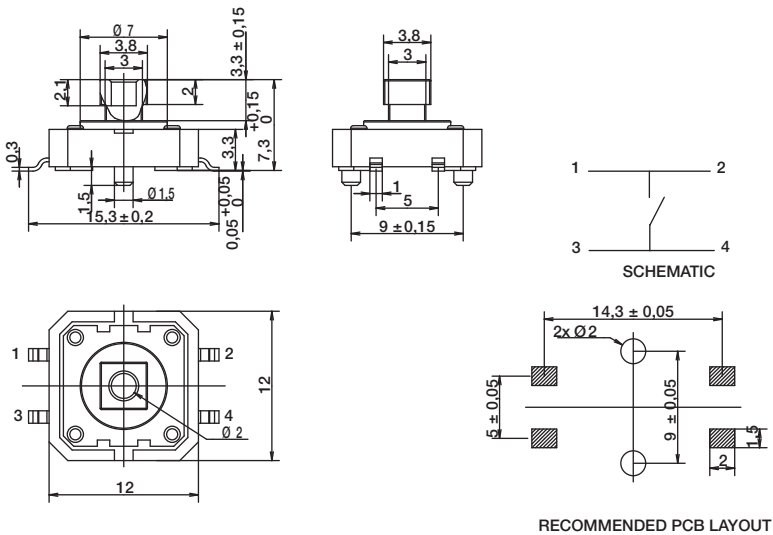


PTS125 Series 12 mm Tact Switches

THT VERSION WITH SQUARE SNAP FIT ACTUATOR H= 7.3 MM



SMT VERSION WITH SQUARE SNAP FIT ACTUATOR AND PEGS H= 7.3 MM



Tactile Switches



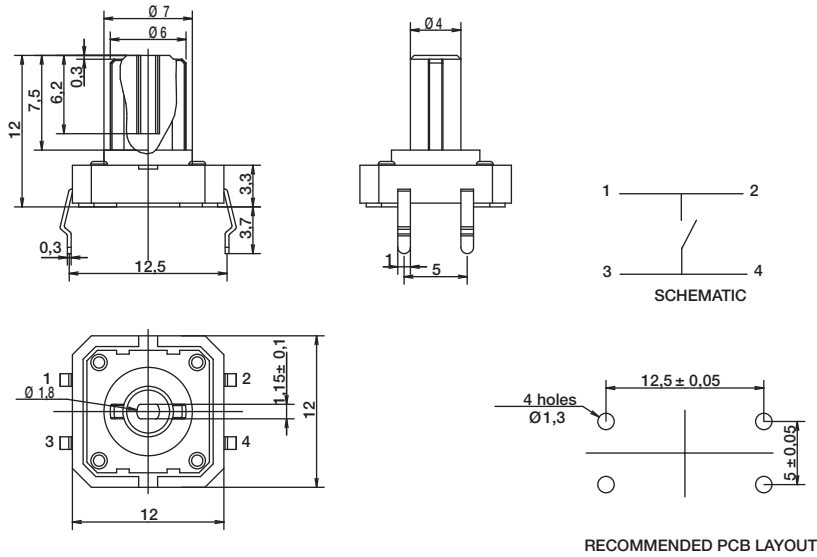
Dimensions are shown: mm
Specifications and dimensions subject to change

PTS125 Series 12 mm Tact Switches

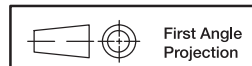
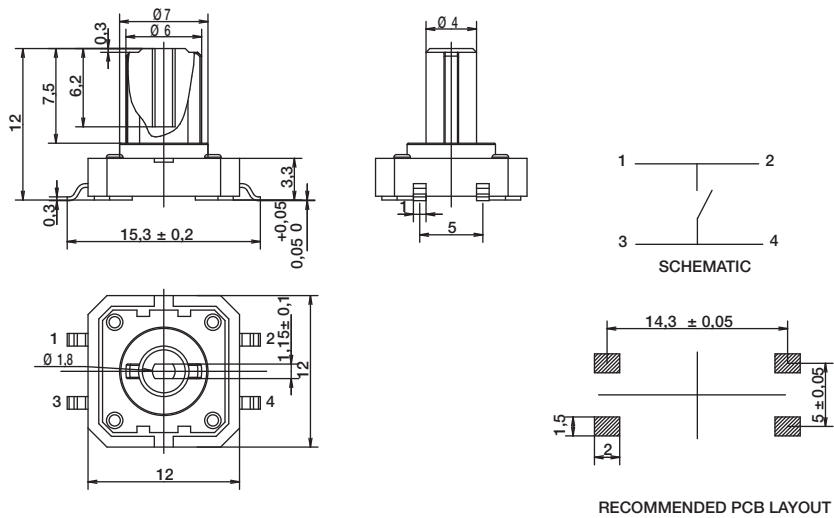
THT VERSION WITH ROUND RIBBED ACTUATOR H= 12.0 MM

Tactile Switches

B



SMT VERSION WITH ROUND RIBBED ACTUATOR H= 12.0 MM



Dimensions are shown: mm
Specifications and dimensions subject to change

ITS Series Illuminated Tact Switch

Features/Benefits

- Vertical and right angle SMT models
- Vertical and right angle thru-hole models
- Multiple caps and legends
- Several LED colors and bi-color options
- RoHS compliant /compatible

Typical Applications

- Consumer electronics
- Server/storage
- Medical devices
- Test/Measurement/Instrumentation
- Audio/Video
- Computers/Peripherals
- Security

NEW
Right
Angle
SMT



B

Tactile Switches

Specification

FUNCTION: N.O. momentary action
TERMINALS: SMT & Thru-hole

Mechanical

OPERATING FORCE: 160 ± 50gf for V1; V2; V3; R1; R2 models
220 ± 50 gf for R3 model
OPERATING LIFE: 50,000 cycles (250m Ω max)
RECOMMENDED OPERATING STROKE: 0.25mm ± 0.1mm

Electrical

RATING: 50mA @ 12VDC
CONTACT RESISTANCE: <100m Ω (initial)
DIELECTRIC WITHSTANDING VOLTAGE:
>250VAC (50-60 Hz) between terminals - 1 min.Ω
INSULATION RESISTANCE: >100M Ω
BOUNCE TIME: <10ms

Packaging

Thru-hole: 200 pieces per tray
SMT: tape & reel (see V2 or V3 mounting style drawings)

Environmental

OPERATING TEMPERATURE: -25°C to +70°C
STORAGE TEMPERATURE: -25°C to +80°C

Process

SOLDERABILITY: Thru-hole - wave compatible
SMT - convection or IR reflow compatible

Materials

CONTACTS/TERMINALS: Base metal; brass
Plating; Ag
DOME: Base metal: Phosphor bronze
Plating; Ag

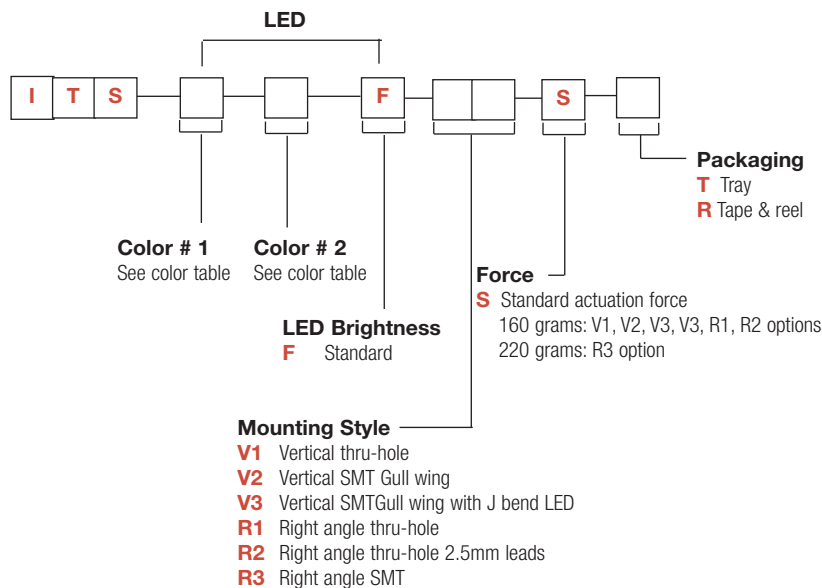
BASE: PA
ACTUATOR: PA
COVER: PA

Caps

Caps are ordered separately and shipped bulk. Thru-hole versions available with caps assembled under custom part number. Contact customer service for details.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



LED Color	
00	No light
10	Red
12	Red/Yellow
13	Red/Green
14	Red/Blue
20	Yellow
21	Yellow/Red
23	Yellow/Green
30	Green
31	Green/Red
32	Green/Yellow
40	Blue
41	Blue/Red
50	White
60	True green

* Other colors available by request



Dimensions are shown: mm
Specifications and dimensions subject to change

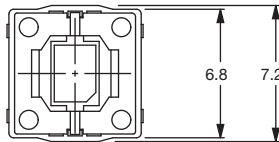
ITS Series Illuminated Tact Switch

LED COLOR / BRIGHTNESS

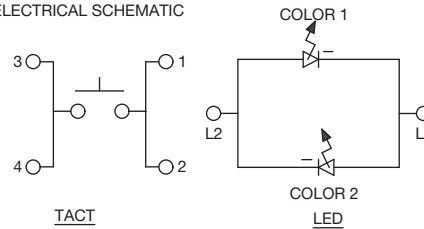
LED Characteristic	units	Standard LED Color Options					
		Red (1)	Yellow (2)	Green (3)	Blue (4)	White (5)	True Green (6)
Recommended Operating	mA @ 5VDC	20mA	20mA	20mA	20mA	20mA	20mA
Forward Current	mA	30 mA	30 mA	30 mA	30 mA	30 mA	30 mA
Peak Pulsing Current (1/8 duty @ 1kHz)	mA	125 mA	125 mA	125 mA	125 mA	125 mA	125 mA
Power Dissipation	mW	75 mW	75 mW	75 mW	108 mW	108 mW	108 mW
Forward Voltage @ 20mA	Volts	2.5 Volts Max.	2.5 Volts Max.	2.5 Volts Max.	3.6 Volts Max.	3.6 Volts Max.	3.6 Volts Max.
Dominant Wavelength @ 20mA	nm	637nm (Typical)	590nm (Typical)	570nm (Typical)	465nm (Typical)	CIE Coordinates X= 0.25 ~ 0.33 Y= 0.24 ~ 0.34	522nm (Typical)
Wavelength at Peak Emission @ 20mA	nm	645nm (Typical)	590nm (Typical)	573nm (Typical)	460nm (Typical)		515nm (Typical)
Spectral Half Bandwidth @ 20mA	nm	20nm (Typical)	20nm (Typical)	17nm (Typical)	25nm (Typical)		33nm (Typical)
Luminous Intensity @ 20mA	mcd	50mcd Minimum	125mcd Minimum	40mcd Minimum	100mcd Minimum	250mcd Minimum	500mcd Minimum
Viewing Angle at 50% LV (@10mA)	degrees	150° Typical	120° Typical	120° Typical	120° Typical	150° Typical	120° Typical

MOUNTING STYLES

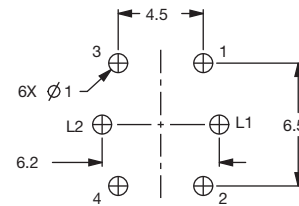
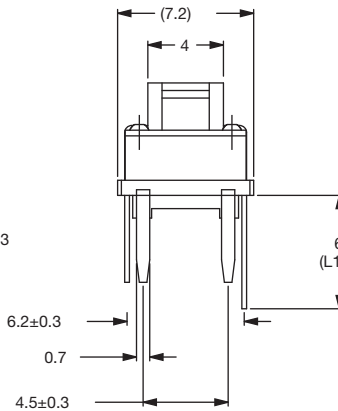
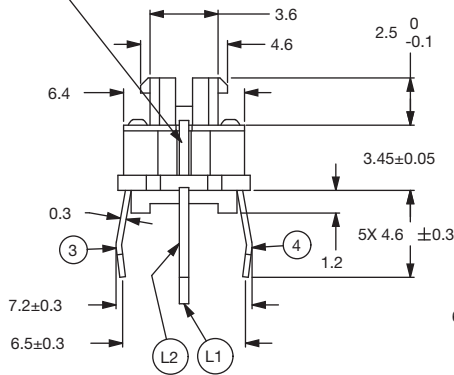
V1 - Vertical Thru-hole



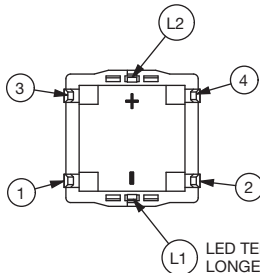
ELECTRICAL SCHEMATIC



DOT SHOWING LED COLOR IS MARKED FOR MINUS POLE SEE SCHEMATIC



P.C.B. LAYOUT

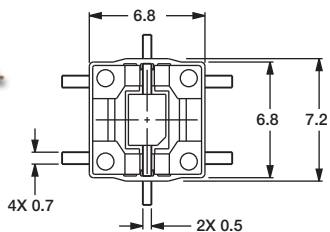


TRAY PACKAGING: 200 PIECES

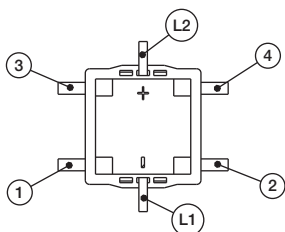
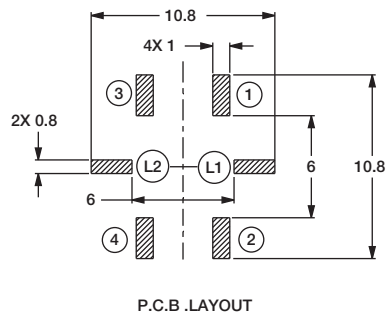
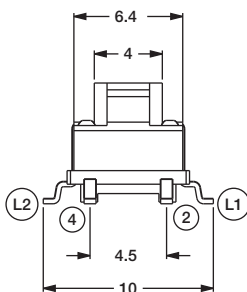
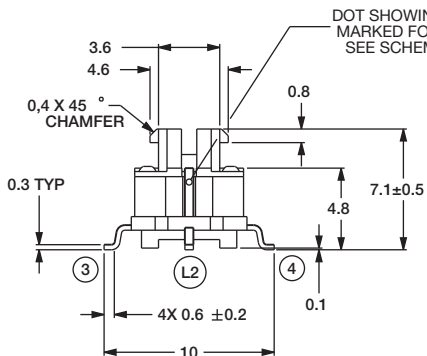
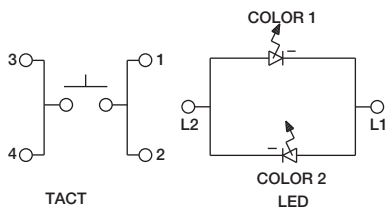
ITS Series Illuminated Tact Switch

MOUNTING STYLES

V2 - Vertical SMT; Gullwing

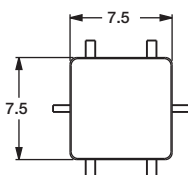


ELECTRICAL SCHEMATIC

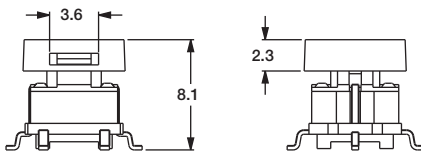


B

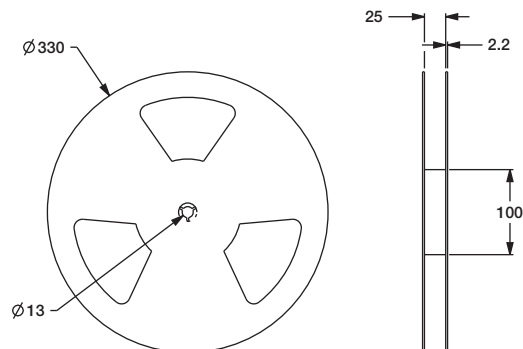
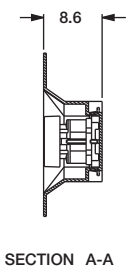
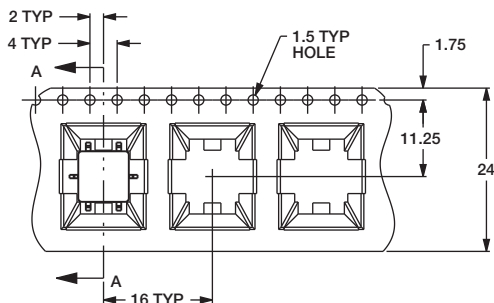
Tactile Switches



TAPE & REEL: 500 PIECES



NOTES:
1. SWITCH WITH TEMPORARY PICK AND PLACE CAP.



Dimensions are shown: mm
Specifications and dimensions subject to change

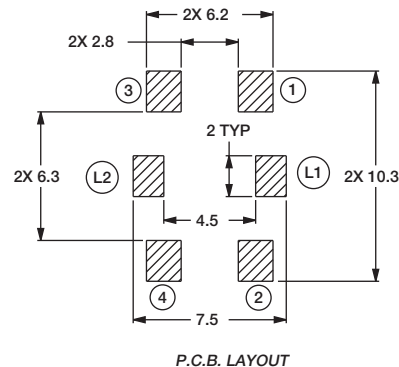
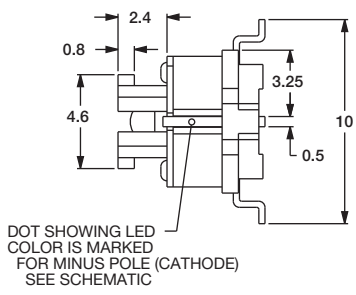
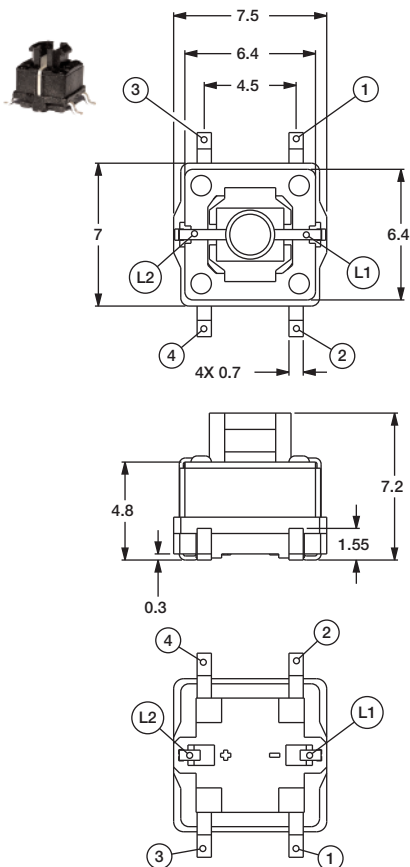
ITS Series Illuminated Tact Switch

MOUNTING STYLES

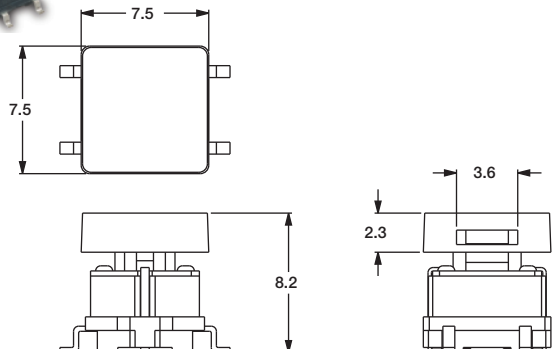
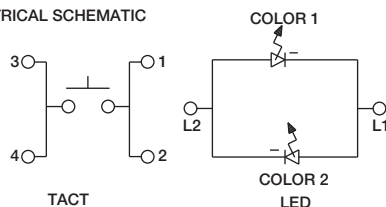
V3 - Vertical SMT; Gull wing with J bend LED

B

Tactile Switches



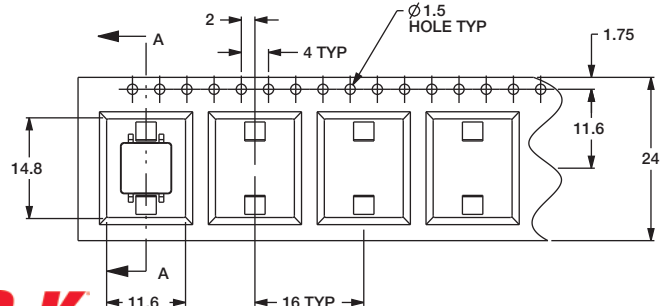
ELECTRICAL SCHEMATIC



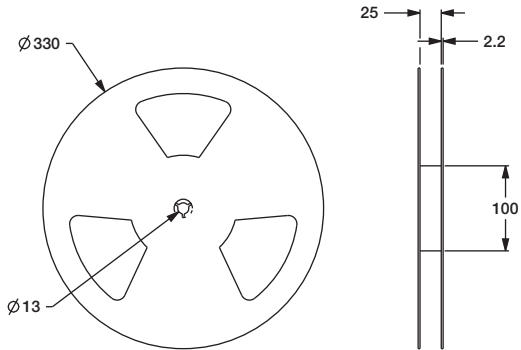
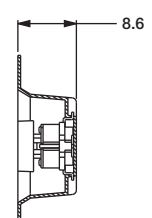
SCALE 3:1

TAPE & REEL: 500 PIECES

NOTES:
1. SWITCH WITH TEMPORARY PICK AND PLACE CAP.



SECTION A-A



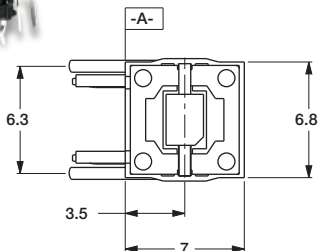
Dimensions are shown: mm
Specifications and dimensions subject to change



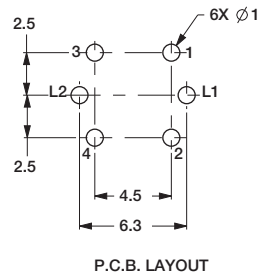
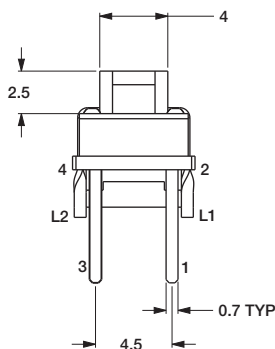
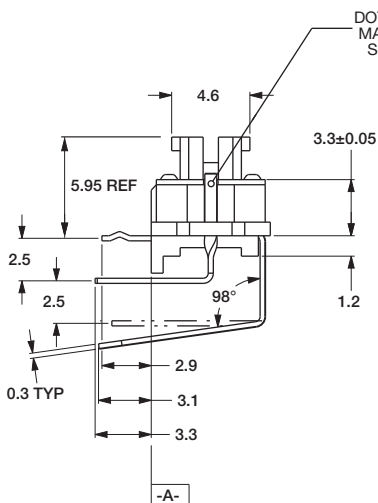
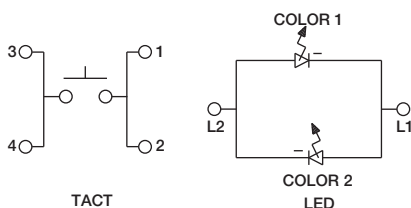
ITS Series Illuminated Tact Switch

MOUNTING STYLES

R1 - Right Angle; Thru-hole

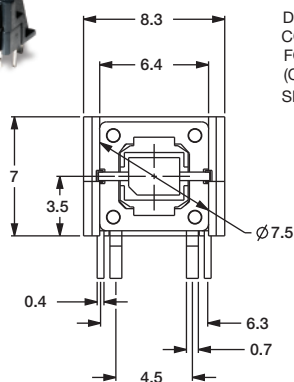


ELECTRICAL SCHEMATIC

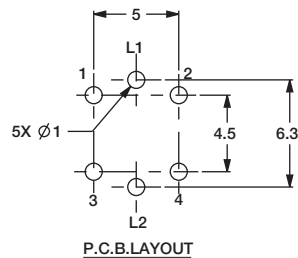
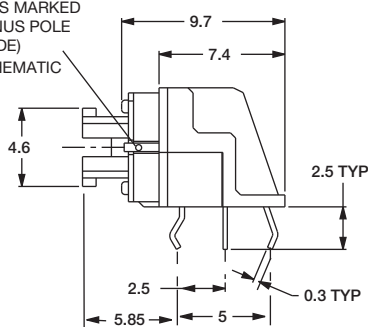


TRAY PACKAGING: 200 PIECES

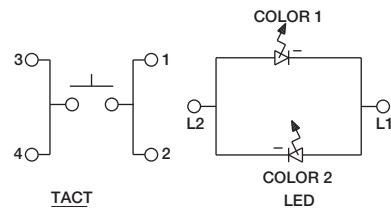
R2 - Right Angle; Thru-hole 2.5mm leads



DOT SHOWING LED COLOR IS MARKED FOR MINUS POLE (CATHODE) SEE SCHEMATIC



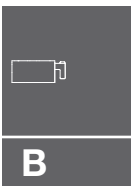
ELECTRICAL SCHEMATIC



TRAY PACKAGING: 200 PIECES



Dimensions are shown: mm
Specifications and dimensions subject to change



B

Tactile Switches

ITS Series Illuminated Tact Switch

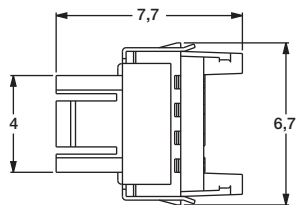
MOUNTING STYLES

R3 - Right Angle, SMT

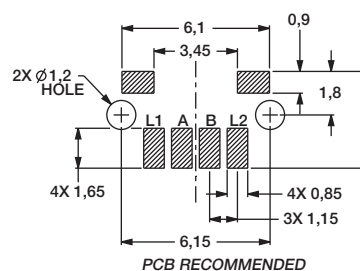
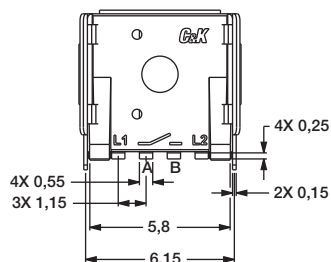
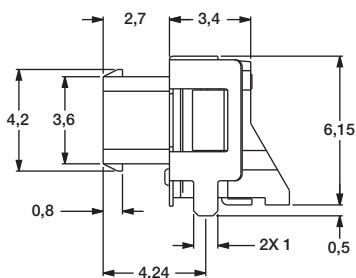
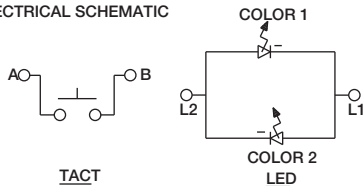


B

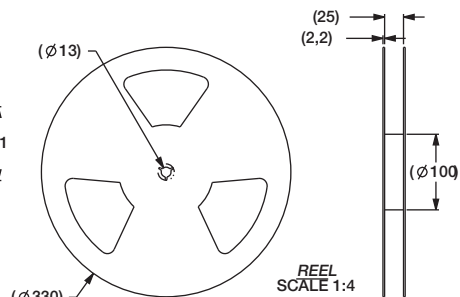
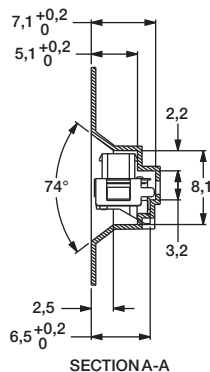
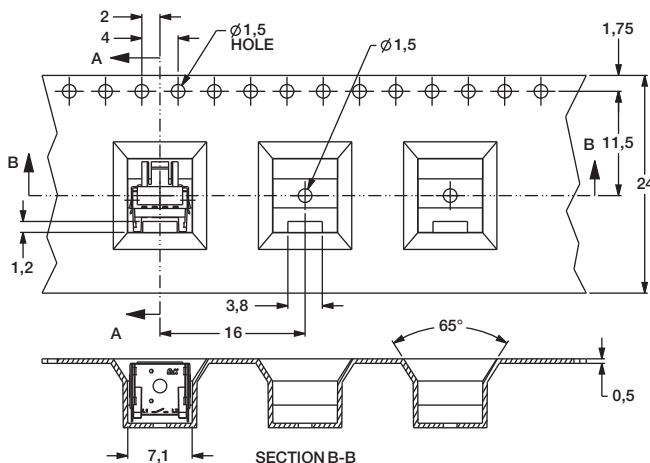
Tactile Switches



ELECTRICAL SCHEMATIC



TAPE & REEL: 500 PIECES



ITS Series Illuminated Tact Switch

FORCE

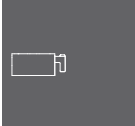
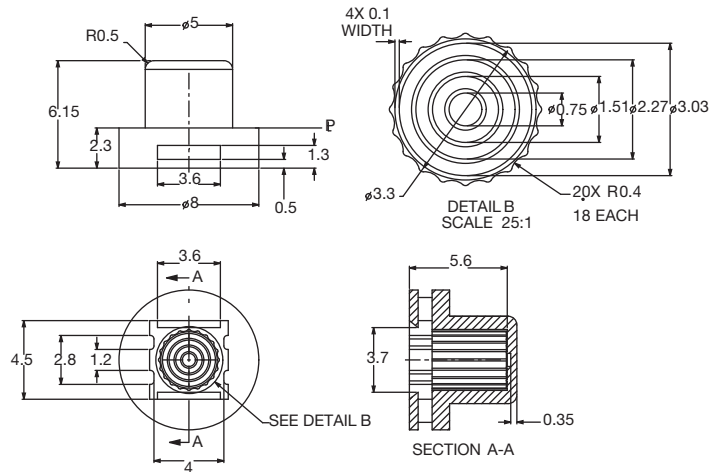
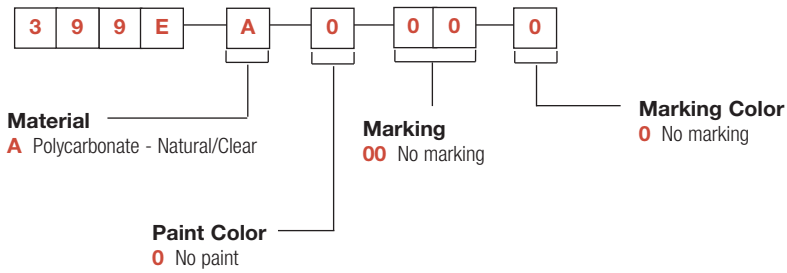
OPTION CODE	FORCE
S	Standard 160 gf - V1, V2, V3, R1, R2 options 220 gf - R3 option

CAPS

Use the individual ordering code for each cap



399EA0000
Round cap, clear



B

Tactile Switches

ITS Series Illuminated Tact Switch

CAPS



400EA0000

Natural/clear



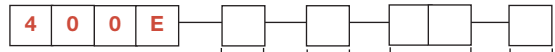
400EB0000

Translucent white, flat edge



400ECA01E

Matte silver paint laser etch, flat edge



Material

- A** Natural/Clear - polycarbonate
- B** Translucent white - polycarbonate
- C** Silver paint laser etch - polycarbonate

Paint Color

- 0** No paint
- A** Matte silver

Laser Etch Marking

- 00** No marking
- 01** Power On/Off
- 04** Arrow right
- 05** Arrow left
- 06** Arrow up
- 07** Arrow down
- 09** Power
- 33** Arrow up (fill)
- 34** Arrow down (fill)
- 97** I/O



Marking Color

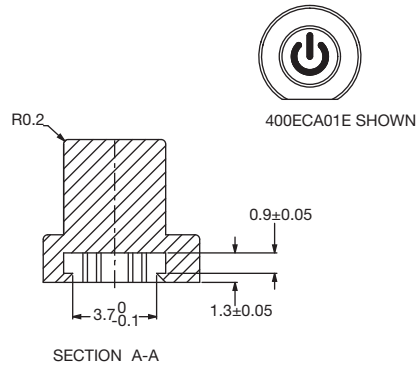
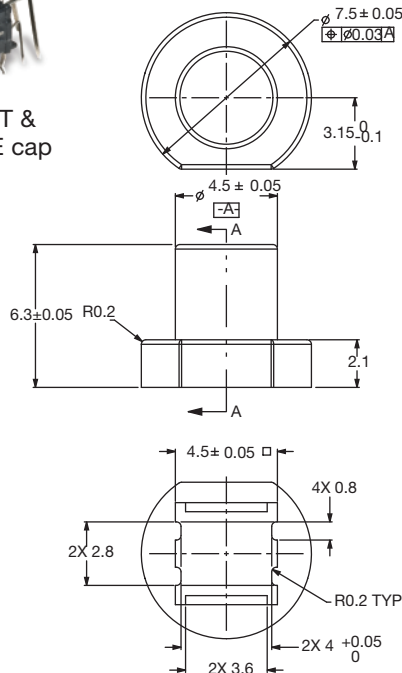
- 0** No marking
- E** Laser etch (painted caps only)

Tactile Switches

B



ITSXXFR1ST & 400ECA01E cap



400E cap dimensions shown are "as molded" (no paint).

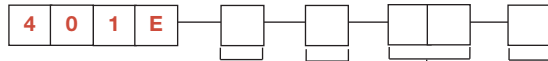
ITS Series Illuminated Tact Switch

CAPS



401ECA06E

Matte silver paint, laser etch,
tall oval



Material

- A** Natural/clear - polycarbonate
- B** Translucent white - polycarbonate
- C** Paint laser etch - polycarbonate

Paint Color

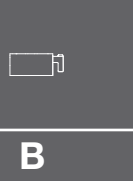
- 0** No paint
- A** Matte silver

**Laser Etch
Marking**

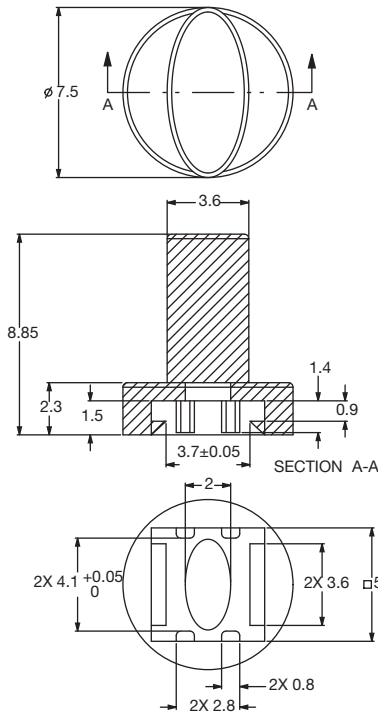
- 00** No marking
- 06** Arrow up
- 07** Arrow down
- 33** Arrow up (fill)
- 34** Arrow down (fill)

Marking Color

- 0** No marking
- E** Laser etch (painted caps only)





Tactile Switches



401E cap dimensions shown are "as molded" (no paint).

Navigation Switches

Product Selection Guide

Navigation		
Series	TSW	CS
Number of directions	3 7	4
Size on PCB L x W (mm)	ø 21 ø 34,4	40 x 40
Total Height (mm)	3,5 6,0	58
Actuation Force (N)	2,2 to 3,0 scanning and select, 0.5N cm rotation	4,9N
Contact Type	Silver	NA
Max. Voltage (VDC)	10	12
Max. Switching Power (A)	0.001	0.2
Life Cycles/ per way	1,000,000	10,000
Sealing	Not sealed	Not sealed
Page Number	C-3	C-6



Navigation

TSW Series 3 or 7 Function Tact and Scroll Wheel

Features/Benefits

- Compact and slim
- Multiple function in one component (rotary, select)
- Easy installation
- Through hole termination
- Integrated decoration (B type)

Typical Applications

- Remote controls
- Desk phones
- Keyboards
- Printers
- Entertainment systems
- White goods



Operation Characteristics

OPERATING FORCE: See chart below
24 detent - 12 pulses/360°

Specifications

INITIAL CONTACT RESISTANCE: Max. 300mΩ
INSULATION RESISTANCE: Min. 100 MΩ (100 VDC)
RATING: 1mA 10 VDC
LIFE CYCLE: See chart below
OPERATING FREQUENCY:
Rotation - Max. 30 operations per minute
Push - Max. 120 operations per minute
Depression - Max. 300 gf

Environmental

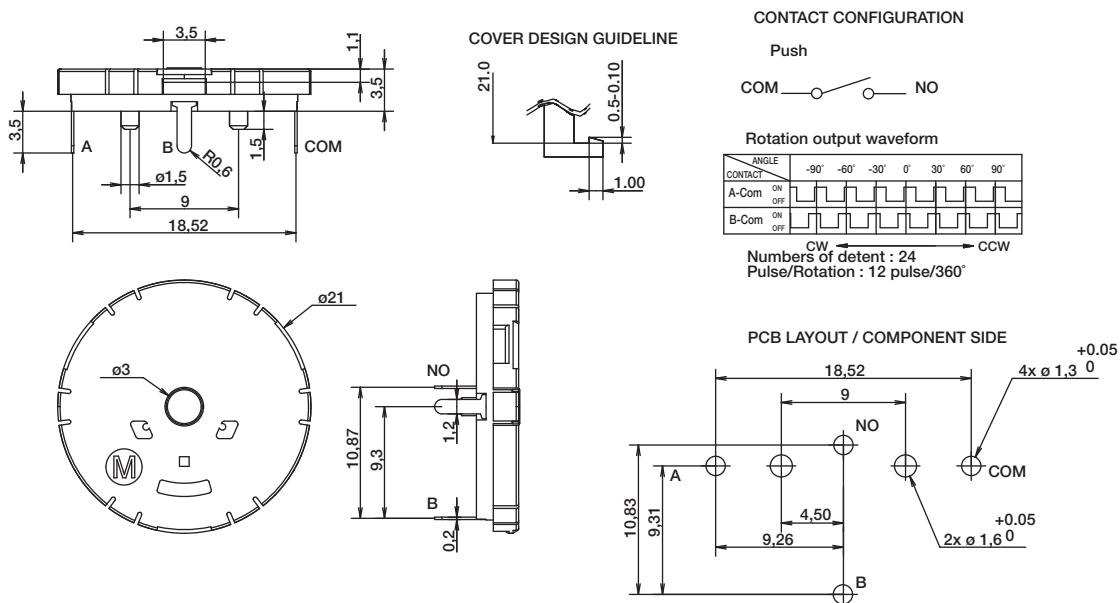
OPERATING TEMPERATURE: 0°C / 40°C
STORAGE TEMPERATURE: -40°C / 70°C
VIBRATION RESISTANCE: 10 ~ 55 Hz, displacement 0.75mm (p-p)
SHOCK RESISTANCE: Destruction 1,000 m/s² (approx. 100G) max.
WAVE SOLDERING: Max. 260°C for 5 seconds
HAND SOLDERING: Max. 260°C for 5 seconds

Designation	Number of Circuits	Rotation Actuation Force	Push Actuation Force	Cycle Life Rotation (per direction)	Cycle Life Push
TSWA	3	Max. 60g - cm	220g ± 50g	1,000K cycles	1,000K cycles
TSWB	5	Max. 50g - cm	Max 300g	1,000K cycles	1,000K cycles

Part Number	Description	Tray	Box
TSWA-3N-C LFS	Base switch with jog and select, no decoration	80	160
TSWA-3N-CB11 LFS	Base switch with jog and select, white central button, white dial	65	130
TSWA-3N-CD23 LFS	Base switch with jog and select, black central button, grey dial	30	60
TSWB-3N-CB111 LFS	Central select with jog and 4 directions, white central button, dial & direction ring	30	60
TSWB-3N-CB222 LFS	Central select with jog and 4 directions, black central button, dial & direction ring	30	60

TSWA-3N-C LFS

Base switch with jog and select, no decoration



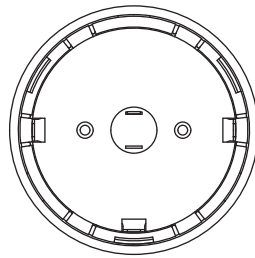
Dimensions are shown: mm
Specifications and dimensions subject to change



TSW Series

3 or 7 Function Tact and Scroll Wheel

TSWA-3N-CB11 LFS Base switch with jog and select, white central button, white dial

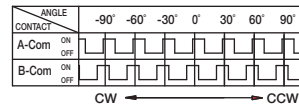


CONTACT CONFIGURATION

Push



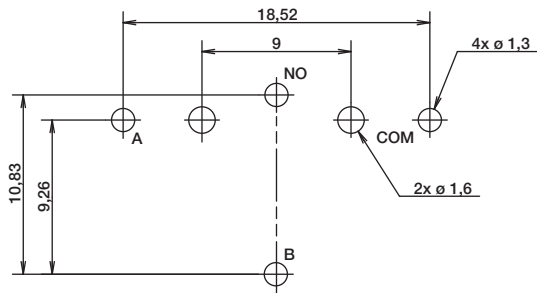
Rotation output waveform



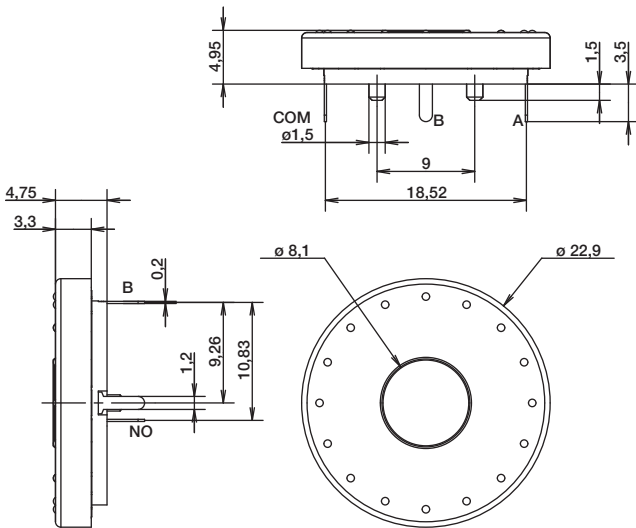
Numbers of detent : 24

Pulse/Rotation : 12 pulse/360°

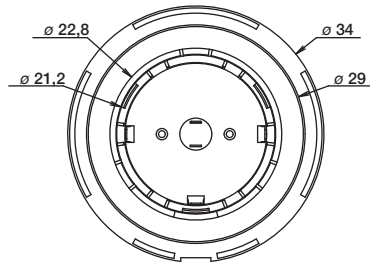
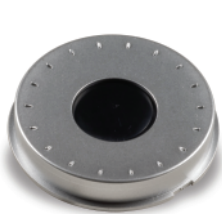
PCB LAYOUT / COMPONENT SIDE



Navigation



TSWA-3N-CD23 LFS Base switch with jog and select, black central button, grey dial

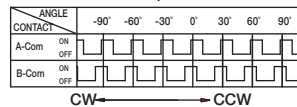


CONTACT CONFIGURATION

Push



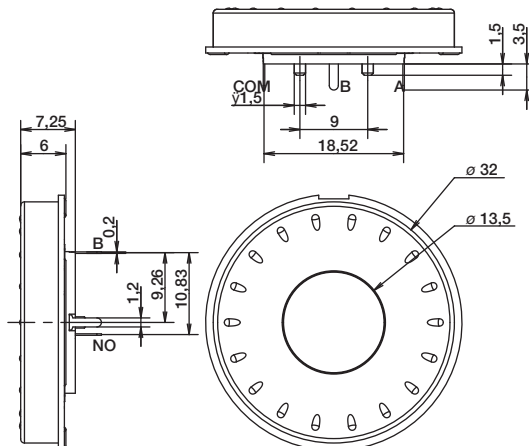
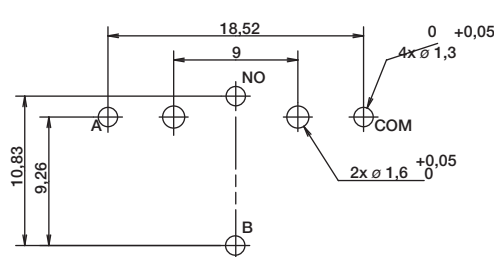
Rotation output waveform



Numbers of detent : 24

Pulse/Rotation : 12 pulse/360°

PCB LAYOUT / COMPONENT SIDE



First Angle Projection

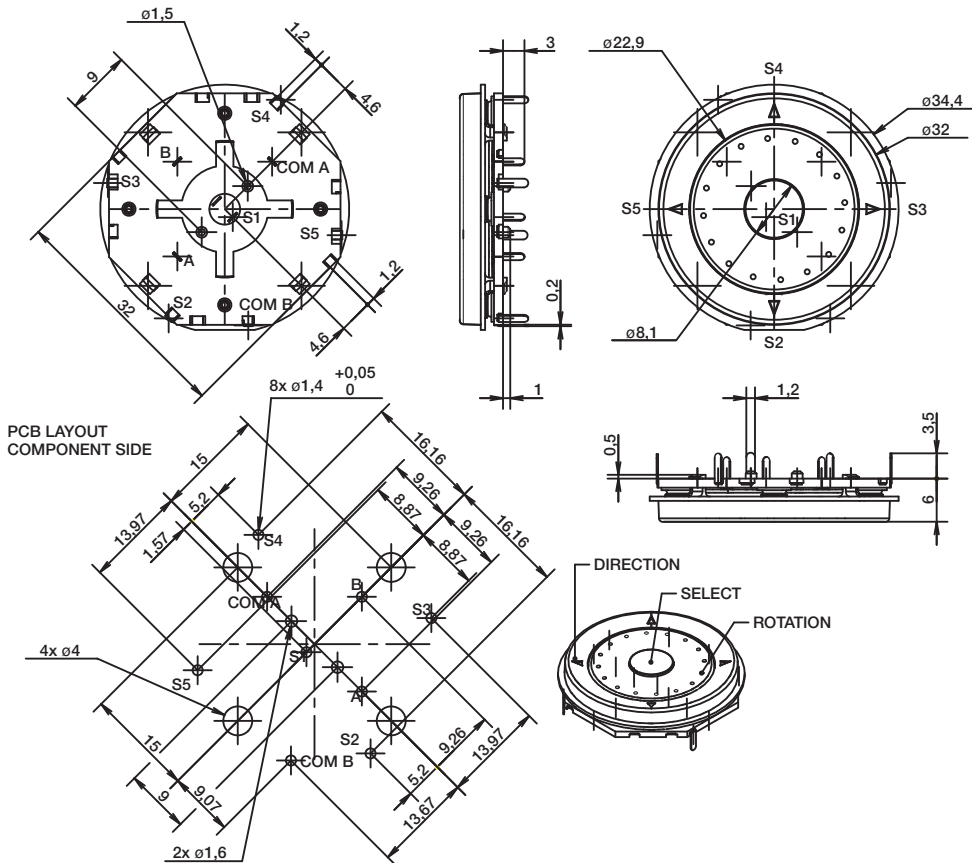
Dimensions are shown: mm
Specifications and dimensions subject to change



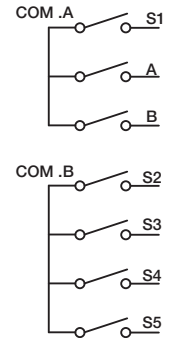
TSW Series 3 or 7 Function Tact and Scroll Wheel

TSWB-3N-CB111 LFS
TSWB-3N-CB222 LFS

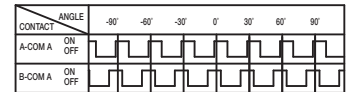
Central select with jog and 4 directions, white central button, dial & direction ring
Central select with jog and 4 directions, black central button, dial & direction ring



ELECTRICAL FUNCTION



Rotational Output Waveform



CW ← → CCW

Numbers of detent : 24

Pulse/Rotation : 12 pulse/360°



CS-41001E Series 4-way Adjustable Direction Switch



Features/Benefits

- Designed for mirror control
- Wire harness and connector easy to customize
- 4-way adjustable directions

Typical Applications

- Automotive
- Industrial

Specifications

CONTACT RATING: 0.2 A @ 12 VDC
 OPERATING LIFE: 10,000 cycles
 INSULATION RESISTANCE: 10 M Ω min. @ 500 VDC
 DIELECTRIC STRENGTH: 500 V AC
 OPERATING TEMPERATURE: -40°C to +90°C
 OPERATING FORCE: L- OFF, R-OFF; 200 \pm 100 gf
 OFF-L, OFF-R; 400 \pm 200 gf
 4 Direction; 500 \pm 200 gf

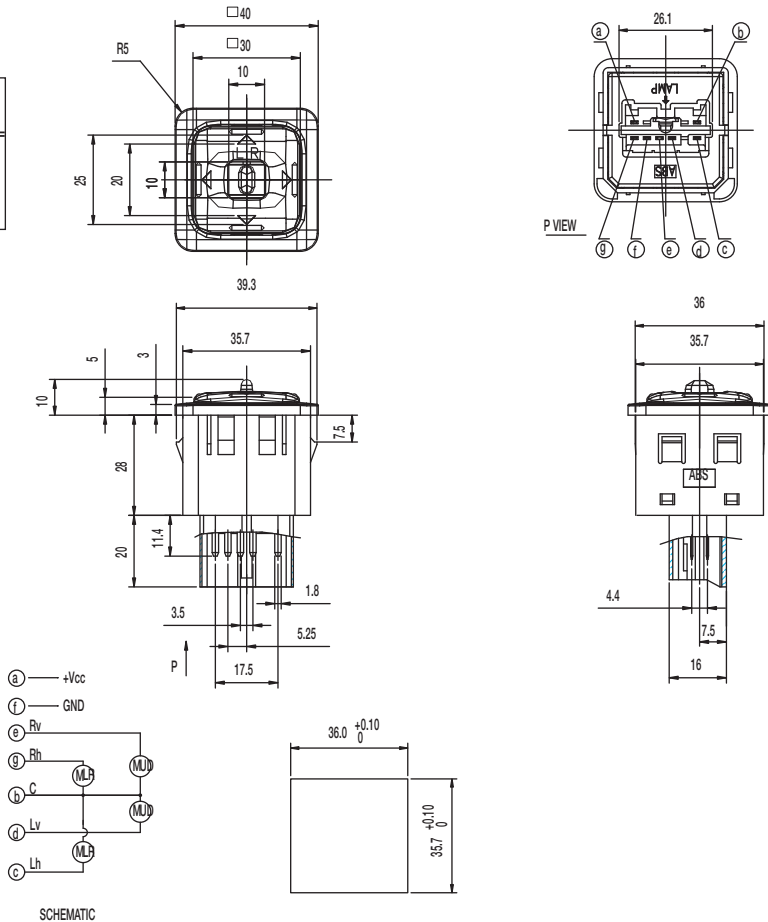
Materials

KNOB: ABS
 COVER: ABS
 TERMINAL: Brass, tin plated

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Navigation






PART NUMBER	PACKAGING
CS-41001-E	256 pieces


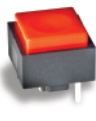





Dimensions are shown: mm
 Specifications and dimensions subject to change

Key Switches

Product Selection Guide

Key Switches					
Series	K6	K12S	K12	PVA	PVB
Size (mm) L x W x H	7,4 x 10,9 x 8,4	12 x 11,6 x 9,1	12 x 12 x 11	9,2 x 10 x 13,5	PVB4: 9,4 x 9 x 12,5 PVB6: 9,85 x 8,6 x 12,5
Poles/Throws	SPST momentary	SPST / DPST momentary	SPST 2 x SPST momentary	DPST / DPDT momentary or push-on/push off	SPDT PVB4 DPDT PVB6
Maximum Load	30 V / 100 mA	30 V / 100 mA	30 V / 100 mA	32 V / 100 mA	14 V / 100 mA or 200 mA
Operating Force	2 N; 3 N; 5 N	3 N; 5 N; 6 N 9 N; 4/8 N; 6/12 N	1,5 N; 2,5 N; 3,5 N; 5 N 3,5/7 N; 6/12 N	1,2 N; 1,7 N; 3,5 N	3 N
Travel (standard)	1,5 mm	1,5 mm	1 mm, 1,5 mm, 2 mm	Mom. 2,4 mm Push-push 2,4/1,5mm	Mom. 2,3 mm Push-push 2,3/1,5mm
Life Cycle	200,000	1,000,000	1,000,000	100,000	PVB4: 100,000 PVB6: 30,000
Sealed		IP40/IP67	K12C only		
Illumination	•	•	•		
Termination	SMT/ Thru-hole	SMT	Thru-hole	Thru-hole	SMT / Thru-hole
Page Number	D-3	D-6	D-9	D-15	D-18

Key Switches					
Series	D6	KS	Digitast	ED / EDM	KBD
Size (mm) L x W x H	12 x 11,4 x 14,5	12,4 x 12,4 x 9,9	17,1x12,3 x 14,3	12,7 x 11,3 x 1,2	15,6 x 15,6 x 15
Poles/Throws	SPST momentary	SPST SPDT	SPDT momentary or push-on/push off	SPST momentary	SPST momentary
Maximum Load	32 V/100 mA*	50 V/25 mA	24 V / 10 mA	100 V/100 mA	12 VDC /10 mA
Operating Force	1,3 N 2,75 N		1,5 N	2,4 N to 6,5N	45gf / 55gf / 60gf 0,4N / 0,5N / 0,6N
Travel (standard)	1 mm 1.10 mm	0,71 mm	3 mm	0,3 mm	1,5 ~ 2 mm
Life Cycle	250,000	100,000	5,000,000	1,000,000	50,000,000
Sealed				•	•
Illumination			•		
Termination	Thru-hole	Thru-hole	Thru-hole	Thru-hole/SMT	Thru-hole
Page Number	D-23	D-26	D-29	D-32	D-34

* Maximum value are for voltage and current separately

Dimensions are shown: mm
Specifications and dimensions subject to change



D

K6 Miniature Key Switches

Features/Benefits

- Excellent tactile feel
- Wide variety of LED's, travel and actuation forces
- Designed for low-level switching
- Detector version available
- RoHS compliant

Typical Applications

- Automotive
- Industrial electronics
- Computers and network equipment



Construction

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 DISTANCE BETWEEN BUTTON CENTERS:
 min. 7,5 and 11,8 (0.295 and 0.465)
 TERMINALS: Snap-in pins, tinned
 MOUNTING: Soldered by PC pins, locating pins
 PC board thickness: 1,5 (0.0591)

Mechanical

TOTAL TRAVEL/SWITCHING TRAVEL: 1,5/0,9 (0.059/0.035)
 PROTECTION CLASS: IP 40 according to DIN/IEC 529

- 1) Voltage rise: 300 V/s
 2) According to DIN 41640; IEC 512-2
 3) Higher values upon request

Packaging

THT: bulk in boxes of 500 pieces
 SMT: bulk in boxes of 500 pieces
 reels of 500 pieces (with LED) or 750 pieces (without LED)

Electrical

SWITCHING POWER MIN./MAX.: 0.02 mW / 3 W DC
 SWITCHING VOLTAGE MIN./MAX.: 2 V DC / 30 V DC
 SWITCHING CURRENT MIN./MAX.: 10 mA / 100 mA DC
 DIELECTRIC STRENGTH (50 Hz)¹⁾²⁾: ≥ 300 V
 OPERATING LIFE: ≥ 2 x 10⁵ operations ³⁾
 ≥ 1 X 10⁵ operations for SMT version
 CONTACT RESISTANCE: Initial ≤ 50 mΩ
 INSULATION RESISTANCE: ≥ 10¹⁰ Ω
 BOUNCE TIME: ≤ 1 ms
 Operating speed 100 mm/s (3.94/s)

Environmental

OPERATING TEMPERATURE: -40°C to 85°C.
 STORAGE TEMPERATURE: -40°C to 95°C.

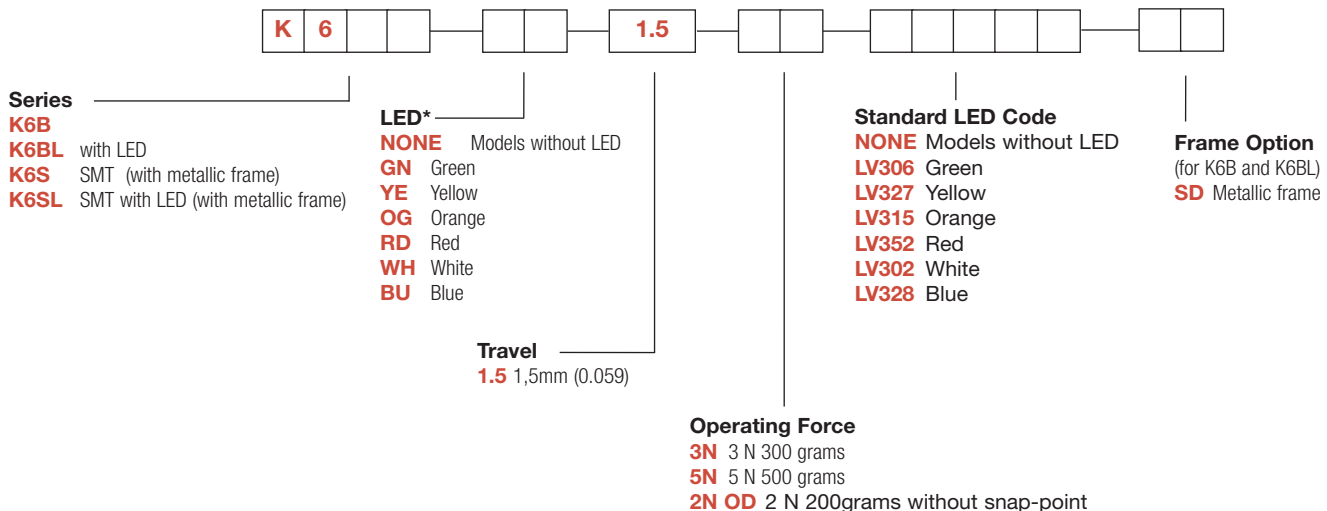
Process

SOLDERABILITY:
 THT: wave soldering, compatible with lead free soldering profile
 Hand soldering, 350°C for 3s
 SMT: not compatible with lead free reflow profile
 245°C for 5s

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Note: Some of the configurations may not be available or could require some development.



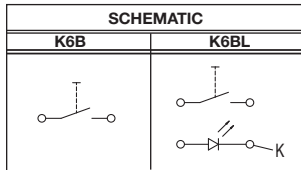
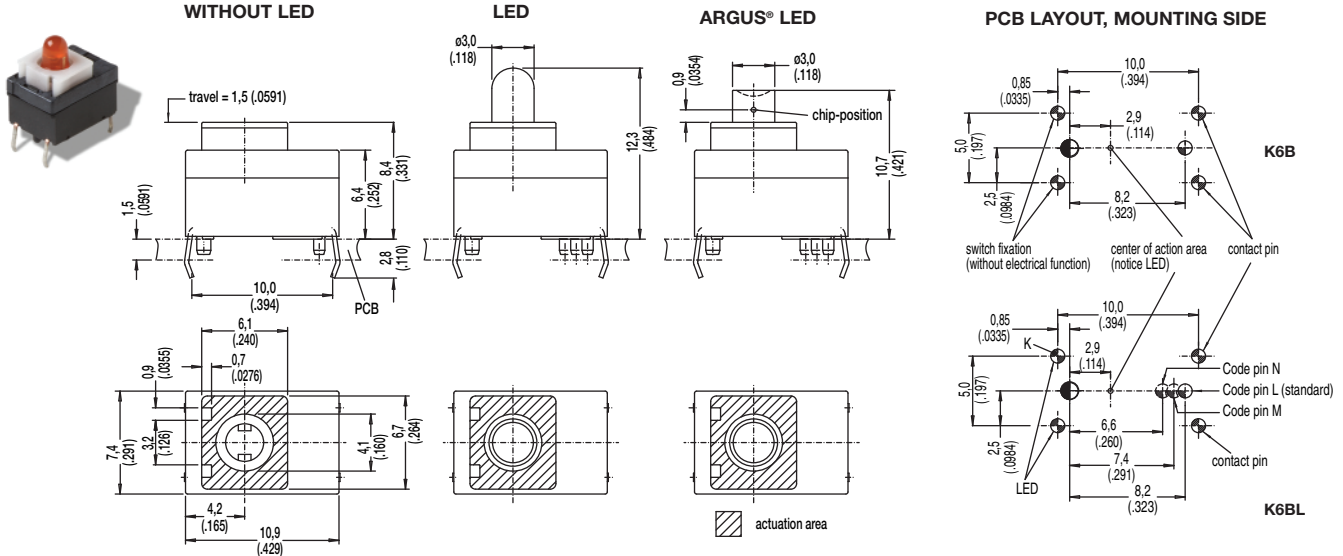
* Additional LED colors available by request.

K6 Miniature Key Switches

SERIES

K6B WITHOUT LED

K6BL WITH LED



Hole	Ø	Without LED	With LED	Description	Terminal Section	Surface
	1,2+0,1 (.0471+.00349)	1x	1x	center hole		
	0,9+0,1 (.0354+.00349)	1x	1x	code (L,M,N)		
	1,0+0,1 (.0354+.00349)		2x	LED switch	0,6 x 0,3 (.0236 x .0118)	SnPb
		4x	2x			

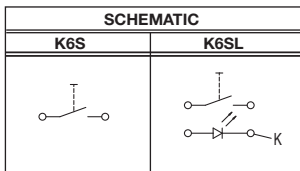
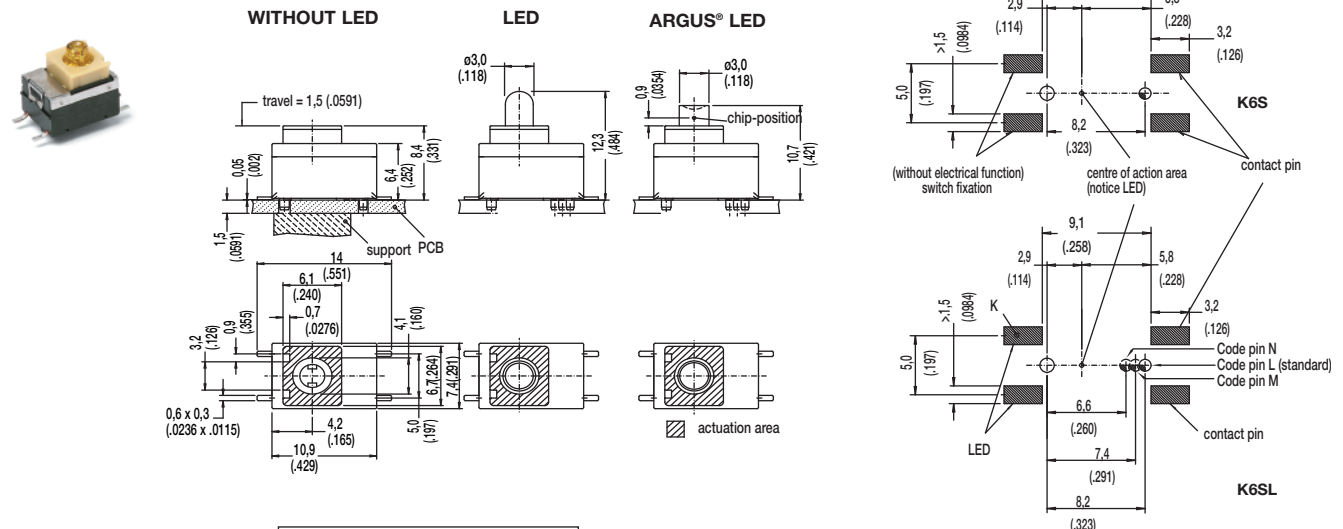
K6S WITHOUT LED

K6SL WITH LED



D

Key Switches



Hole	Ø	Without LED	With LED	Description
	1,2+0,1 (.0471+.00349)	1x	1x	center hole
	0,9+0,1 (.0354+.00349)	1x	1x	code (L,M,N)



Dimensions are shown: mm
Specifications and dimensions subject to change



K6 Miniature Key Switches

LED

OPTION CODE	COLOR
NONE	Models without LED
GN	Green
YE	Yellow
OG	Orange
RD	Red
WH	White
BU	Blue

STANDARD LED CODE	COLOR
NONE	Models without LED
LV306	Green
LV327	Yellow
LV315	Orange
LV352	Red
LV302	White
LV328	Blue

Additional LED colors available by request

TRAVEL

1.5 1.5 MM

OPERATING FORCE

OPTION CODE	OPERATING FORCE
3N	3 N, 300 g
5N	5 N, 500 g
2N OD	2 N, 200g without snap-point

FRAME OPTION

SD METALLIC FRAME (OPTION FOR K6B AND K6BL)

NOTE: K6S and K6SL are equipped with metallic frame (SD not specified)



D

Key Switches

K12S

High Performance SMT Key Switches



Features/Benefits

- Harsh environment applications - IP67
- Compatible with SMT lead free soldering process
- Illuminated
- Excellent tactile feel
- High reliability / long life
- DPST and detect versions available
- RoHS compliant

Typical Applications

- Automotive
- Off-road transportation
- Motorcycles
- Industrial
- Medical
- Network
- Joysticks

Construction:

FUNCTION: Momentary
 CONTACT ARRANGEMENT: SPST or DPST
 CONTACT TYPE: NO or NC
 TERMINALS: SMT

Mechanical

TOTAL TRAVEL: 1,5 mm
 OPERATING FORCE: 3N; 5N; 6N; 9N 4/8 N; 6/12 N
 SEALING: IP40 or IP67

Packaging

Reels of 900 pieces

Electrical

SWITCHING POWER MIN./MAX.: 0.02mW/3 W DC
 SWITCHING VOLTAGE MIN./MAX.: 2 V / 30 V DC
 SWITCHING CURRENT MIN./MAX.: 10 mA /100 mA DC
 DIELECTRIC STRENGTH: > 300 V RMS
 OPERATING LIFE: > 10⁶ operations (F<5N) / 10⁵ operations (F≥5N)
 CONTACT RESISTANCE: Initial < 100mΩ - After test < 250mΩ
 INSULATION RESISTANCE: >10⁹Ω
 BOUNCE TIME: < 10 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C.
 STORAGE TEMPERATURE: -40°C to 95°C.
 RoHS compliant and Halogen free.

Process

SOLDERABILITY: Lead free soldering compatible.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



D

Key Switches



Sub-Series

- A IP40 with peg
- B IP67 with peg
- C IP40 without peg
- D IP67 without peg

Option

- S SPST version
- L LED version (SPST)
- D DPST version

LED Color

- NONE No LED
- YE0 Yellow
- RD0 Red
- GN0 Green
- OR0 Orange
- WH0 White
- AM0 Amber

Travel

- 1.5 1.5 mm

Operating Force

- 3N 3 N
- 5N 5 N
- 6N 6 N
- 9N 9 N
- 4/8N 4/8 N
(double step actuation)
- 6/12N 6/12 N
(double step actuation)

Contact Arrangement

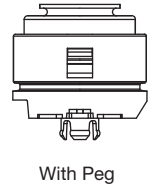
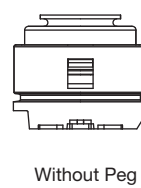
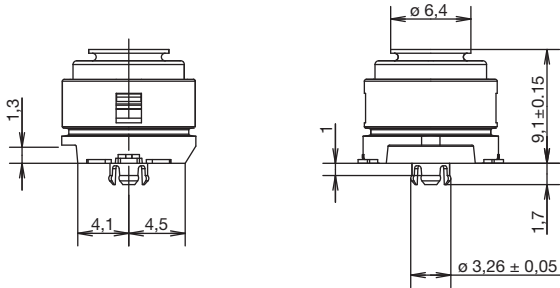
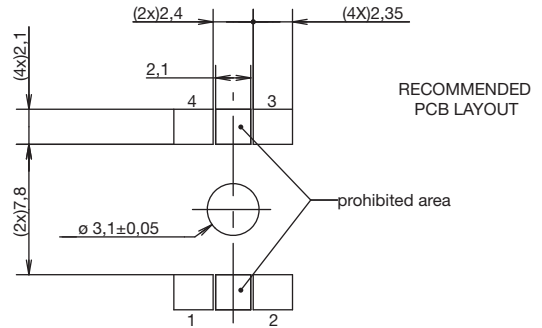
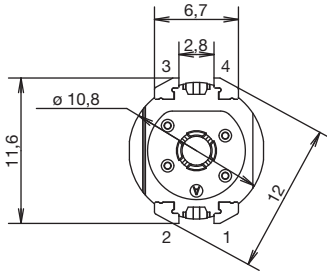
- O Normally open (SPST)
- C Normally closed (SPST)
- OO 2 Normally open (DPST)
- CC 2 Normally closed (DPST)
- OC 1 Normally open
1 Normally closed (DPST)

LFTX

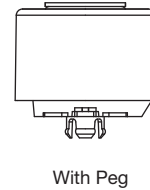
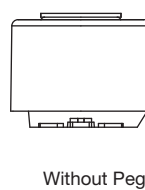
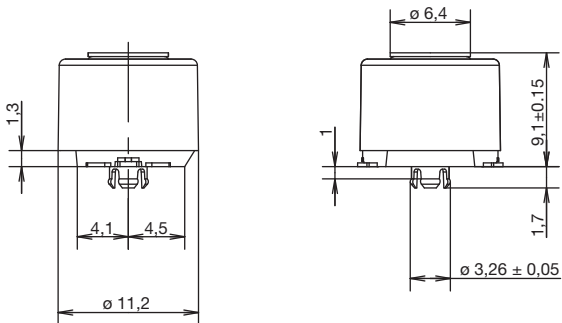
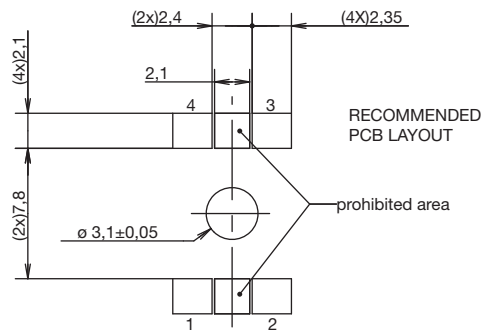
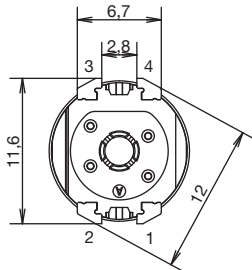
Lead free, RoHS terminals tin plated
 Translucent button

K12S High Performance SMT Key Switches

K12SA/K12SC IP40 with peg / IP40 without peg



K12SB / K12SD IP67 with peg / IP67 without peg



Dimensions are shown: mm
Specifications and dimensions subject to change



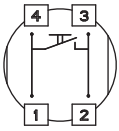
K12S

High Performance SMT Key Switches

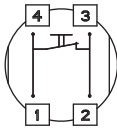
OPTION

S SPST version

Single NO

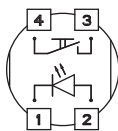


Single NC

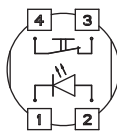


L LED version

Single NO + LED

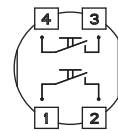


Single NC + LED

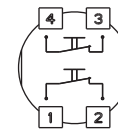


D DPST version

Double NO



Double NC



LED COLOR

OPTION CODE	LED COLOR
	No LED
YE0	Yellow
RD0	Red
GN0	Green
OR0	Orange
WH0	White
AM0	Amber

TRAVEL

1.5 1.5 mm

OPERATING FORCE

OPTION CODE	OPERATING FORCE
3N	3N
5N	5N
6N	6N
9N	9N
4/8N	4/8N (double step actuation)
6/12N	6/12N (double step actuation)

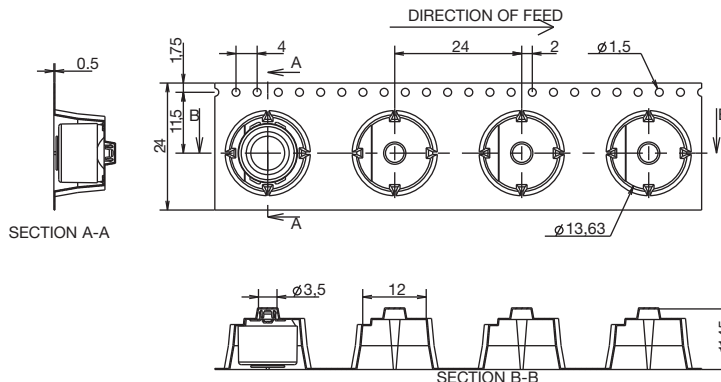
CONTACT ARRANGEMENT

- O** Normally open (SPST and LED versions)
- C** Normally closed (SPST and LED versions)
- OO** 2 Normally open (DPST version)

- CC** 2 Normally closed (DPST version)
- OC⁽¹⁾** 1 Normally open/ 1 Normally closed (DPST)

⁽¹⁾ Please contact Technical support for this configuration using the "Ask a Specialist" option on the K12S product web page.

TAPE AND REEL



First Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



D

Key Switches

K12 High Performance Key Switches

Features/Benefits

- **Excellent tactile feel**
- **Wide choice of LED colors, travel and actuator forces**
- **High reliability / long life**
- **Sealed version available**
- **Designed for low-level switching**
- **Double stroke version available**
- **Detector version available**

Typical Applications

- **Automotive**
- **Off-road transportation**
- **Industrial electronics**
- **Computers & network equipment**
- **Joysticks**



Construction:

FUNCTION: momentary
 DISTANCE BETWEEN BUTTON CENTERS:
 min. 11 (0.433) K12C = 13 (0.512)
 TERMINALS: PC pins, tinned
 MOUNTING: Locating pins; K12G and K12P additionally
 with snap-in housing

Mechanical

TOTAL TRAVEL: 1 mm, 1.5 mm, 2 mm
 SWITCHING TRAVEL: 0,6 mm*
 OPERATING FORCE: 1.5 N OD without snap-point as detector
 switch, 2.5 N, 3.5 N, 5 N, 3.5/7 N, 6/12 N. Additional
 operating force 7N, 9N and 20N, available on request.
 PROTECTION CLASS: K12C IP 67 (dust tight, protected against
 the effects of immersion in water; other versions IP 40)

* Additional switching travel (with pre-travel) available by request.

Packaging

Bulk in boxes of 250 pieces (version C or GO) or
 300 pieces (version A, AL, P or PL)

Electrical

SWITCHING POWER MIN./MAX.: 0.02mW/3 W
 SWITCHING VOLTAGE MIN./MAX.: 2 V DC / 30 V DC
 SWITCHING CURRENT MIN./MAX.: 10 mA /100 mA
 DIELECTRIC STRENGTH (50 Hz, 1 min): ≥ 500 V
 OPERATING LIFE with max. switching power: ≥ 10⁶ operations
 K12G & K12GO; operating life of second switch 5 x 10⁴ operations,
 operating life K12C and version with more than 6N (7N, 9N 20N)
 please consult factory.
 CONTACT RESISTANCE: Initial ≤ 50 mΩ
 INSULATION RESISTANCE: ≥ 10¹⁰ Ω
 BOUNCE TIME: ≤ 1 ms
 Operating speed 100 mm/s (3.94/s)

Environmental

OPERATING TEMPERATURE: -40°C to 85°C.
 STORAGE TEMPERATURE: -40°C to 95°C.

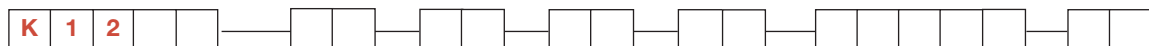
Process

SOLDERABILITY:
 Wave soldering, compatible with lead free soldering profile
 Hand soldering, 350°C

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Note: Some of the configurations may not be available or could require some development.



Series

- K12A** No snap-in pegs
- K12AL** No snap-in pegs with central LED
- K12P** With snap-in pegs
- K12PL** With central LED
- K12C** Sealed contact with rubber cap (IP 67)
- K12GO** Two-step switch

Cap Color

- NONE** version with LED, version C
- BK** Black cap - No LED
- YE** Yellow cap - No LED
- RD** Red cap - No LED
- GY** Gray cap - No LED

LED Color

- NONE** No LED
- GN** Green
- YE** Yellow
- OG** Orange
- RD** Red
- WH** White
- BU** Blue

Travel*

- 1** 1 mm (0.039)
- 1.5** 1.5 mm (0.059)
- 2** 2 mm (0.079)

Standard LED Code

- NONE** No LED
- LV306** Green
- LV327** Yellow
- LV315** Orange
- LV352** Red
- LV302** White
- LV328** Blue

Operating Force***

- 1.5N OD** 1.5 N without snap-point
- 2.5N** 2.5 N
- 3.5N** 3.5 N
- 5N** 5 N
- 3.5/7N** 3.5/7 N**
- 6/12N** 6/12 N**

Contact

- Arrangement**
- NONE** SPST NO (STD)
- 1R** SPST NC (Special request)

* K12C – 1mm MAX

K12 with LED – 1.5 mm MAX

** K12G & K12GO version only

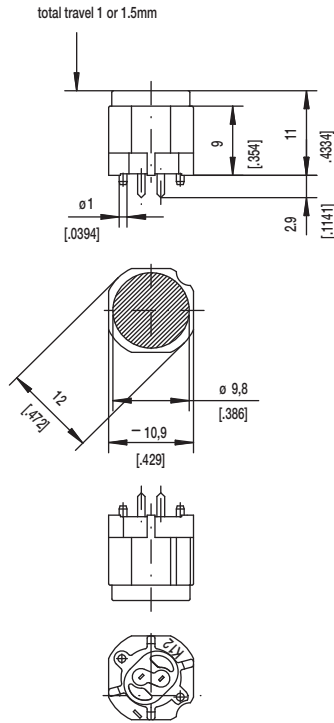
*** Additional operating force: 7N, 9N available on request



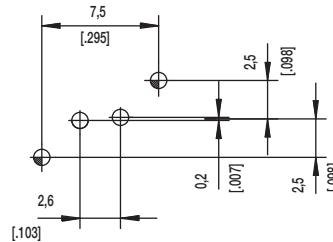
K12 High Performance Key Switches

SERIES 

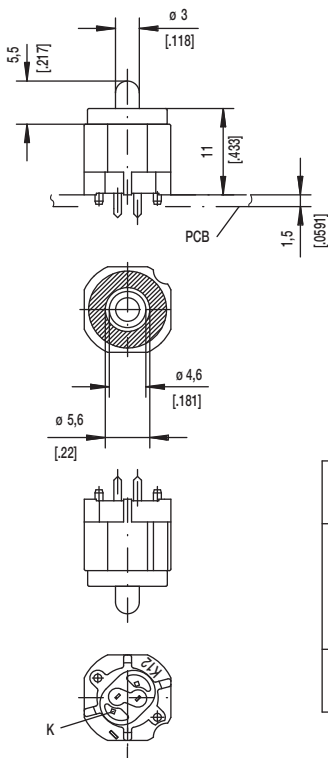
K12A without snap in



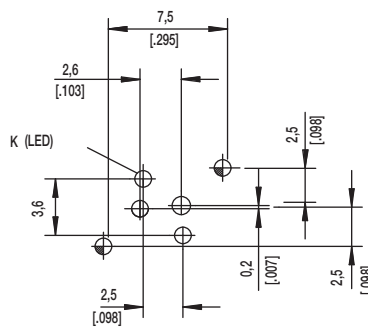
PCB LAYOUT, MOUNTING SIDE



K12AL



PCB LAYOUT, MOUNTING SIDE



	$1,1^{+0,05}$	2x	2x	center hole		
	$0,9 \pm 0,05$		2x	LED	$\varnothing 0,5 (.020)$	Sn
			2x	switch	$0,7 \times 0,2 (.028 \times .081)$	Sn
Hole	\varnothing	Without	with LED	Description	Terminal Section	Surface



Key Switches



First Angle
Projection

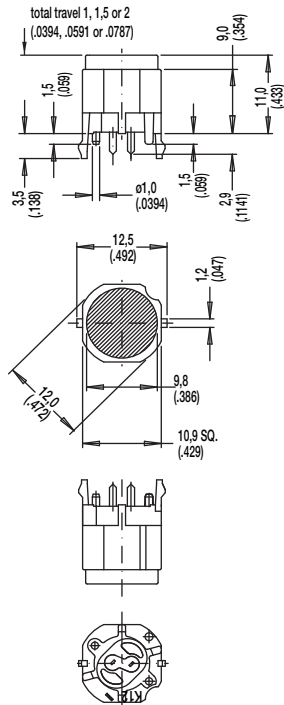
Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

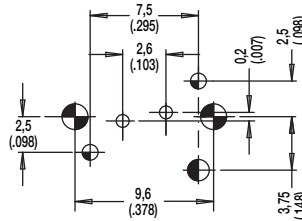
K12 High Performance Key Switches

SERIES

K12P with snap in



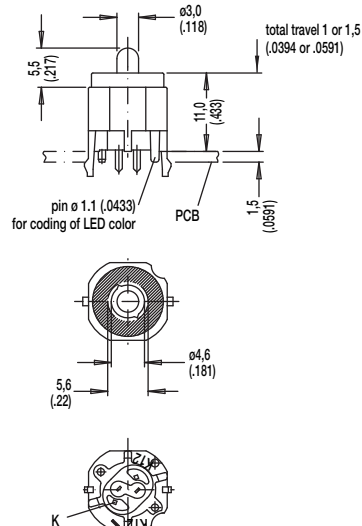
PCB LAYOUT, MOUNTING SIDE



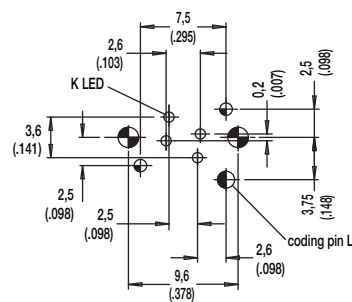
center of actuation area (notice LED)

Hole	Ø	Without LED	Description	Terminal Section	Surface
	1,7 (.069)	2x	snap-in		
	1,6 (.062)	1x	coding hole (L,M,N)		
	1,1 (.043)	2x	center hole		Sn
	0,9 (.035)	2x	switch	0.7 x 0.2 (.028 x .081)	Sn

K12PL



PCB LAYOUT, MOUNTING SIDE



center of actuation area (notice LED)

Hole	Ø	Without LED	Description	Terminal Section	Surface
	1,7 (.069)	2x	snap-in		
	1,6 (.062)	1x	coding hole (L,M,N)		
	1,1 (.043)	2x	center hole		Sn
	0,9 (.035)	2x	LED	m0.5 (.020)	Sn
	0,9 (.035)	2x	switch	0.7 x 0.2 (.028 x .081)	Sn

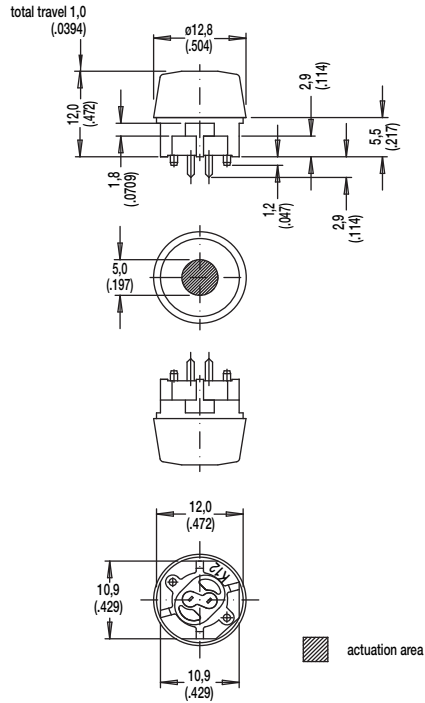


Dimensions are shown: mm
Specifications and dimensions subject to change

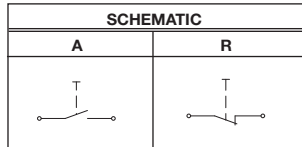
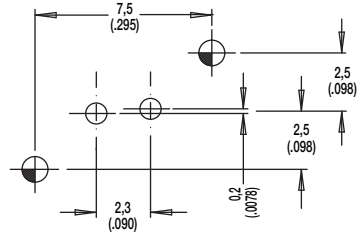
K12 High Performance Key Switches

SERIES

K12C SEALED CONTACT WITH RUBBER CAP (IP 67)



PCB LAYOUT, MOUNTING SIDE



Hole	Ø	Without LED	Description	Terminal Section	Surface
	1,1 (.043)	2x	center hole		
	0,9 (.035)	2x	switch	0.7 x 0.2(.0275 x .0787)	Sn



D

Key Switches

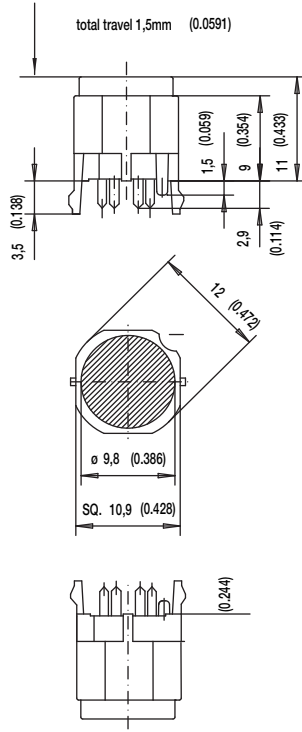


Dimensions are shown: mm
Specifications and dimensions subject to change

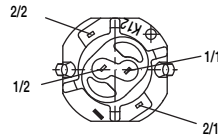
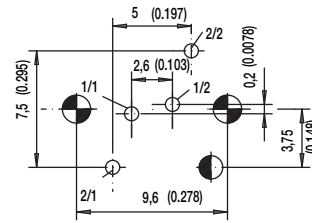
K12 High Performance Key Switches

SERIES

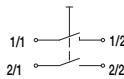
K12GO



PCB LAYOUT, MOUNTING SIDE



SCHEMATIC K12G



Hole	Ø	Without LED	Description	Terminal Section	Surface
	1,7 (.069)	2x	snap-in		
	1,6 (.062)	1x	code		
	0,9 (.035)		LED	m0.5 (.020)	Sn
		2x	switch 2	0.7 x 0.3 (.028 x .012)	Sn
		2x	switch 1	0.7 x 0.2 (.028 x .081)	Sn



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K12 High Performance Key Switches

CAP COLOR

OPTION CODE	COLOR
NONE	Version with LED
BK	Black - no LED
YE	Yellow - no LED
RD	Red - no LED
GY	Gray - no LED

LED COLOR

OPTION CODE	COLOR
NONE	Models without LED
GN	Green
YE	Yellow
OG	Orange
RD	Red
WH	White
BU	Blue

STANDARD LED CODE	COLOR
NONE	Models without LED
LV306	Green
LV327	Yellow
LV315	Orange
LV352	Red
LV302	White
LV328	Blue

TRAVEL

- 1** 1 mm
- 1.5** 1.5 mm
- 2** 2 mm

OPERATING FORCE

OPTION CODE	OPERATING FORCE
1.5N OD	1.5 N, 150g without snap-point
2.5N	2.5 N, 250g
3.5N	3.5 N, 350g
5N	5 N, 500g
3.5/7N	3.5/7 N, 350/700g
6/12N	6/12 N, 600-1200g

CONTACT ARRANGEMENT OPTION

1R SPST NC (SPECIAL REQUEST FOR NORMALLY CLOSED OPTION)



D

Key Switches



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



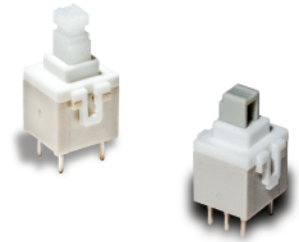
PVA Short Stroke Key Switches

Features/Benefits

- **Compact design**
- **Short stroke to latch**
- **Wide variety of actuator heights**
- **Adapted for medium power applications**
- **RoHS compliant and compatible**

Typical Applications

- **Automotive (air conditioning, lighting)**
- **Industrial**
- **Control panel**



Construction

FUNCTION: Momentary, Push-Push
 CONTACT ARRANGEMENT:
 PVA1: 2 make contacts (DPST)
 PVA2: 2 change over contacts (DPDT)
 SWITCHING MODE: Non-shorting
 TERMINALS: PC pins¹

Mechanical

TOTAL TRAVEL / LATCHING TRAVEL:
 OA: 2,4 mm
 EE: 2,4 / 1,5 mm
 ELECTRICAL TRAVEL: 0.8 mm (1.1 for PVA2 OA H5)
 OPERATING FORCE: 1,2N; 1,7N; 3,5N

Process

SOLDERABILITY:
 Wave soldering, compatible with lead free soldering profile
 Hand soldering, 350°C for 3 seconds

Note: Specifications listed above are for switches with standard options.
 For information on specific and custom switches, please contact technical support using the "Ask a Specialist" option on the PVA product web page.^v

Electrical

SWITCHING POWER MAX.: 3 W DC
 SWITCHING VOLTAGE MAX.: 32 V DC
 SWITCHING CURRENT MAX.: 100 mA DC*
 DIELECTRIC STRENGTH (50 Hz / 1 min):
 1000 V between open contacts, PVA2: 750 V
 OPERATING LIFE:
 OA (momentary): $\geq 1 \times 10^5$ operations
 EE (push-push): $\geq 1 \times 10^5$ operations
 CONTACT RESISTANCE: Initial $\leq 100 \text{ m}\Omega$
 INSULATION RESISTANCE: $\geq 10^{10} \Omega$
 BOUNCE TIME: $\leq 3 \text{ ms}$

Environmental

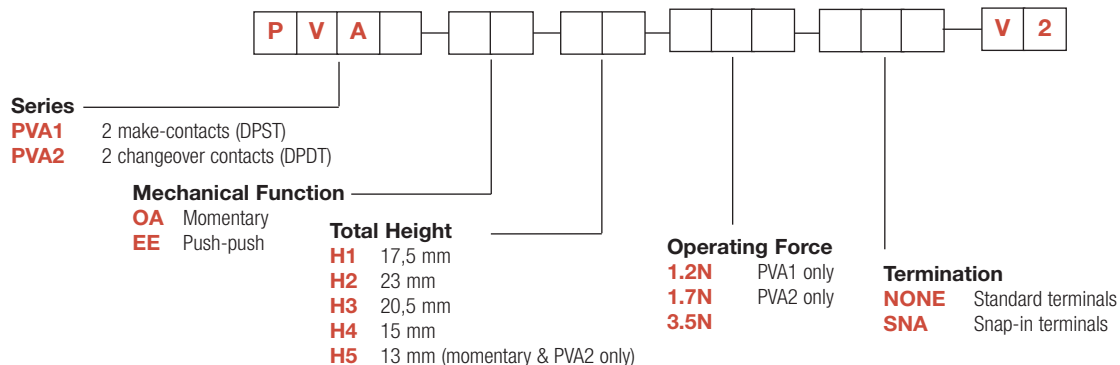
OPERATING TEMPERATURE: -40°C to 85°C.²

- 1) "Snap-in" contacts on request, Version SNA with pins bent inside (standard)
 2) With button +70°C

How To Order

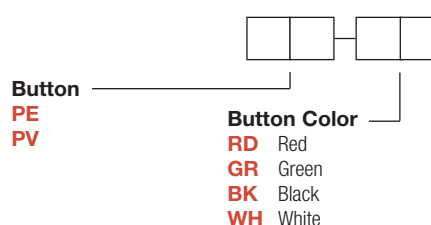
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box. **Some of the configurations may not be available or could require some development.**

Switch



Button

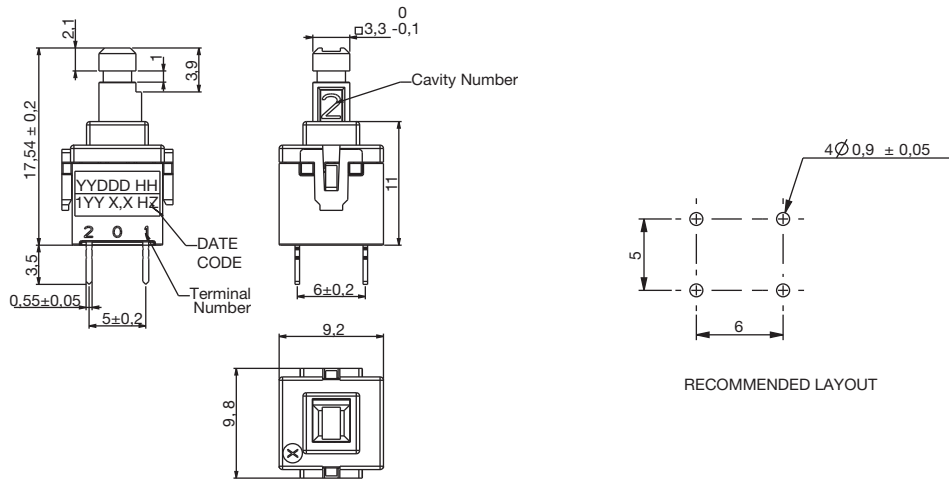
Buttons must be ordered separately.
 Shipped in bulk.



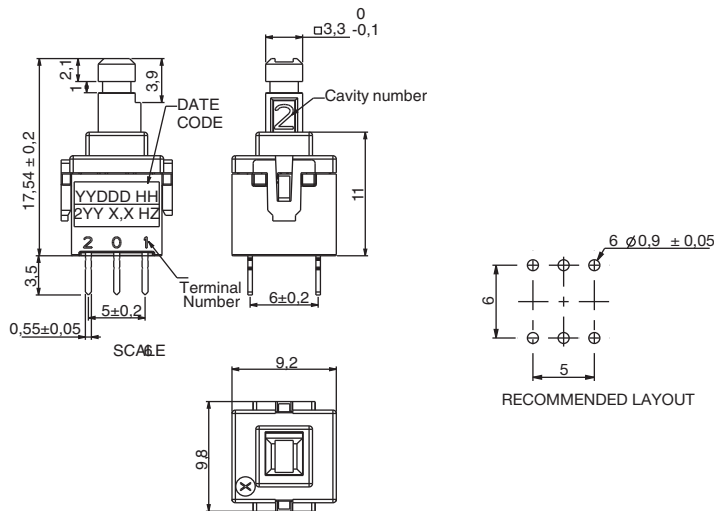
PVA Short Stroke Key Switches

SERIES

PVA1 (DPST)



PVA2 (DPDT)



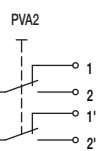
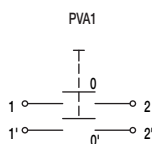
D

Key Switches

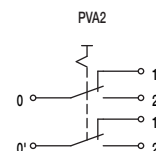
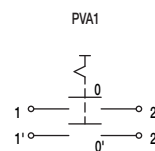
MECHANICAL FUNCTION

OPTION CODE	FUNCTION
OA	Momentary
EE	Push-Push

OA



EE



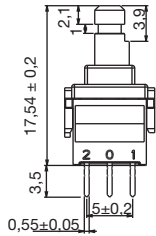
Dimensions are shown: mm
Specifications and dimensions subject to change



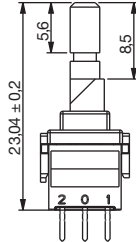
PVA Short Stroke Key Switches

TOTAL HEIGHT

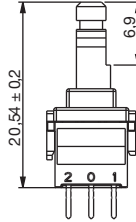
H1 17,5 MM



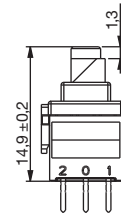
H2 23 MM



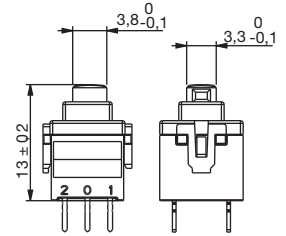
H3 20,5 MM



H4 15 MM



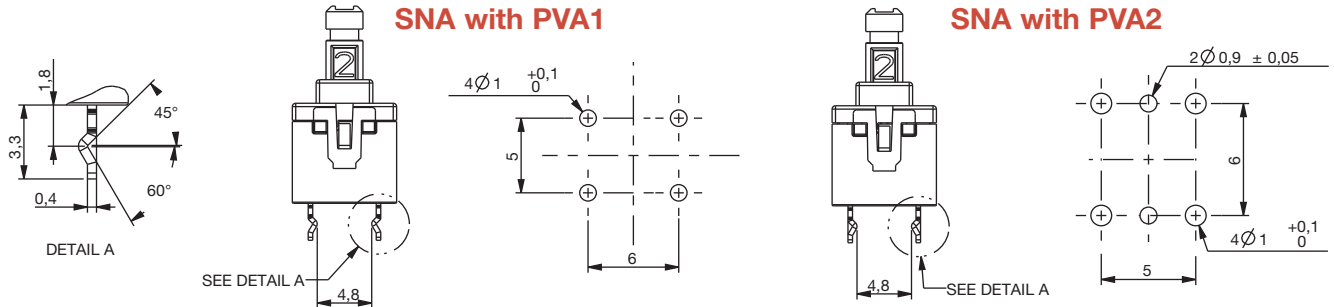
H5 13 MM
(MOMENTARY ONLY)



OPERATING FORCE

- 1.2N** PVA1 ONLY
- 1.7N** PVA2 ONLY
- 3.5N**

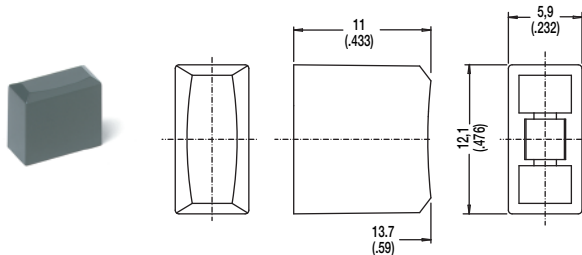
TERMINATION



BUTTONS

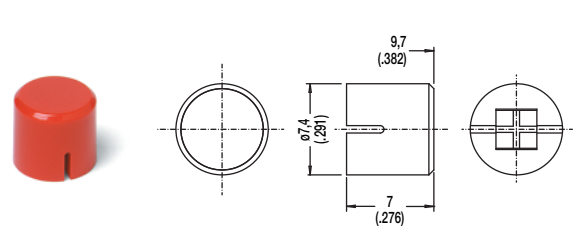
BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

PE



OPTION CODE	COLOR
RD	Red
GY	Gray
BK	Black
WH	White

PV



Dimensions are shown: mm
Specifications and dimensions subject to change



D6 SPST Momentary Key Switches

Features/Benefits

- Easy X, Y coding on single side PCB
- Positive tactile feedback
- High temperature
- Wide variety of colors & styles
- RoHS compliant and compatible

Typical Applications

- Video
- Electronic games
- Appliances



Construction

FUNCTION: momentary
CONTACT ARRANGEMENT: 1 make contact (SPST), NO
DISTANCE BETWEEN BUTTON CENTERS, MIN.: 12,7 (0.500)
TERMINALS: PC pins

Electrical

SWITCHING POWER MAX.: 3 VA
SWITCHING VOLTAGE MAX.: 32 V DC
SWITCHING CURRENT MAX.: 100 mA DC
DIELECTRIC STRENGTH (50 Hz / 1 min): 250 V
OPERATING LIFE with max. switching power: (2,5x10⁵ operations)
CONTACT RESISTANCE: ≤100 mΩ
INSULATION RESISTANCE: ≥10⁸ Ω
BOUNCE TIME: ≤10 ms

Packaging

The D6 switches are delivered in boxes containing 10 trays with 250 pieces each: Total 2,500 pieces per box.
The D6 buttons are delivered in bulk with 2500 pieces per box.

Mechanical

SWITCHING TRAVEL:
Version F1: 0.2mm ≤ Te ≤ 1.0 mm
Version F2: 0.3mm ≤ Te ≤ 1.1 mm
OPERATING FORCE:
Version F1: 0.8N ≤ Fa ≤ 1.8N
Version F2: 2.0N ≤ Fa ≤ 3.5N

Environmental

OPERATING TEMPERATURE: -20°C to 85°C.

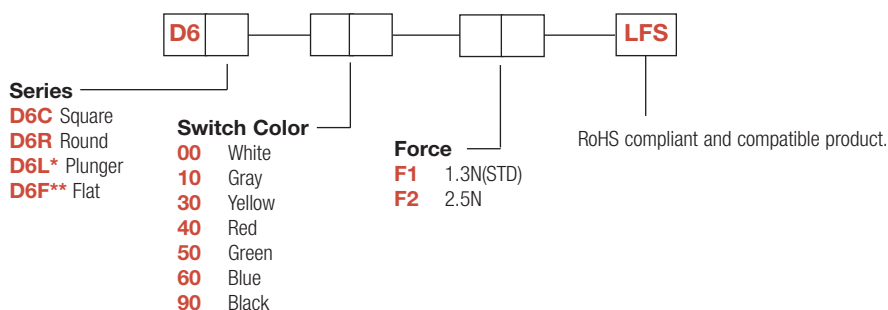
Process

SOLDERABILITY:
Wave soldering, compatible with lead free soldering profile
Hand soldering, 350°C for 3 seconds

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Switch



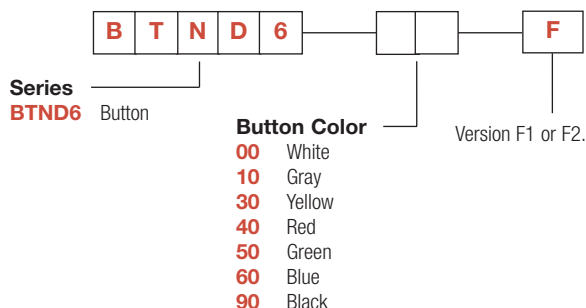
*Available only in color 90 (black).

** Available only in color 90 (black) and 00 (white).

Button

Buttons can be ordered separately.
Shipped in bulk.

D6 button for use with D6C only.

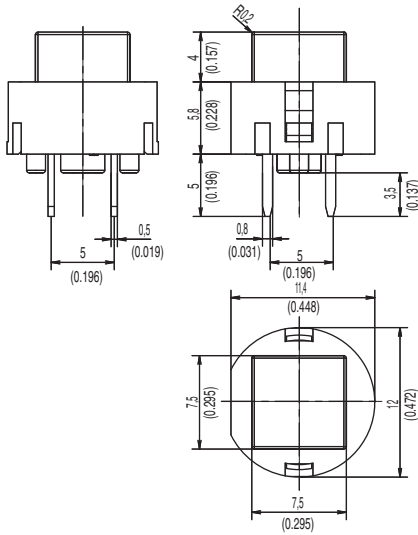
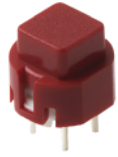


Dimensions are shown: mm
Specifications and dimensions subject to change

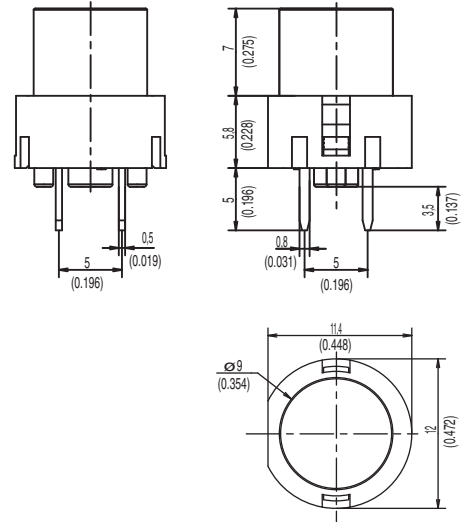
D6 SPST Momentary Key Switches

SERIES 

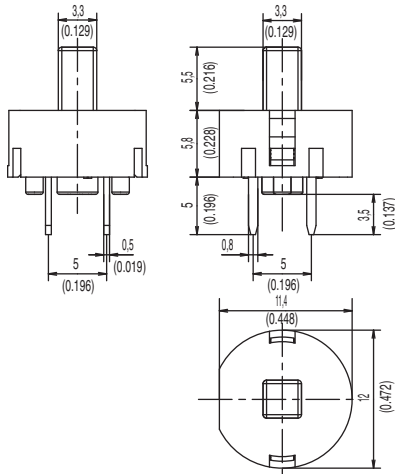
D6C



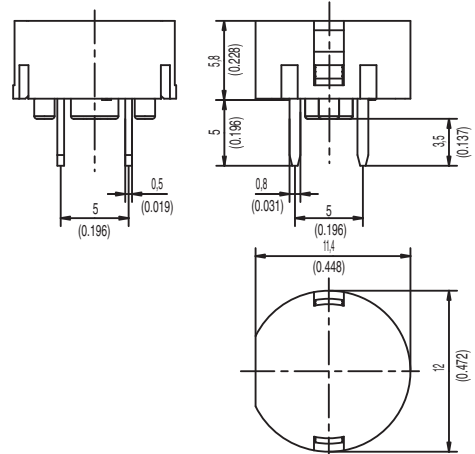
D6R



D6L ONLY AVAILABLE IN BLACK



D6F



D

Key Switches



First Angle
Projection

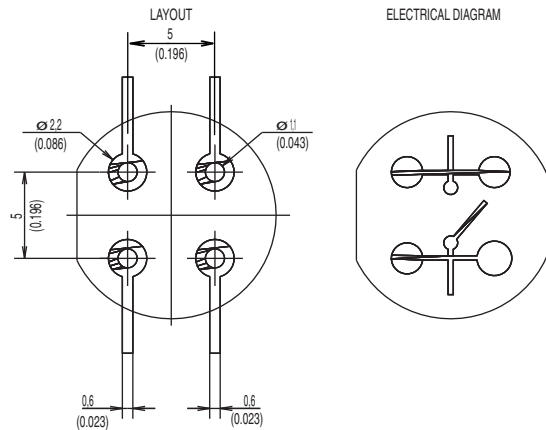
Dimensions are shown: mm
Specifications and dimensions subject to change

D6 SPST Momentary Key Switches

SWITCH COLORS

OPTION CODE	SWITCH COLOR
00	WHITE
10	GRAY
30	YELLOW
40	RED
50	GREEN
60	BLUE
90	BLACK

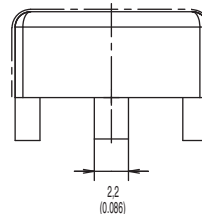
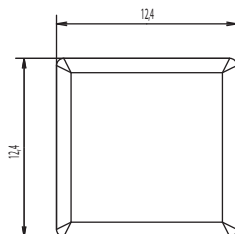
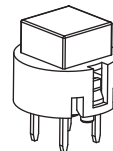
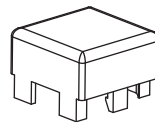
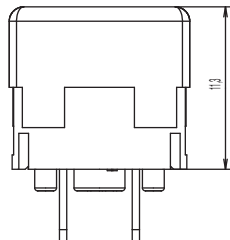
PCB LAYOUT



BUTTON AVAILABLE

BTND6 Buttons must be ordered separately. Shipped in bulk.

NOTE: Only compatible with D6C.



OPTION CODE	BUTTON COLOR
00	WHITE
10	GRAY
30	YELLOW
40	RED
50	GREEN
60	BLUE
90	BLACK



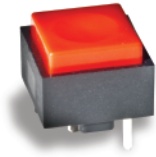
Dimensions are shown: mm
Specifications and dimensions subject to change



D

Key Switches

KS Single Pole Key Switches



Features/Benefits

- Positive tactile feel
- Variety of cap colors
- SPST and SPDT configurations
- RoHS compliant

Typical Applications

- Telecommunications
- Industrial
- Instrumentation

Specifications

CONTACT RATING: Q contact material: 25mA @ 50V AC .or DC max.
 ELECTRICAL LIFE: 100,000 actuations.
 CONTACT RESISTANCE: Below 100 mΩ initial @ 2-4 V DC, 100 mA
 INSULATION RESISTANCE: 10⁹Ω min.
 DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -30°C to 65°C.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

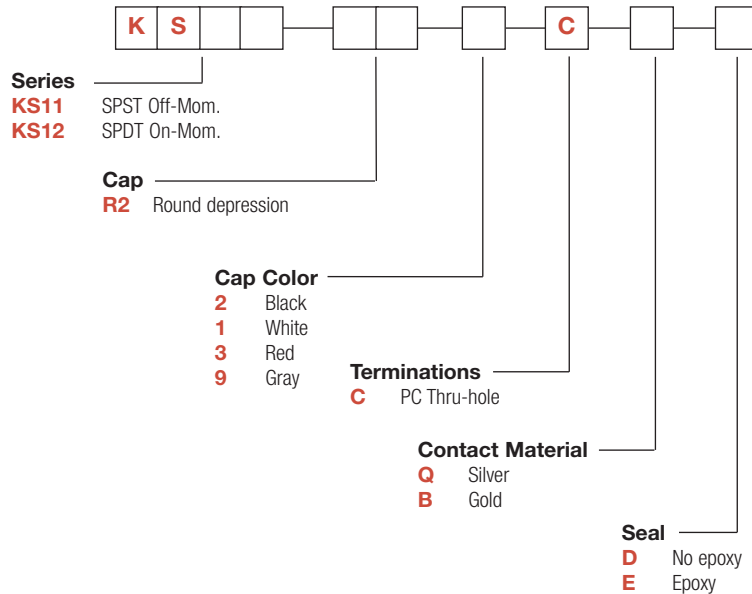
Note: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon (UL 94V-0).
 ACTUATOR: ABS, matte finish, black standard.
 MOVABLE CONTACT: Q contact material: Stainless steel, silver plated.
 STATIONARY CONTACTS AND TERMINALS: Q contact material: copper alloy, silver plated.
 TERMINAL SEAL: Epoxy

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



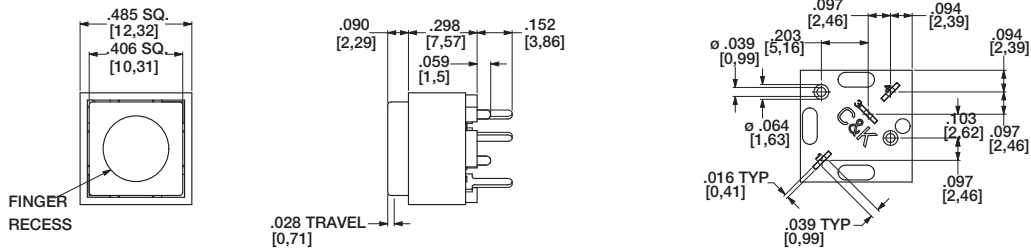
D

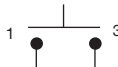

Key Switches

KS Single Pole Key Switches

SERIES 

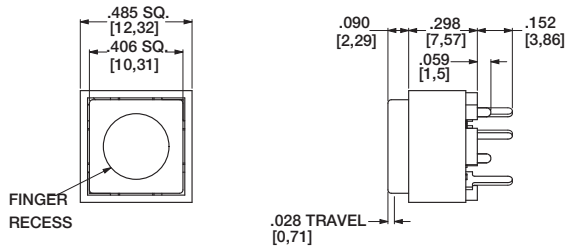
KS11 / KS12



NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KS11	OFF	MOM.	OPEN	1-3	SPST 
	KS12	ON	MOM.	1-4	1-3	SPDT 

CAP 

R2 CAP WITH ROUND DEPRESSION



OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
9	GRAY



Key Switches



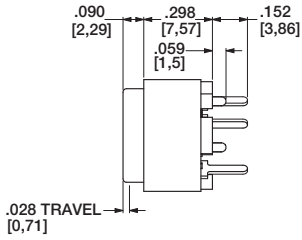
Third Angle Projection
Dimensions are shown: mm
Specifications and dimensions subject to change



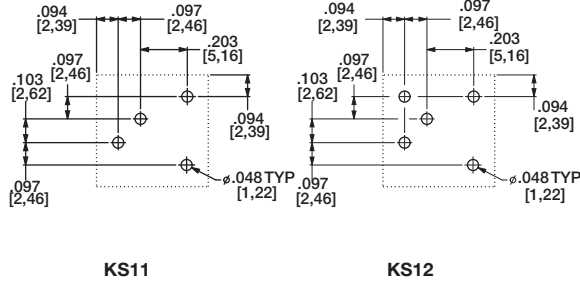
KS Single Pole Key Switches

TERMINATION

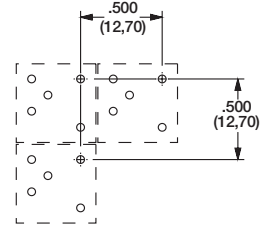
C PC THRU-HOLE



PC MOUNTING



MULTIPLE SWITCH SPACING



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
Q	SILVER ²	SILVER ²	POWER	25 mA MAX. @ 50 V AC OR DC MAX.
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.

- MOVABLE CONTACT: Stainless steel, with gold plate over nickel plate.
STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- MOVABLE CONTACT: Stainless steel, silver plated.
STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.



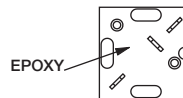
D

D NO EPOXY SEAL

Key Switches

SEAL

E EPOXY SEAL



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

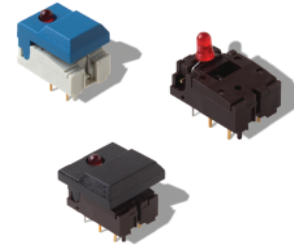
DIGITAST Microminiature SPDT, Key Switches

Features/Benefits

- High reliability/long life
- Designed for low level switching
- Ready to implement on PCB
- Latching function available
- Several button options
- RoHS compliant and compatible

Typical Applications

- Medical
- Instrumentation
- Industrial electronics
- Audio electronics



Construction

FUNCTION: momentary or push-push
 CONTACT ARRANGEMENT: 1 change over contact SPDT, NO
 MODE OF SWITCHING: Non-shorting
 DISTANCE BETWEEN BUTTON CENTERS:
 HORIZONTAL MINIMUM: 12,7 (0.500) or 17,78 (0.700)
 VERTICAL MINIMUM: 17,78 (0.700)
 TERMINALS: PC pins
 MOUNTING: Soldering, centering pins

Mechanical

TOTAL TRAVEL: ≤ 3 (.0018)
 SWITCHING TRAVEL: 1,5 (0.0591)
 LATCHING TRAVEL: 1,8 (0.0709)
 OPERATING FORCE: 1.5 +/- 0.5 N (150 +/- 50 grams)

Process

SOLDERABILITY:
 Wave soldering, compatible with lead free soldering profile
 Hand soldering, 350°C for 3 seconds

Electrical

SWITCHING POWER MAX.: 240 mW DC
 SWITCHING VOLTAGE MAX.: 24 V DC
 SWITCHING CURRENT MAX.: 10 mA DC
 CARRYING CURRENT AT 20°C (push-push version): 100 mA
 DIELECTRIC STRENGTH (50 Hz, 1 min): 500 V
 OPERATING LIFE with or without max. switching power
 Momentary: $\geq 5 \times 10^6$ operations
 Push-push: $\geq 5 \times 10^5$ operations
 CONTACT RESISTANCE: Initial ≤ 50 m Ω
 After 5×10^6 operations: ≤ 100 m Ω
 INSULATION RESISTANCE: $\geq 10^{10}$ Ω
 CAPACITANCE at f= 10 kHz: ≤ 0.8 pF
 BOUNCE TIME: ≤ 2.5 ms
 Operating speed 400 mm/s (15.75/s)

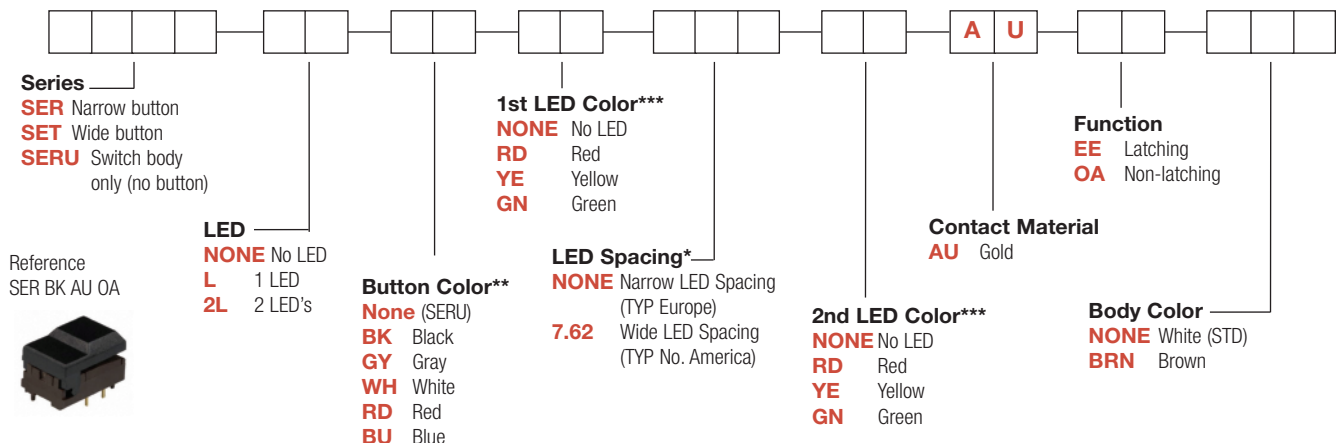
Environmental

OPERATING TEMPERATURE: -25°C to 85°C.

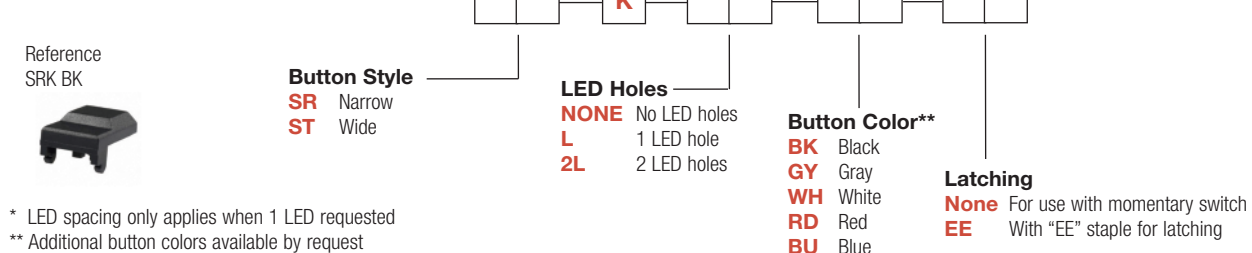
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box. **Some of the configurations may not be available or could require some development.**

Switch



Button



* LED spacing only applies when 1 LED requested

** Additional button colors available by request

*** Additional LED colors available by request including Bi color configurations

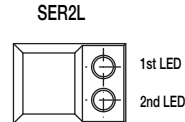
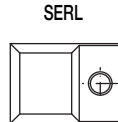
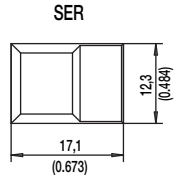
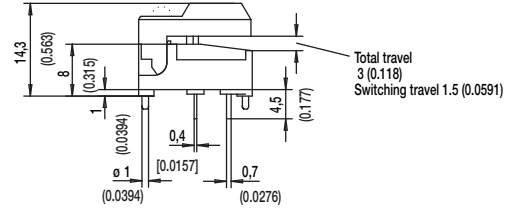
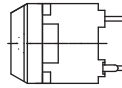
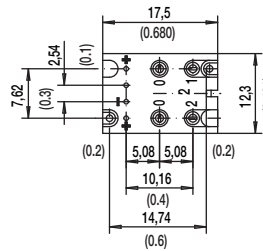
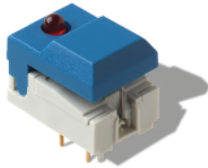


Dimensions are shown: mm
 Specifications and dimensions subject to change

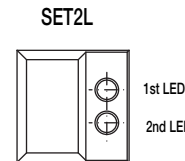
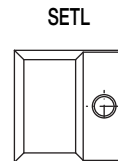
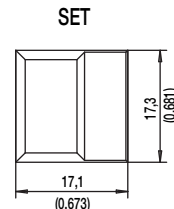
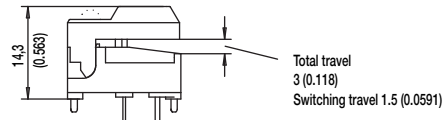
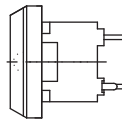
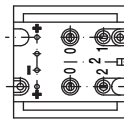
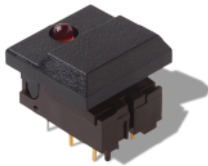
DIGITAST Microminiature SPDT, Key Switches

DESIGNATION

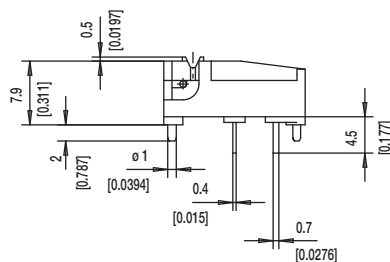
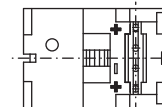
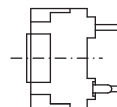
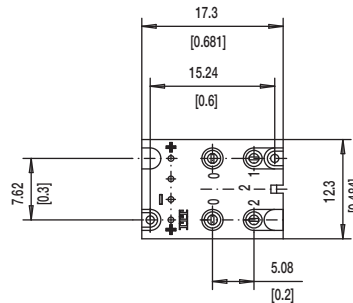
SER NARROW BUTTON



SET WIDE BUTTON



SERU NO BUTTON



Key Switches



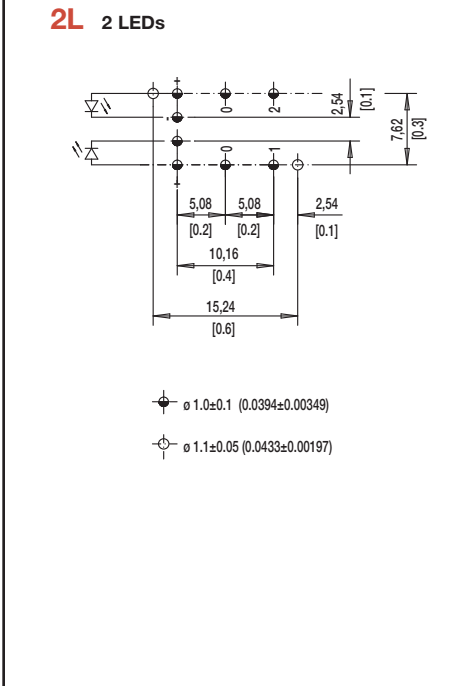
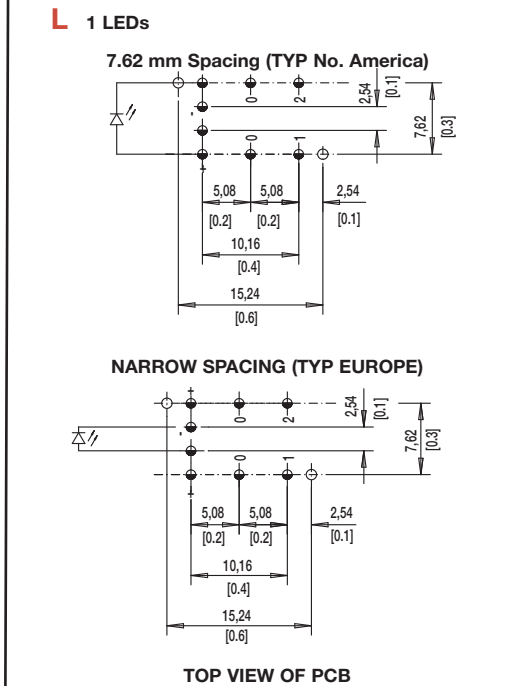
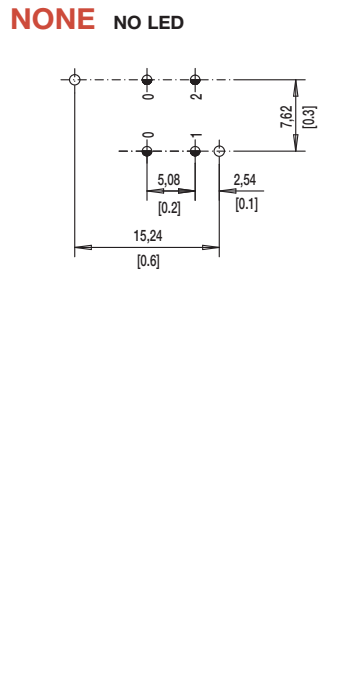
First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



DIGITAST Microminiature SPDT, Key Switches

LED



BUTTON COLOR

BK BLACK

GY GRAY

Other button colors available by request [red (RD), green (GN), white (WH), yellow (YE), blue (BU), orange (OG)].

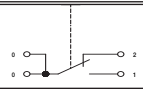
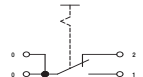
LED COLOR

OPTION CODE	COLOR
NONE	Models without LED
RD	Red
GN	Green
YE	Yellow

CONTACT MATERIAL

OPTION CODE	MATERIAL
AU	Gold

FUNCTION

OPTION CODE	COLOR	SCHEMATIC
OA	Momentary	
EE	Push-Push	



Dimensions are shown: mm
Specifications and dimensions subject to change



ED & EDM Domes



Features

- Short travel
- Good tactile feedback
- Self cleaning
- 3 actuation forces
- RoHS

Typical Applications

- Aircraft
- Instrument
- Panels
- Radio equipment

Specification

ED: Disc element
 EDM: Disc element and double dome
 FUNCTION: Momentary action
 CONTACT TYPE: Normally open - SPST
 TERMINALS: Through hole PCB terminations or Tabs
 OPERATING LIFE: 1,000,000

Electrical

	Silver	Gold
MAXIMUM POWER:	1.0 VA	0.2 VA
MAXIMUM VOLTAGE:	100 VDC	100 VDC
MINIMUM VOLTAGE:	20m VDC	20m VDC
MIN/MAX CURRENT:	1.0 mA - 100 mA	50µA - 50 mA
DIELECTRIC STRENGTH:	≥ 250 Vrms	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE:	Initial measurement: ≥ 1 GΩ	
(between terminals)	After damp heat: ≥ 10 MΩ	
BOUNCE TIME:	≤ 3 ms	

Packaging

Trays 50 pieces.

Mechanical

Environmental

	Silver	Gold
OPERATING TEMPERATURE:	-25°C to 70°C	-55°C to 85°C

Type	Operating force Newtons (grams)	Tactile Feeling (Δ%)	Return Force N	Travel (mm)
EDSAC LFS	2.4 (240) ± 25%	≥ 30%	≥ 0.4 N	0.3mm ± 0.15
EDSSC LFS	2.4 (240) ± 25%	≥ 30%	≥ 0.4 N	0.3mm ± 0.15
EDM450SAC LFS	4.5 (450) ± 25%	≥ 25%	≥ 1.0 N	0.5mm ± 0.25
EDM650SSC LFS	6.5 (650) ± 25%	≥ 25%	≥ 1.6 N	0.6mm ± 0.25

SIMULTANEITY: ≤ 0.05 mm

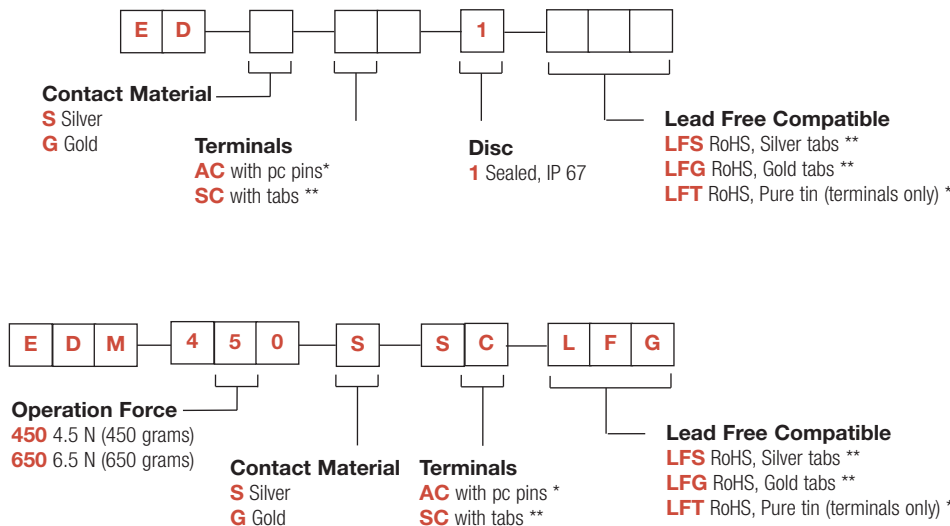


D

Key Switches

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



Note

* AC terminals only available with LFT

** SC terminals only available with LFS or LFG

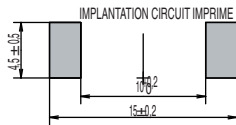
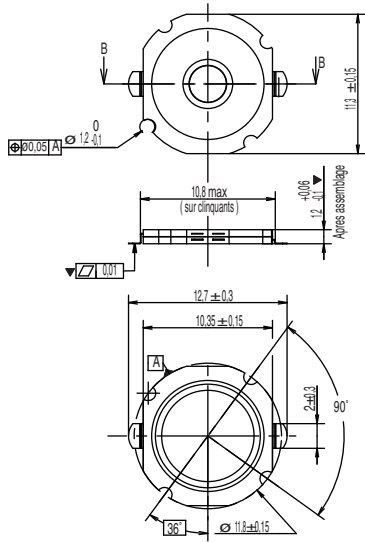


Dimensions are shown: mm

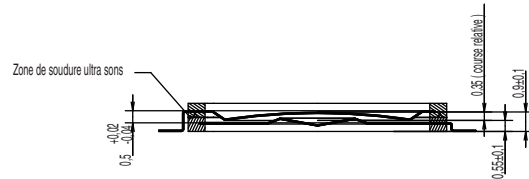
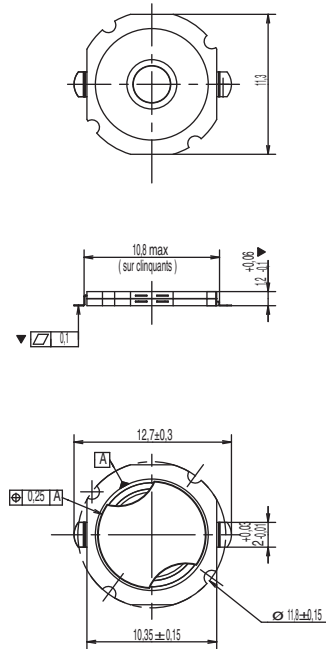
Specifications and dimensions subject to change



ED



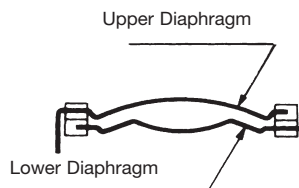
EDM



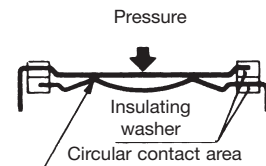
Switch Action Principal

The disc contact is essentially made of two separate conductive dome diaphragms separated by an insulated material.

The upper diaphragm is shaped so that under pressure it collapses suddenly and establishes contact with the lower diaphragm.



Switch in resting position

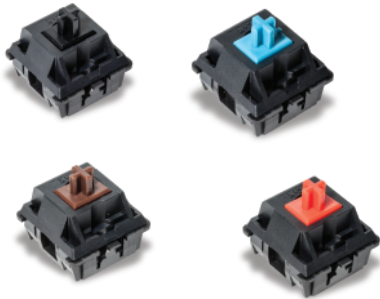


Switch in active position



Dimensions are shown: mm
Specifications and dimensions subject to change

KBD Keyboard Switches



Features

- Long operating life
- High reliability
- Excellent ergonomics
- RoHS compliant

Typical Applications

- Gaming keyboard
- Professional keyboard
- Industrial keyboard
- Workstation keyboard

Specifications

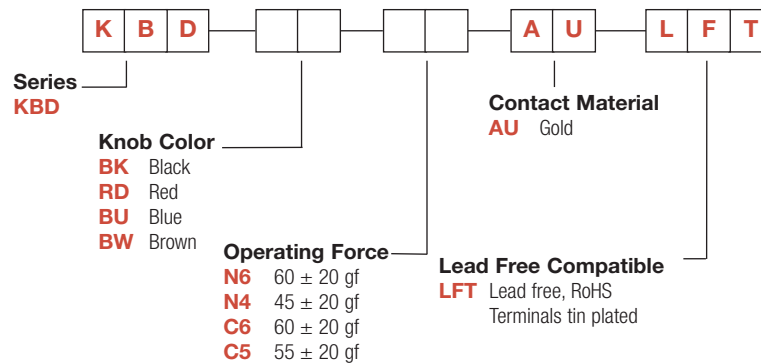
CONTACT ARRANGEMENT: SPST
 CONTACT RATING: 10mA @ 12 VDC
 INITIAL CONTACT RESISTANCE: 200 m Ω max. (25m Ω typically)
 INSULATION RESISTANCE: 100M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 250 VAC (50-60 Hz) 60 sec.
 ELECTRICAL LIFE: 50,000,000 cycles
 PRE-TRAVEL: 1.5 ~ 2 mm
 OVERTRAVEL: 4 mm
 OPERATING TEMPERATURE: -10°C to +70°C

Materials

COVER: Nylon (UL94V-0)
 HOUSING: Nylon (UL94V-0)
 KNOB: POM (UL94HB)
 TERMINALS: Copper alloy, gold plated in contact area,
 Tin plated in soldering area
 SPRING: Stainless steel

How To Order

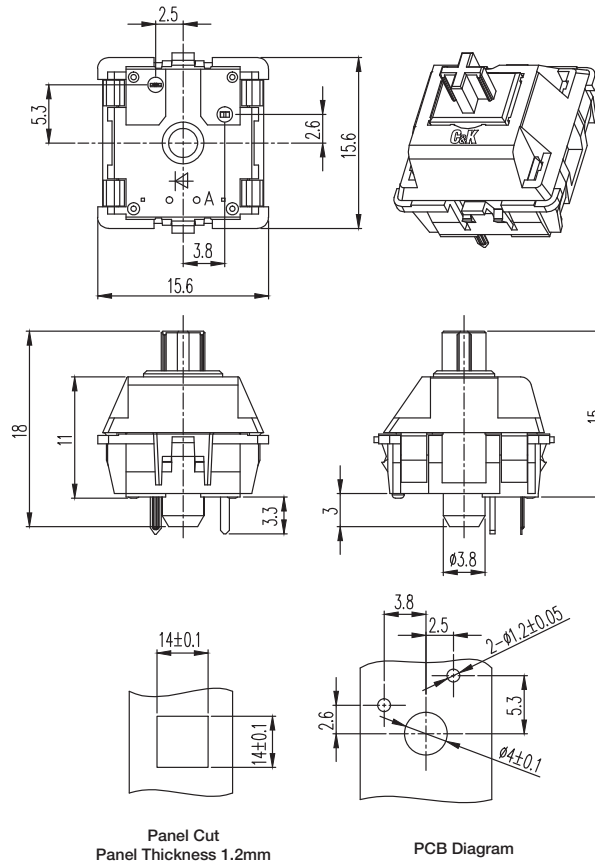
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D

Key Switches

KBD Keyboard Switches



PART NUMBER	FEELING	KNOB COLOR	OPERATING FORCE	OPERATING LIFE
KBDBKN6AULFT	Linear actuation	BLACK	60±20gf	50,000,000
KBDRDN4AULFT	Linear actuation	RED	45±20gf	50,000,000
KBDBUC6AULFT	Click pressure point	BLUE	60±20gf	50,000,000
KBDBWC5AULFT	Click pressure point	BROWN	55±20gf	50,000,000



Key Switches

Detect Switches

Product Selection Guide







Detect						
Series	HDT	DS	HDS	HDP	SDP	SDS
Travel to Make (mm)	0,3	See datasheet	0,17	0,24	29,2°	0,35
Overtravel (mm)	0,75	See datasheet	0,5	1,66	39,1°	1,65
Total Travel (mm)	1,05	See datasheet	1,07	1,9	68,3°	2,0
Actuator Length (mm)	1,4	See datasheet	1,17	2,15	1,85	2,5
Life Expectancy	100,000 cycles	20,000; 50,000; 100,000 cycles	100,000 cycles	100,000 cycles	50,000 cycles	50,000 cycles
Contact Type	SPST N.O.	SPST SPDT	SPST N.O.	SPST N.O.	SPDT	SPST N.O. SPST N.C.
Max. Voltage (V)	5	5 V; 16 V 30 V	5	5	5	12
Max. Switching Current (mA)	1 mA	1 mA; 5 mA 100 mA	1 mA	1 mA	1 mA	100 mA
Sealing	No	No	No	No	No	No
Mounting	Surface mount	Thru-hole Solder lug	Surface mount	Surface mount	Surface Mount	Surface mount
Page number	E-4	E-7	E-12	E-14	E-16	E-17

Detect						
Series	DDS	MDS	KDS	KM	MPS	ZMA
Travel to Make (mm)	0,45	2,5 max.	1,25 max.	4,06	See datasheet	1,3 max.
Overtravel (mm)	1,95	0,15 min.	8,9	1,78	See datasheet	0,2 min.
Total Travel (mm)	2,4	2,9	10,16	5,84	See datasheet	1,5
Actuator Length (mm)	2,6	R 8,4	10,16	10,11	N/A	
Life Expectancy	50,000 cycles	100,000 cycles	10,000 cycles	10,000 cycles	10,000,000 cycles	300,000 cycles
Contact Type	SPST N.O.	SPDT	SPST N.O. SPST N.C.	SPDT	SPST N.O.	SPDT
Max. Voltage (V)	30	30	20	125 V AC	30	125 V
Max. Switching Current (mA)	100 mA	300 mA	.4 VA	250 mA	300 mA	3 Amps
Sealing	No	No	No	Flux tight	Yes	No
Mounting	Thru-hole	Thru-hole & Surface Mount	Snap-in panel	Thru-hole	Wire lead	Thru-hole
Page Number	E-18	E-20	E-26	E-27	E-30	E-32



Detect

Detect Switches Product Selection Guide

Detect						
Series	KSU	KSR2D	KSM	KSC4D	KSJ	RB
Travel to Make (mm)	0,5	0,3	0,3	0,6	0,3	See datasheet
Overtravel (mm)	1,0	N/A	1,15	N/A	0,75	N/A
Total Travel (mm)	1,5	0,3	1,72	0,6	1,05	N/A
Actuator Length (mm)	1,5	0,8	1,8	2,6	1,4	N/A
Life Expectancy	100,000 cycles	100,000 cycles	50,000 cycles	500,000 and 2,000,000 cycles	100,000 cycles	20,000; 100,000 cycles
Contact Type	SPST N.O.	SPST N.O.	SPST N.C.	SPST N.O.	SPST N.O.	SPST SPDT
Max. Voltage (V)	32	32	32	32	5	5 V; 24 V
Max. Switching Current (mA)	50 mA	10 mA	50 mA	50 mA	1 mA	1 mA; 25 mA
Sealing	Dust and water drop proof	Dust and flux tight	Flux tight	IP67	IP60	No
Mounting	Surface mount	Surface mount	Surface mount	Surface mount	Surface mount	Thru-hole
Page number	E-36	E-38	E-40	E-42	E-44	E-46



Detect

HDT Series Micro Mini Surface Mount Detect Switches



Features/Benefits

- Low profile package
- Design allows top or side actuation
- Low actuation force, 35 grams max.
- Pick and place compatible, available in tape & reel packaging
- RoHS compliant and compatible
- Halogen free

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC
 MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.
 CONTACT RESISTANCE: 500 m Ω max. initial.
 INSULATION RESISTANCE: 100 M Ω min. between adjacent contacts.
 OPERATING TEMPERATURE: -40°C to + 85°C
 STORAGE TEMPERATURE: -40°C to + 85°C
 PACKAGING: Tape & reel

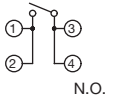
Materials

BASE: PA 46 (UL94V-0)
 COVER: PA 46 (UL94V-0)
 ACTUATOR: PA 46 (UL94V-0)
 MOVABLE BLADE: Stainless Steel, Ag over Ni plating.
 TERMINALS: Phosphor Bronze, Ag over Ni plating.
 SOLDERABILITY: Lead free compatible - No clean.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

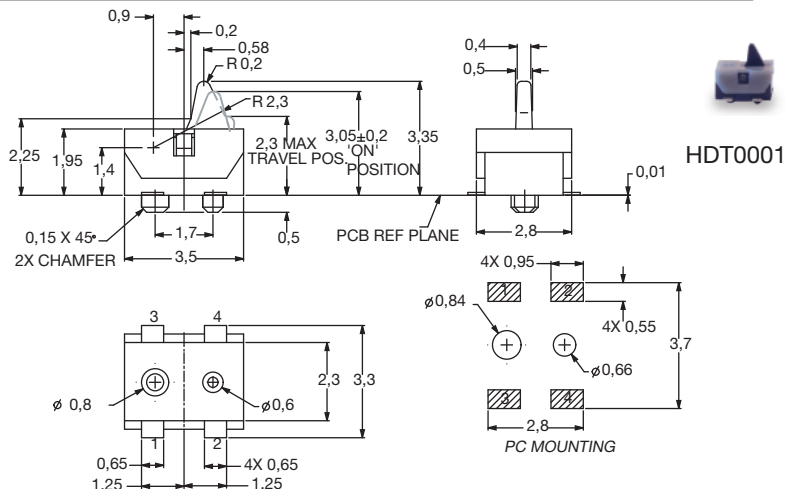
Complete part numbers for HDT Series are shown below.

PART NUMBER	PACKAGING	SCHEMATIC
HDT0001	TAPE & REEL 2,450 per reel	

NOTE: Available with no locating posts by adding "NP" (HDT0001NP) to Part Number.

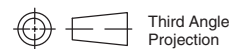
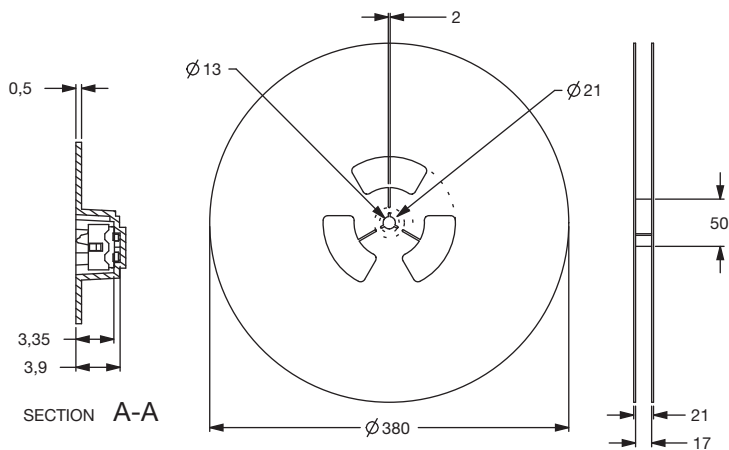
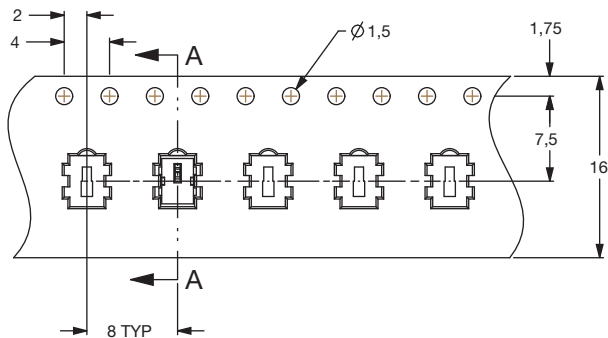
TRAVEL:

Pre-travel: .30 mm
 Overtravel: .75 mm
 Total: 1.05 mm



TAPE & REEL

HDT0001



Dimensions are shown: mm
 Specifications and dimensions subject to change



Detect

HDT Series Micro Mini Surface Mount Detect Switches

HDT0004

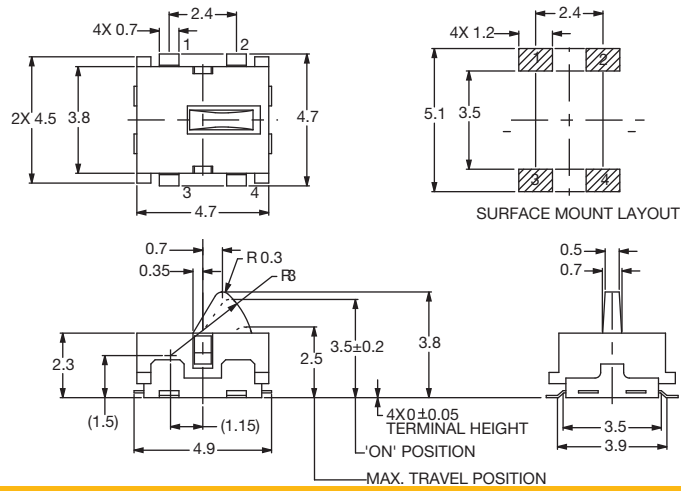


HDT0004

PART NUMBER	PACKAGING	SCHEMATIC
HDT0004	TAPE & REEL 2,800 per reel	

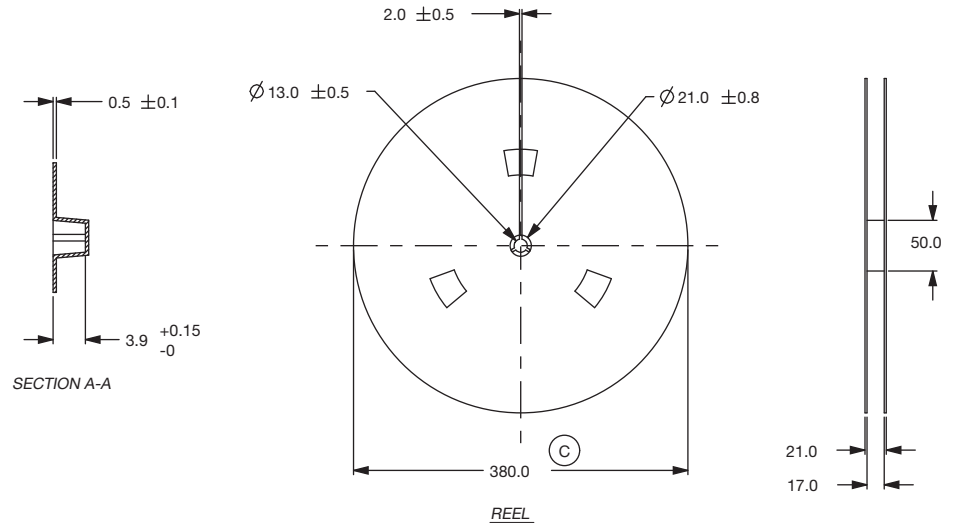
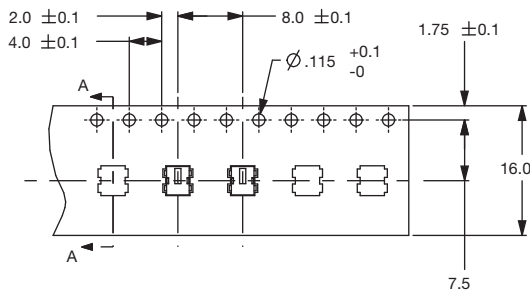
TRAVEL:

Pre-travel: .3 mm
Overtravel: 1.0 mm
Total: 1.3 mm



TAPE & REEL

HDT0004



HDT0104

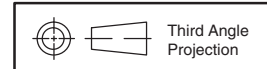
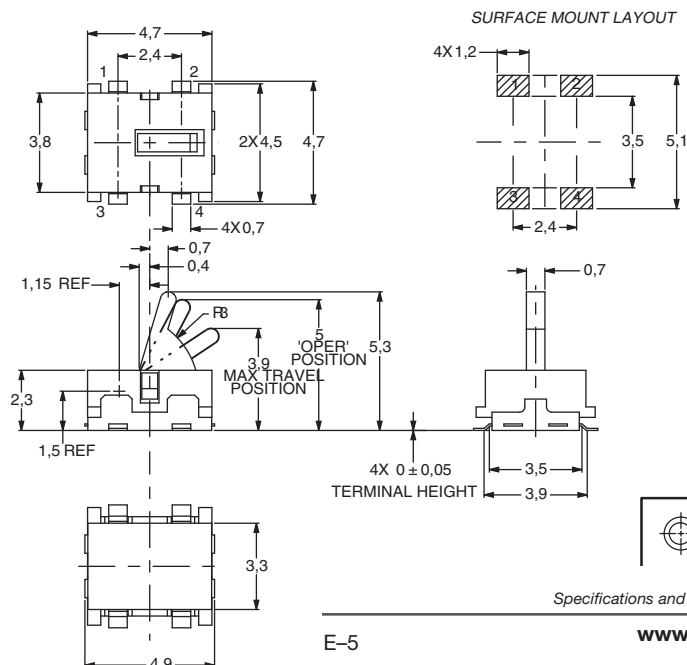


HDT0104

PART NUMBER	PACKAGING	SCHEMATIC
HDT0104	TAPE & REEL 2,500 per reel	

TRAVEL:

Pre-travel: .3 mm
Overtravel: 1.1 mm
Total: 1.4 mm



Dimensions are shown: mm
Specifications and dimensions subject to change

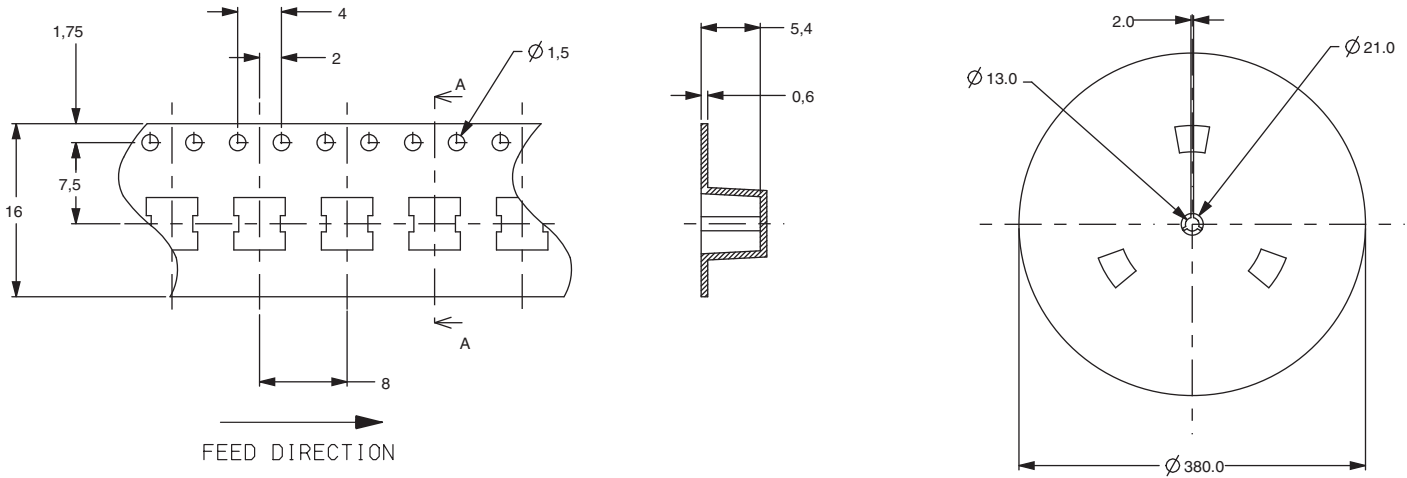


Detect

HDT Series Micro Mini Surface Mount Detect Switches

TAPE & REEL

HDT0104



HDT0204

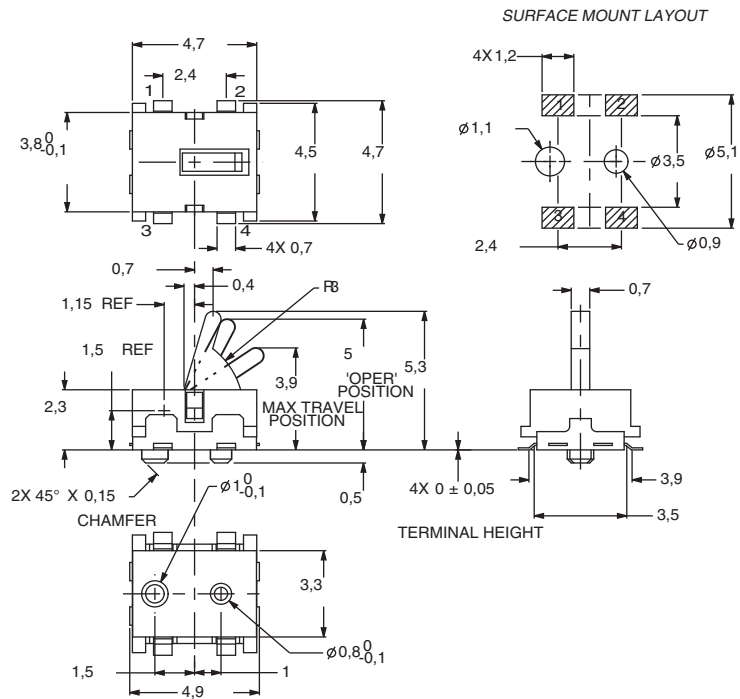


HDT0204

PART NUMBER	PACKAGING	SCHEMATIC
HDT0204	TAPE & REEL 1,400 per reel	

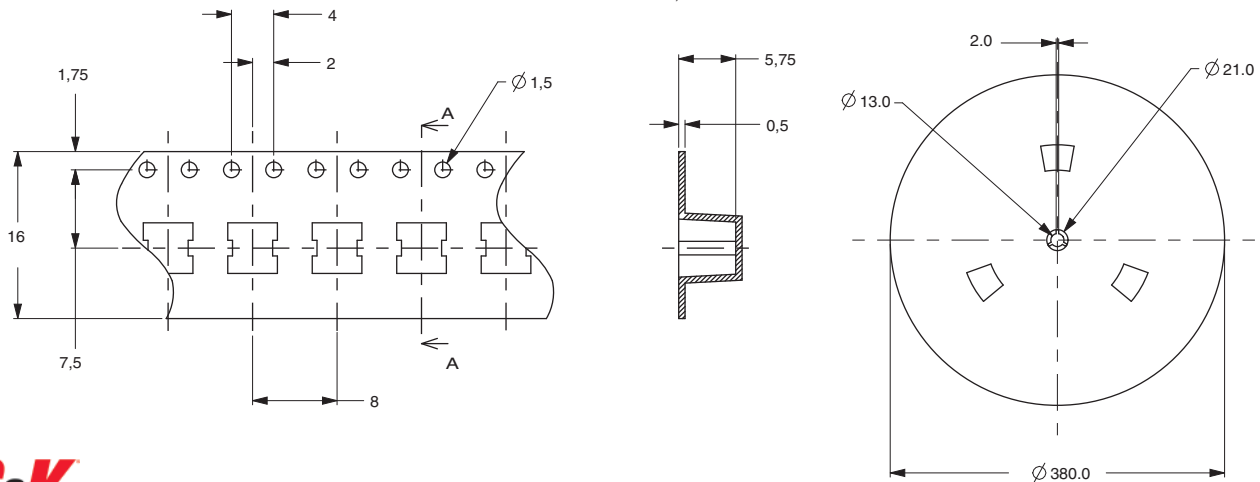
TRAVEL:

Pre-travel: .3 mm
Overtravel: 1.1 mm
Total: 1.4 mm



D

Detect



DS Series Detect Switch

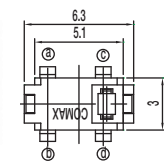


Features/Benefits

- Compact design
- Low actuation force
- Detect mechanical movement
- Left and right options
- Right angle options

Typical Applications

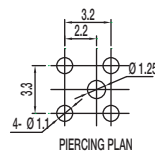
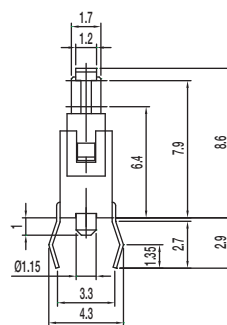
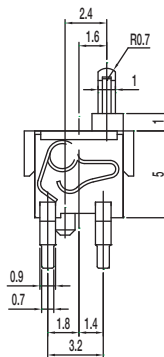
- Computer peripherals
- Office equipment
- Consumer electronics
- Appliances
- Audio and visual equipment



PART NUMBER	PACKAGING	SCHEMATIC
DS-02005	1,000 pieces	1P-1T

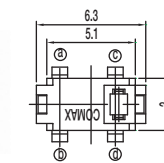
Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 50 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.6 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.



Materials

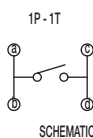
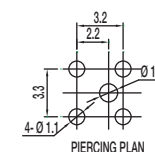
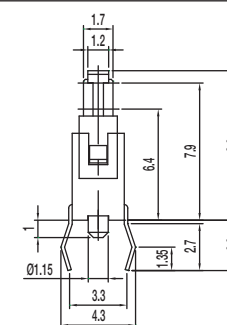
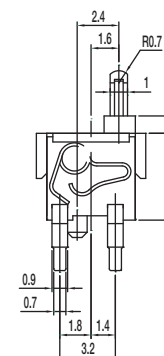
KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



PART NUMBER	PACKAGING	SCHEMATIC
DS-02005 (30)	1,000 pieces	1P-1T

Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 30 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.2 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.



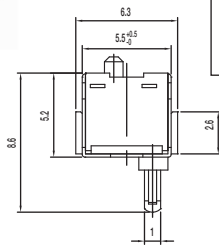
Materials

KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



Detect

DS Series Detect Switch



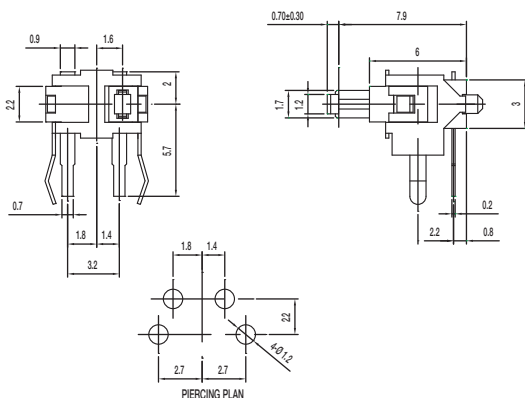
PART NUMBER	PACKAGING	SCHEMATIC
DS-02005-A	1,000 pieces	 1P-1T N.O.

Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 50 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.6 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



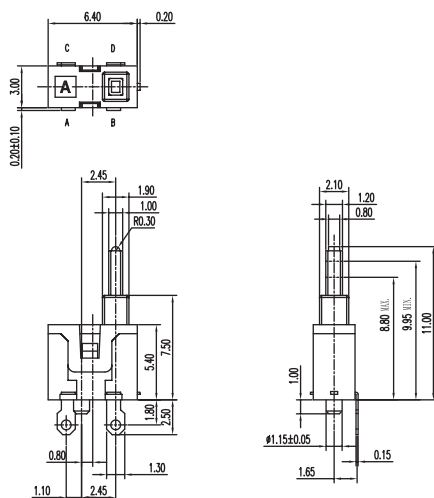
PART NUMBER	PACKAGING	SCHEMATIC
DS-21805	2,500 pieces	 C D A B N.O.

Specifications

CONTACT ARRANGEMENT: SPDT
 CONTACT RATING: 5mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 36 gf
 TOTAL TRAVEL: 2.20 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM
 COVER: PA46
 SPRING: Silver plated
 HOUSING: PPS
 TERMINAL: Silver plated



Detect

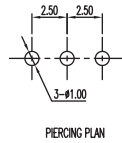
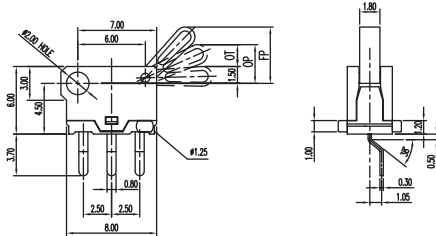
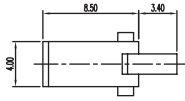


Dimensions are shown: mm
 Specifications and dimensions subject to change

DS Series Detect Switch



PART NUMBER	PACKAGING	SCHEMATIC
DS-080	1,000 pieces	



Specifications

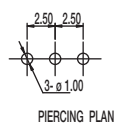
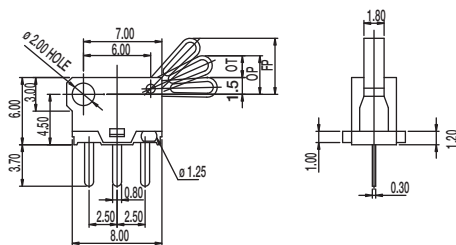
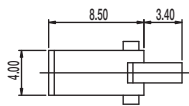
CONTACT ARRANGEMENT: SPDT
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 20,000 cycles
 OPERATING FORCE: 30 ± 20 gf
 OVER TRAVEL: 2.0 ± 0.40 mm
 INITIAL CONTACT RESISTANCE: 200 m Ω max.
 INSULATION RESISTANCE: 10 M Ω min. @ 250 VDC 60 sec.
 DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM
 COVER: PA46
 SLIDER: PBT
 HOUSING: PA46
 TERMINAL: Silver plated



PART NUMBER	PACKAGING	SCHEMATIC
DS-080-C PA	1,000 pieces	



Specifications

CONTACT ARRANGEMENT: SPDT
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 20,000 cycles
 OPERATING FORCE: 30 ± 20 gf
 OVER TRAVEL: 2.0 ± 0.40 mm
 INITIAL CONTACT RESISTANCE: 200 m Ω max.
 INSULATION RESISTANCE: 10 M Ω min. @ 250 VDC 60 sec.
 DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM
 COVER: PA46
 SLIDER: PBT
 HOUSING: PA46
 TERMINAL: Silver plated

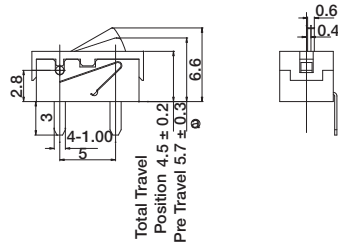
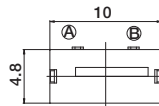


Detect

DS Series Detect Switch



PART NUMBER	PACKAGING	SCHEMATIC
DS-09005-02 BK	500 pieces	



Specifications

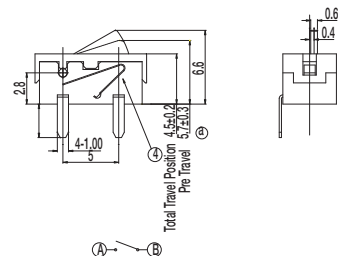
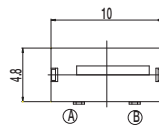
CONTACT ARRANGEMENT: SPST
 CONTACT RATING: 1mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 50 gf max.
 TOTAL TRAVEL: 4.5±0.2 mm
 INITIAL CONTACT RESISTANCE: 500 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500 VDC 60 sec.
 DIELECTRIC STRENGTH: 500 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

LEVER: POM
 COVER: PA
 HOUSING: PA
 TERMINAL: Silver plated



PART NUMBER	PACKAGING	SCHEMATIC
DS-09005-02 RP	500 pieces	



Specifications

CONTACT ARRANGEMENT: SPST
 CONTACT RATING: 1mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 50 gf max.
 TOTAL TRAVEL: 4.5±0.2 mm
 INITIAL CONTACT RESISTANCE: 500 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500 VDC 60 sec.
 DIELECTRIC STRENGTH: 500 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

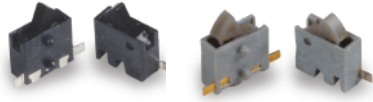
Materials

LEVER: POM
 COVER: PA
 HOUSING: PA
 TERMINAL: Silver plated



Detect

HDS Series Micro Mini Side Actuated Surface Mount Detect Switches



Features/Benefits

- Low profile package sits just 1.4 mm off PCB
- Design allows top or side actuation
- Right and left options available
- Low actuation force, 30 grams max.
- Pick and place compatible, available in tape & reel packaging
- RoHS compliant and compatible

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- Mobile Communications
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC
 MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.
 CONTACT RESISTANCE: 1 Ω max. initial.
 INSULATION RESISTANCE: 100 M Ω min. between adjacent contacts.
 OPERATING TEMPERATURE: -40°C to + 80°C
 STORAGE TEMPERATURE: -40°C to + 80°C
 PACKAGING: tape & reel; 5,000 per reel.
 TRAVEL:
 Pre-travel: .17 mm min.
 Overtravel: .5 mm min.
 Total: 1.07 mm

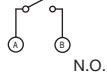
Materials

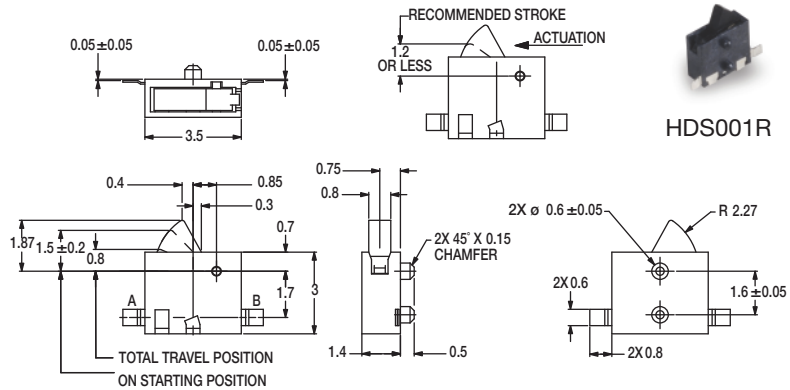
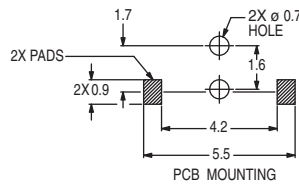
BASE: LCP HDS001L: Gray HDS001R: Black
 COVER: PA 46 (UL94V-0)
 ACTUATOR: PA 46 (UL94V-0) HDS001L: Gray HDS001R: Black
 MOVABLE BLADE: Stainless Steel, Ag over Ni plating.
 TERMINALS: Phosphor Bronze, Ag plating.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch


Complete part numbers for HDS Series are shown below.

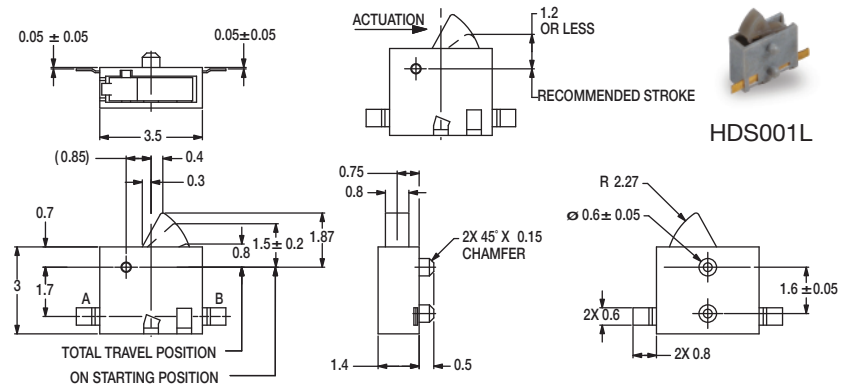
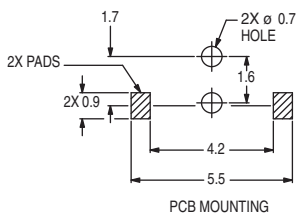
PART NUMBER	PACKAGING	SCHEMATIC
HDS001R	TAPE & REEL	



HDS001R

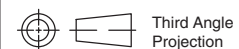
HDS001L

PART NUMBER	PACKAGING	SCHEMATIC
HDS001L	TAPE & REEL	



E

Detect

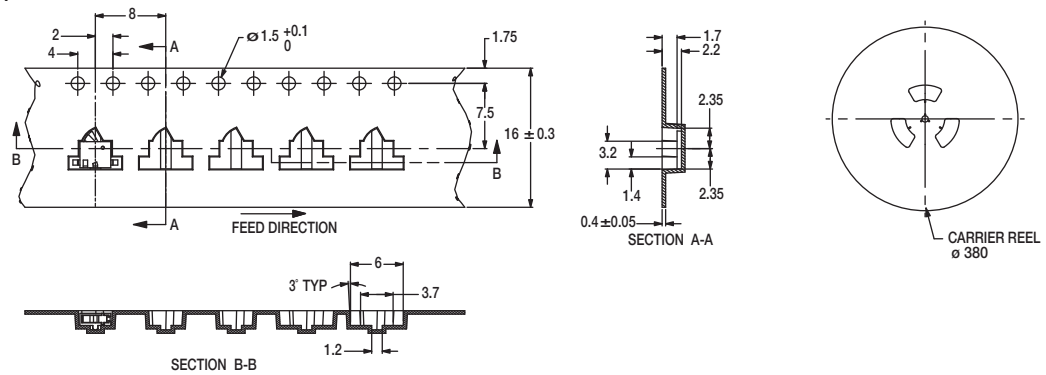


Dimensions are shown: mm
 Specifications and dimensions subject to change

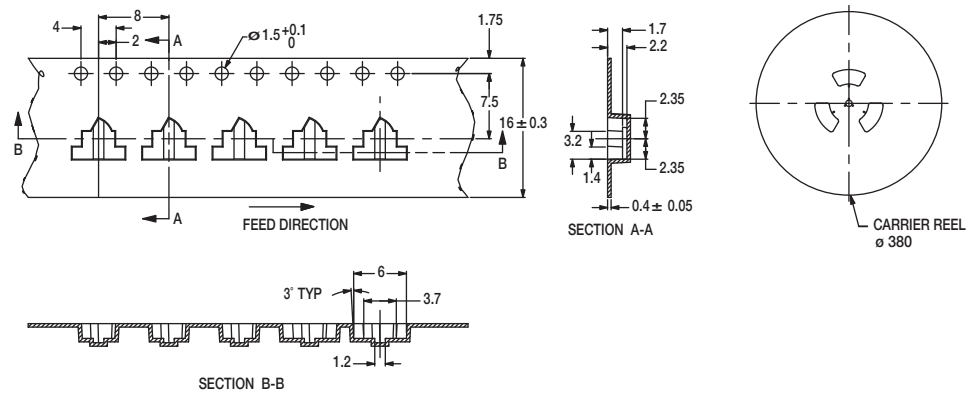
HDS Series Micro Mini Side Actuated Surface Mount Detect Switches

TAPE & REEL

HDS001R



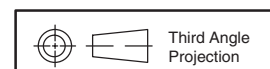
HDS001L



NOTE: Quantity per reel: 5,000 pieces



Detect



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com

HDP Series Micro Mini Side Actuated Surface Mount Detect Switches



Features/Benefits

- Low profile
- Side actuation
- Right and left options available
- Low actuation force
- Lead free and halogen free

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- Mobile Communications
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC
 MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.
 CONTACT RESISTANCE: < 500 m Ω initial.
 INSULATION RESISTANCE: > 100 M Ω
 OPERATING TEMPERATURE: -20°C to + 70°C
 STORAGE TEMPERATURE: -30°C to + 80°C
 PACKAGING: tape & reel; 2,500 per reel.
 TRAVEL:
 Pre-travel 0.15 mm min.
 "ON" starting position 2.96 +/- 0.25 mm
 Total: 1.3 mm
 Mechanical: 1.9 mm

Materials

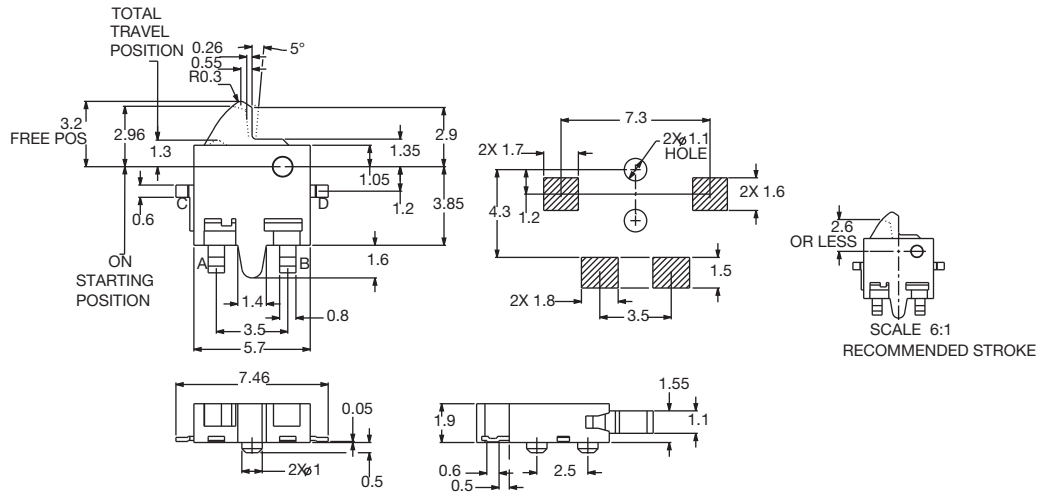
BASE: PA 46 (UL94HB) - halogen free
 ACTUATOR: PA 46 (UL94HB) - halogen free
 HDP001R - black body/actuator
 HDP001L - grey body/actuator
 MOVABLE CONTACTS: Stainless Steel, Silver over nickel plate.
 FIXED CONTACTS/TERMINALS: Phosphor Bronze, Silver plate.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

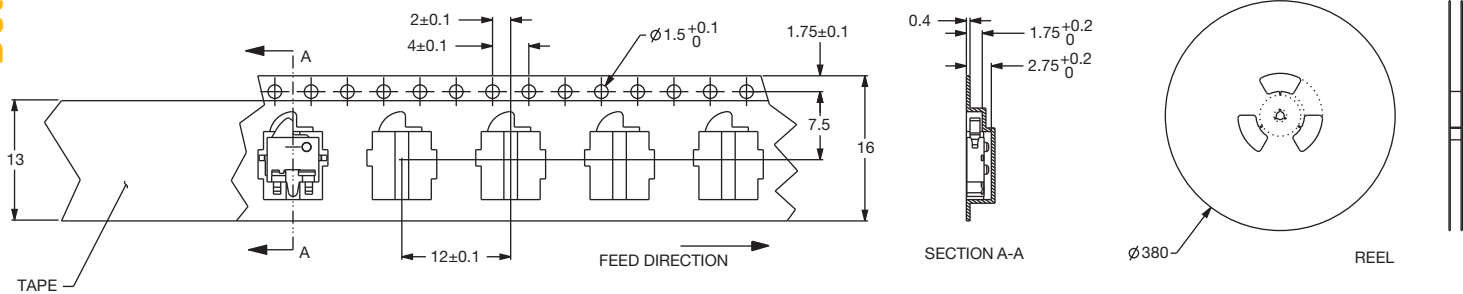
Build-A-Switch

Complete part numbers for HDP Series are shown below.

PART NUMBER	PACKAGING	SCHEMATIC
HDP001R	TAPE & REEL	
Black body/ actuator		



Detect

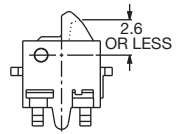
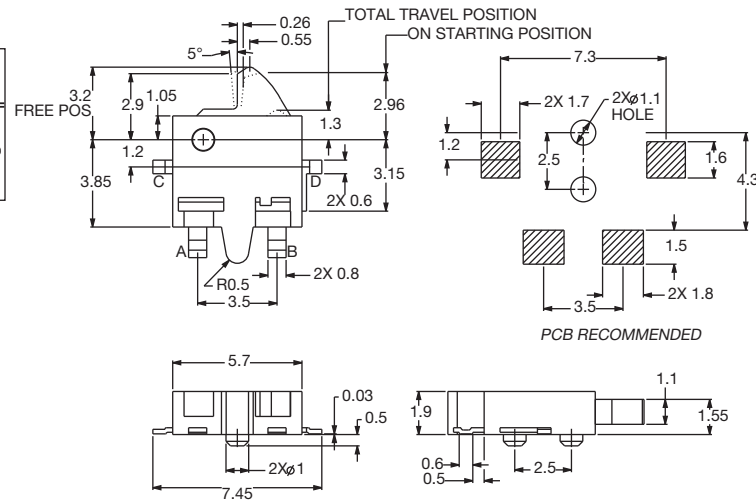


Dimensions are shown: mm
 Specifications and dimensions subject to change

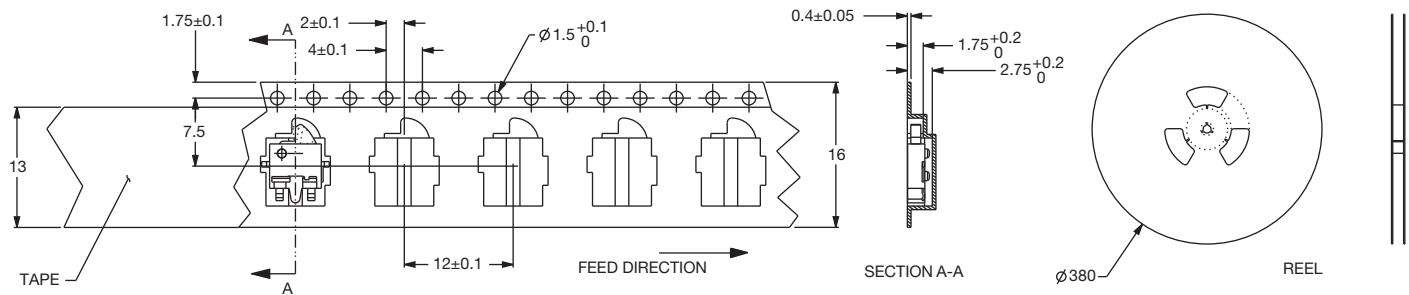
HDP Series Micro Mini Side Actuated Surface Mount Detect Switches



PART NUMBER	PACKAGING	SCHEMATIC
HDP001L	TAPE & REEL	
Grey body/ actuator		



SCALE 6:1
RECOMMENDED STROKE



SDP Series Micro Mini Pendulum SMT Detect Switch



Features/Benefits

- SMT process compatible
- Low profile
- Right or left side actuated
- Low actuation force
- Low halogen / halogen free

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 5 VDC 1mA (0.1mA to 100mA max)
 MECHANICAL AND ELECTRICAL LIFE: 50,000 cycles
 CONTACT RESISTANCE: 500 m Ω max. initial.
 INSULATION RESISTANCE: 100 M Ω (500VDC for 1 min.)
 OPERATING TEMPERATURE: -20°C to + 70°C
 STORAGE TEMPERATURE: -30°C to + 80°C
 PACKAGING: Tape & reel 4,550 pieces

Materials

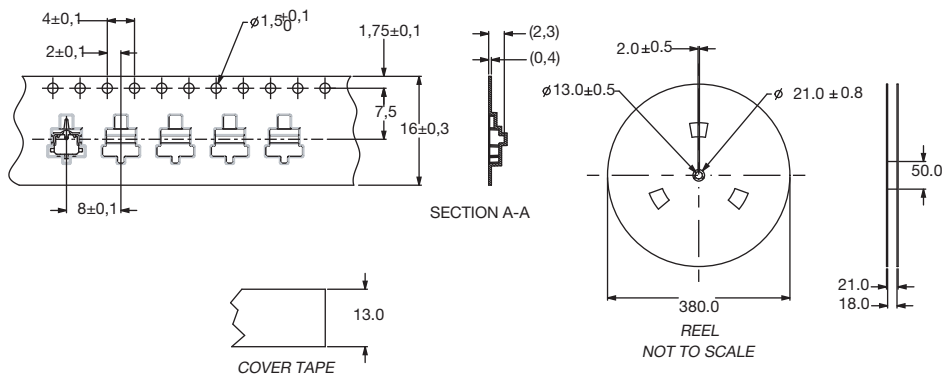
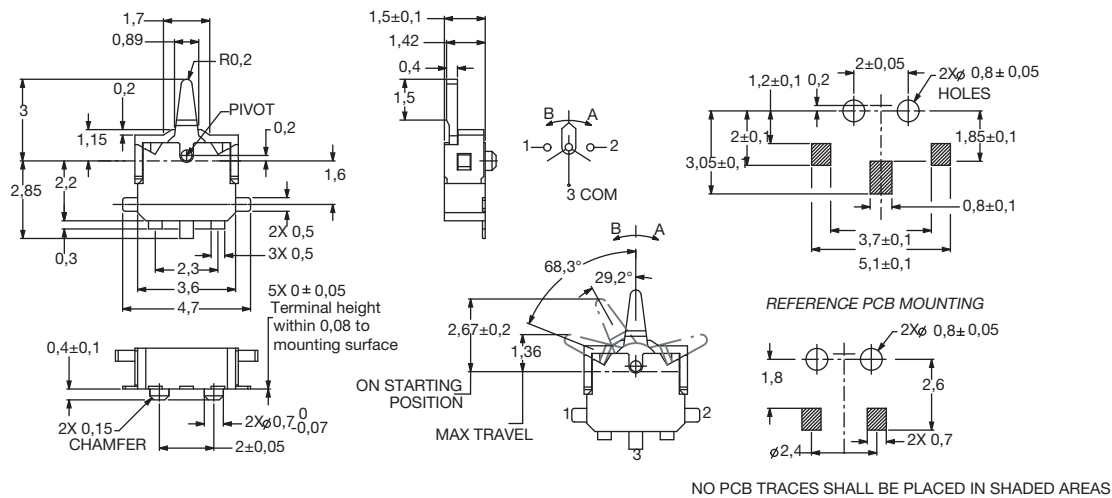
BASE: LCP (black)
 COVER: PA 46 (black)
 ACTUATOR: LCP (black)
 MOVABLE BLADE: Stainless Steel, Ag over Ni plating.
 TERMINALS: Phosphor Bronze, Ag over Ni plating.
 SOLDERABILITY: Lead free compatible - No clean.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

Complete part numbers for SDP Series are shown below.

SDP002



Detect



Dimensions are shown: mm
 Specifications and dimensions subject to change

SDS Series Side Actuated Detect Switches

Features/Benefits

- Low profile package sits just 2mm off PCB
- 2mm overtravel ideal for detector applications
- Low actuation force (75 grams max.)
- Pick & place compatible, available in tape & reel packaging
- RoHS compliant and compatible

Typical Applications

- Medical devices
- Consumer electronic devices
- PCB lock cam detect
- Smart card detect
- ATCA and MicroTCA



Specifications

CONTACT RATING: 100 mA @ 12 VDC.
 MECHANICAL & ELECTRICAL LIFE: 50,000 cycles.
 CONTACT RESISTANCE: 100 m Ω max. initial.
 INSULATION RESISTANCE: 10 M Ω min. @ 100 VDC.
 OPERATING TEMPERATURE: -40°C to +85°C.
 SOLDERABILITY: IR compatible, no wash. 260°C max.
 PACKAGING: Bulk or tape & reel (3000 per reel).

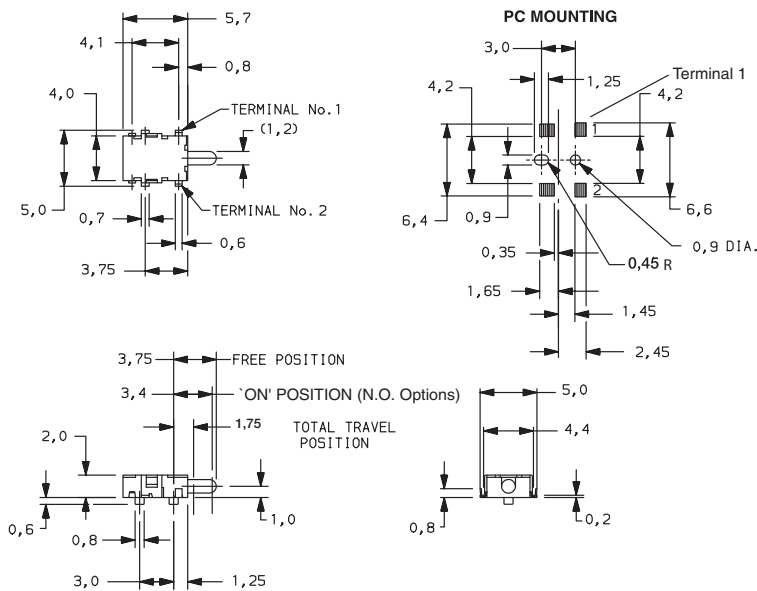
Materials

BASE: Glass filled LCP (UL 94V-0).
 ACTUATOR: Glass Filled LCP (UL94V-0).
 SURFACE PLATE: Nickel silver w/silver plate.
 MOVABLE CONTACT: Phosphor bronze, see table for plating.
 TERMINALS: Phosphor bronze, see table for plating.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How to Order

Complete part numbers for SDS Series Switches are shown below.

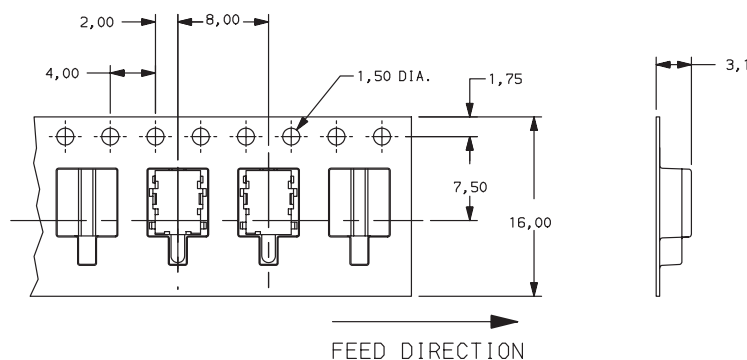


PART NUMBER	HOUSING COLOR	PACKAGING	SCHEMATIC	Contact Plating	Terminal Plating
SDS001	Black	Bulk		Silver Clad	Silver Plate
SDS001R		Tape & Reel			
SDS002	White	Bulk		Gold Flash	Gold Flash
SDS002R		Tape & Reel			
SDS004	Black	Bulk		Gold Flash	Gold Flash
SDS004R		Tape & Reel			
SDS005	White	Bulk		Gold Flash	Gold Flash
SDS005R		Tape & Reel			



SDS001
SPST

TAPE & REEL



Dimensions are shown: mm
 Specifications and dimensions subject to change



Detect

DDS Series Micro Mini Thru-hole Detect Switches



Features/Benefits

- Vertical or horizontal actuation
- 2mm overtravel—Ideal for detector applications
- Low actuations force (less than 40 grams)
- RoHS compliant and compatible

Typical Applications

- Detect the presence of a mechanical device
- Medical devices
- Consumer electronic devices

Specifications

CONTACT RATING: 0.1A @ 30 VDC.
 MECHANICAL & ELECTRICAL LIFE: 50,000 cycles.
 CONTACT RESISTANCE: 150 m Ω max. initial.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC.
 OPERATING TEMPERATURE: -20°C to +70°C.
 DIELECTRIC STRENGTH: 100 volts AC @ 60 Hz.
 PACKAGING: Bulk.

Materials

HOUSING: P.P.S.
 ACTUATOR: PA66
 MOVABLE CONTACT: Tin bronze, silver plated.

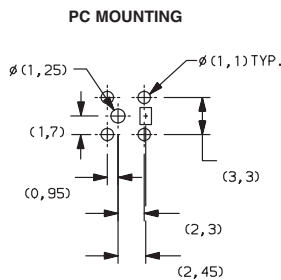
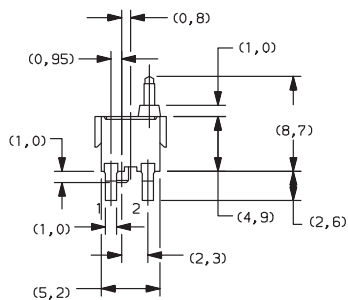
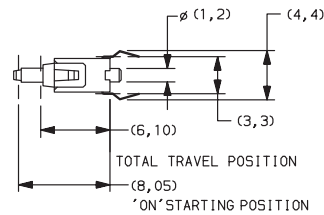
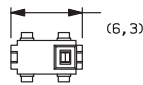
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Complete part numbers for DDS Series Switches are shown below.



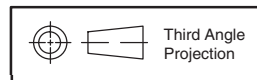
DDS001
SPST



PART NUMBER	DESCRIPTION	SCHEMATIC
DDS001	Vertical Actuator	 SPST N.O.




Detect

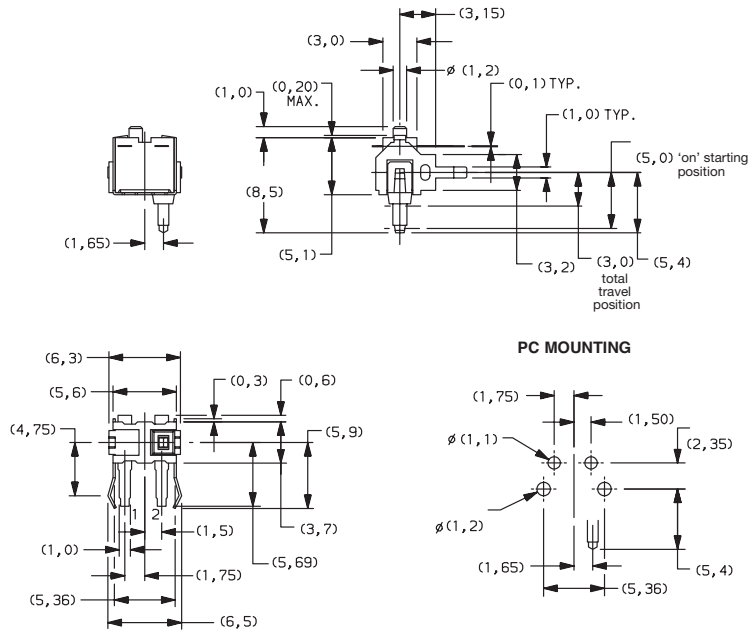


Dimensions are shown: mm
 Specifications and dimensions subject to change


DDS Series Micro Mini Thru-hole Detect Switches

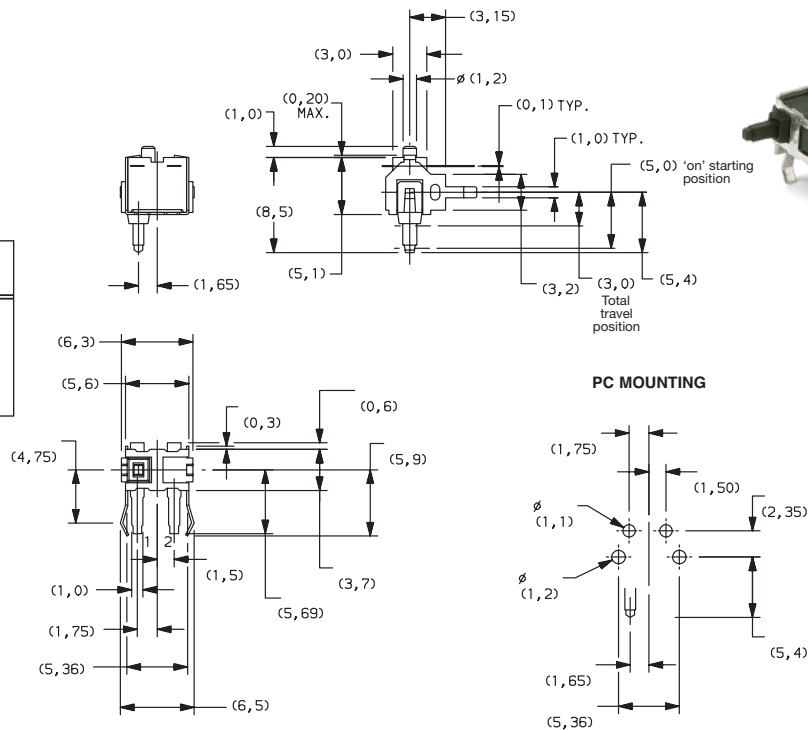


PART NUMBER	DESCRIPTION	SCHEMATIC
DDS002	Right angle, actuator right	 SPST N.O.

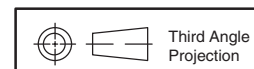


**DDS002
SPST**

PART NUMBER	DESCRIPTION	SCHEMATIC
DDS003	Right angle, actuator left	 SPST N.O.

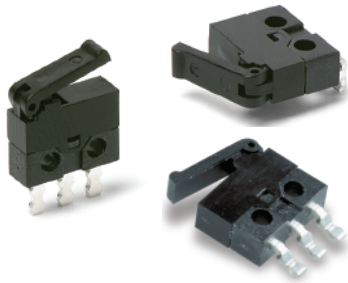


Detect



Third Angle Projection
 Dimensions are shown: mm
 Specifications and dimensions subject to change

MDS Series Micro Snap-acting Detect Switches



Features/Benefits

- Snap-acting tactile feel
- Small package size
- Available in vertical or right angle PCB mount
- RoHS compliant and compatible

Typical Applications

- Detect the presence of a mechanical device
- Medical devices
- Consumer electronic devices
- ATCA or MicroTCA devices

Specifications

CONTACT RATING: 300mA @ 30 VDC.
 MECHANICAL & ELECTRICAL LIFE: 30,000 operations.
 CONTACT RESISTANCE: 100 m Ω max.
 OPERATING TEMPERATURE: -25°C to +70°C.
 SOLDERABILITY: According to lead free solder profiles.
 PACKAGING: Available in bulk or tape and reel.
 OPERATING FORCE: 50 g Max.
 RELEASE FORCE: 3g Min.

Materials

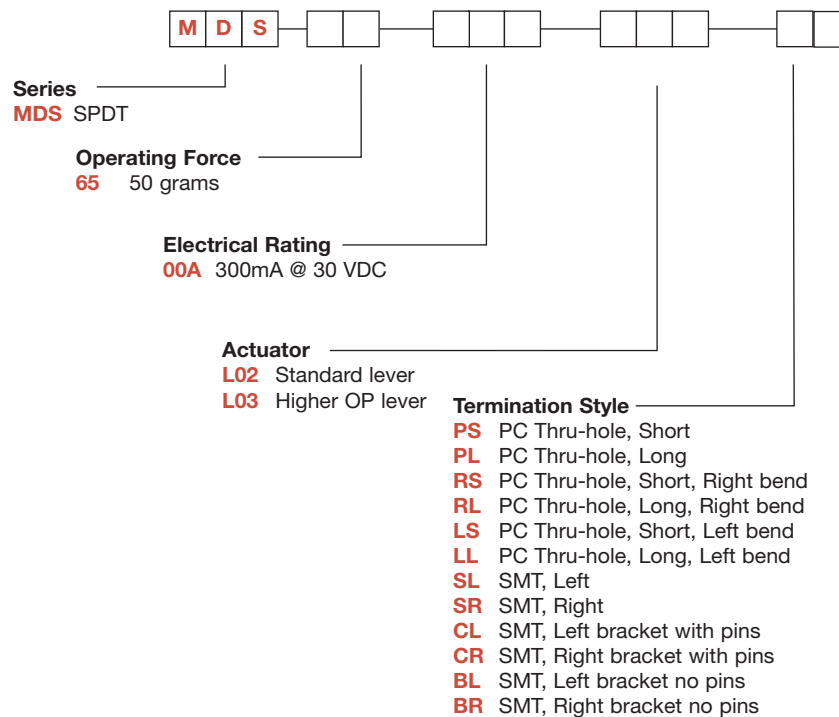
BASE: PA9T
 COVER & ACTUATOR: PA9T
 MOVABLE CONTACT: Copper alloy, silver plated.
 STATIONARY CONTACTS: Copper alloy, silver plated.
 TERMINALS: Copper alloy, silver plated.

NOTE: MDS series is RoHS compliant, and compatible. See technical data section of this catalog for RoHS compliant and compatible definitions and specifications.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

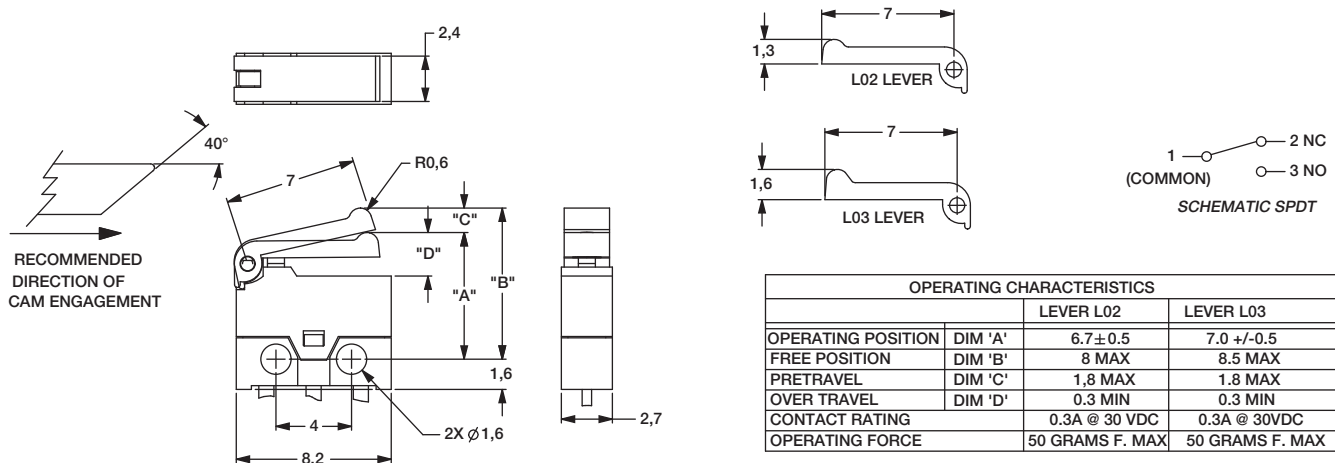
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages E-21 and E-25. For additional options not shown in catalog, consult Customer Service Center.



Detect

MDS Series Micro Snap-acting Detect Switches

SERIES **MDS**



OPERATING FORCE

OPTION CODE	OPERATING FORCE
65	50 grams max.

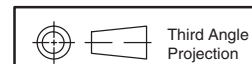
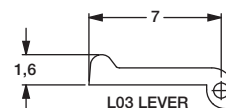
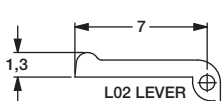
ELECTRICAL RATING

OPTION CODE	ELECTRICAL RATING
00A	300mA @ 30 V DC

ACTUATOR

L02 STANDARD LEVER

L03 HIGHER OP LEVER



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

C&K



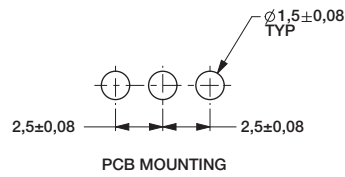
D

Detect

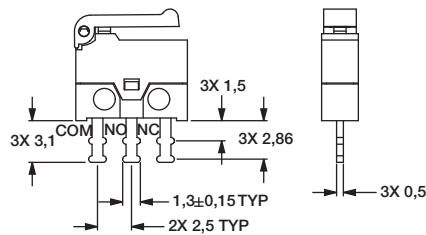
MDS Series Micro Snap-acting Detect Switches

TERMINATIONS

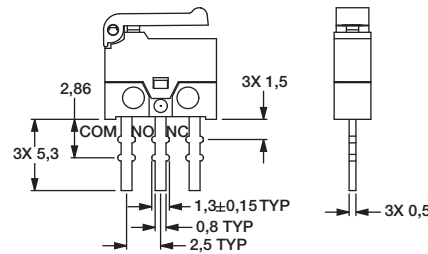
PCB Mounting Pattern



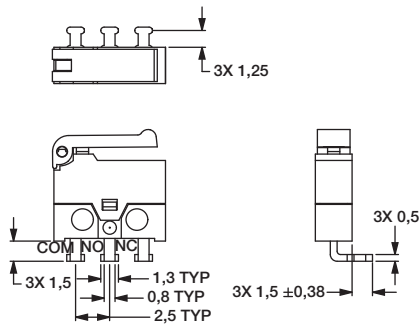
PS PC THRU-HOLE, SHORT STRAIGHT



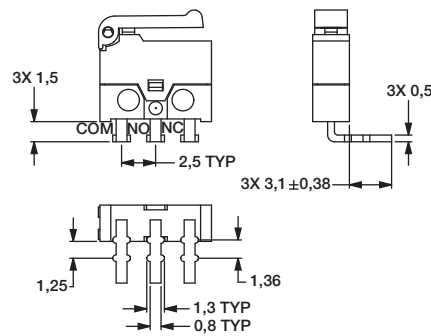
PL PC THRU-HOLE, LONG STRAIGHT



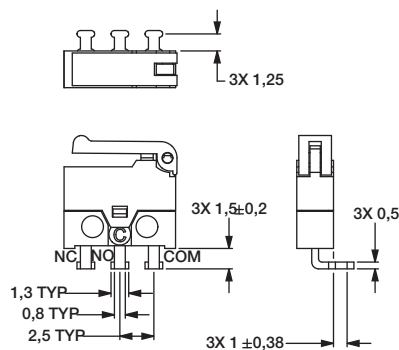
RS PC THRU-HOLE, SHORT RIGHT BEND



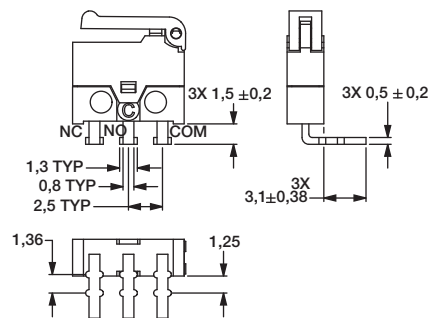
RL PC THRU-HOLE, LONG SHORT BEND



LS PC THRU-HOLE, SHORT LEFT BEND



LL PC THRU-HOLE, LONG LEFT BEND

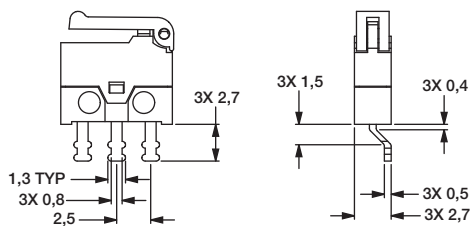


Detect

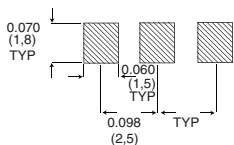
MDS Series Micro Snap-acting Detect Switches

TERMINATIONS

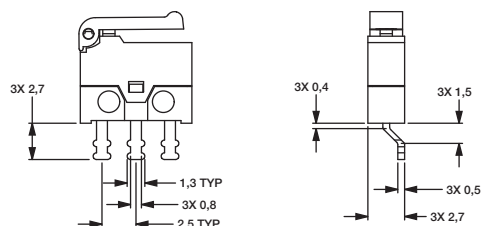
SL SMT, LEFT MOUNT



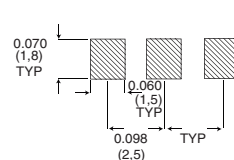
SMT Mounting Pattern



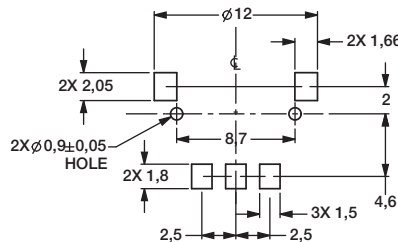
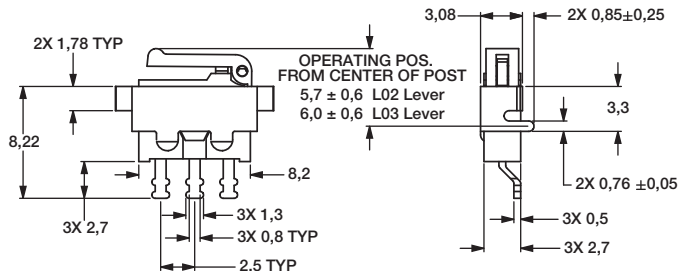
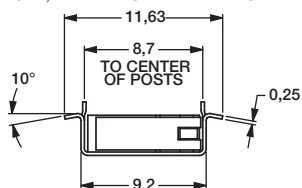
SR SMT, RIGHT MOUNT



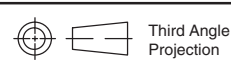
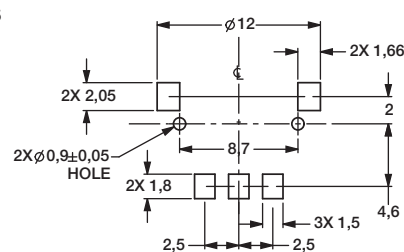
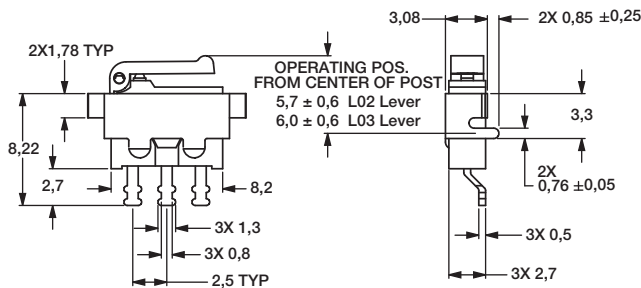
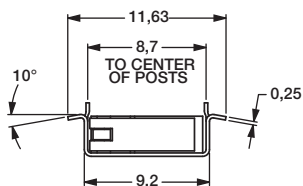
SMT Mounting Pattern



CL SMT, LEFT BRACKET WITH PINS



CR SMT, RIGHT BRACKET WITH PINS



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



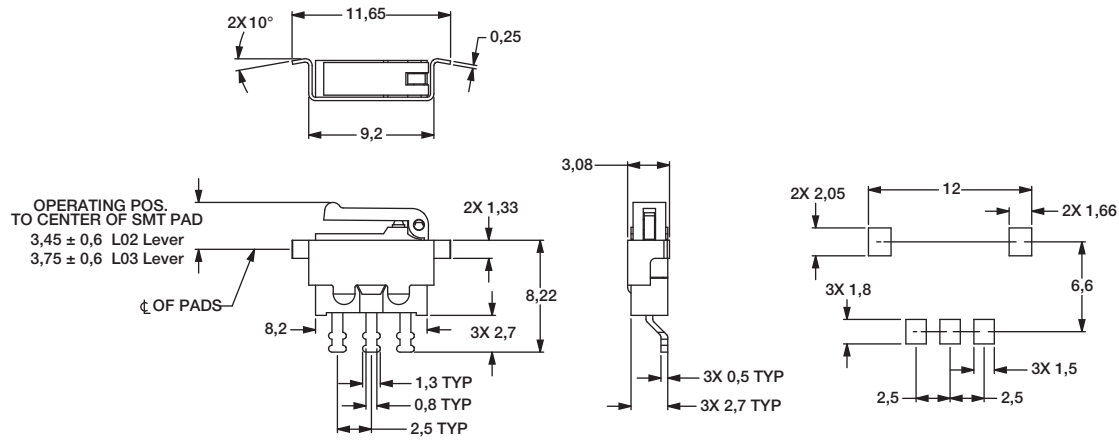
Detect

MDS Series Micro Snap-acting Detect Switches

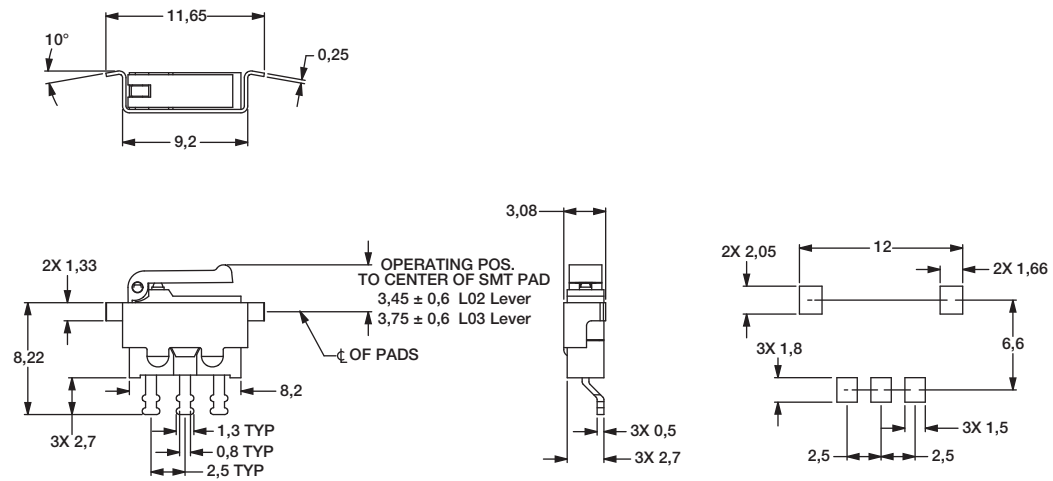
TERMINATIONS



BL SMT, LEFT BRACKET NO PINS



BR SMT, RIGHT BRACKET NO PINS



E

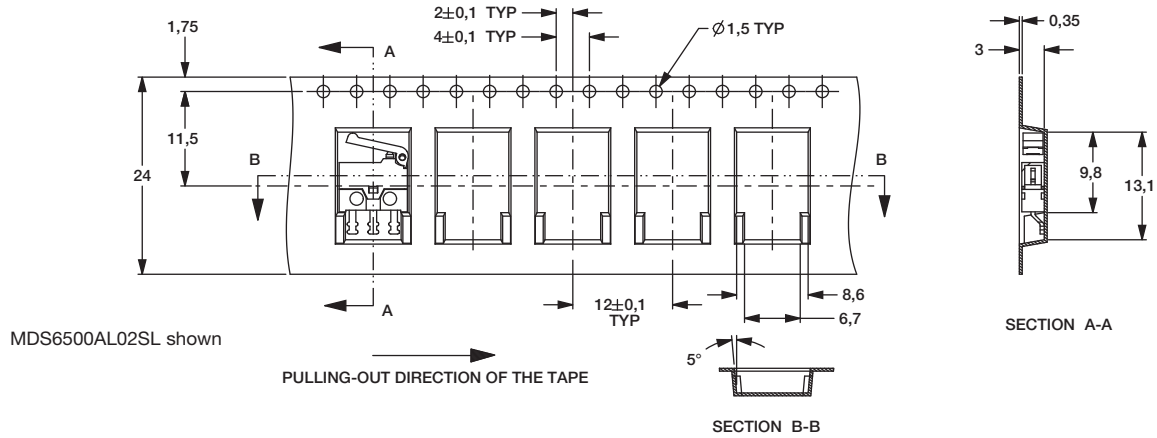
Detect

MDS Series Micro Snap-acting Detect Switches

TAPE & REEL

SL SMT, LEFT MOUNT

SR SMT, RIGHT MOUNT

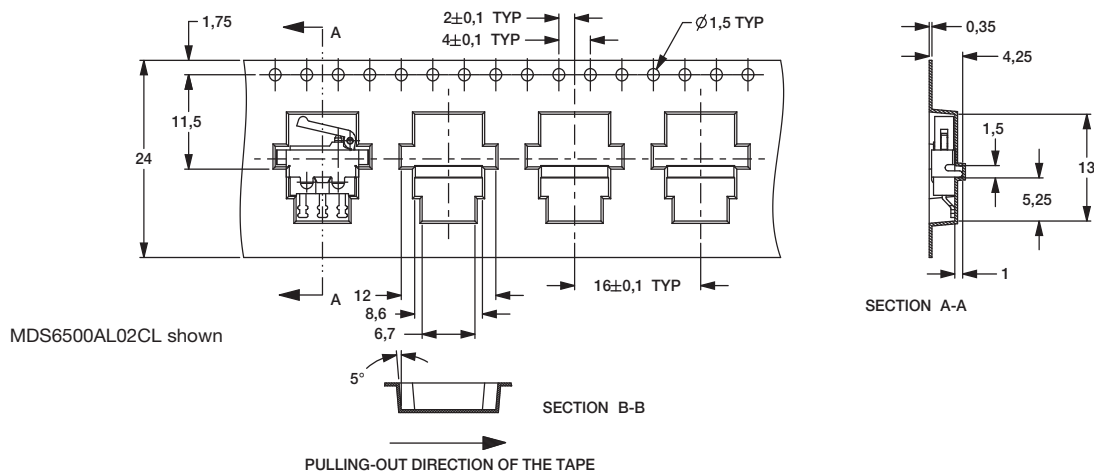


CL SMT, LEFT MOUNT

CR SMT, RIGHT MOUNT

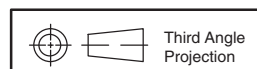
BL SMT, LEFT MOUNT

BR SMT, RIGHT MOUNT



Supplied in carrier tape meeting the EIA-481-2 standard for 24mm tape.

Packaging quantity: SL and SR; 1,600 pieces per reel
CL, CR, BL and BR; 1,000 pieces per reel

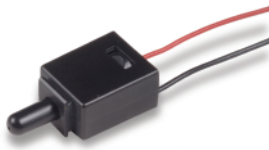


Third Angle Projection
Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com



KDS Series Intrusion Switches



Features/Benefits

- Slot mount into chassis to reduce installation cost
- Wire harness length & connector easily customized
- Available in N.O. or N.C. configuration
- RoHS compliant

Typical Applications

- Intrusion/Alarm switch in network desktop PC
- Intrusion/Alarm switch in telecommunication equipment
- Intrusion/Alarm switch in cellular base station

Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC.
 MECHANICAL & ELECTRICAL LIFE: 10,000 actuations min. at full load.
 CONTACT RESISTANCE: 200 m Ω max. initial @ 2-4 V DC, 100mA.
 INSULATION RESISTANCE: 10⁹ Ω min.
 OPERATING TEMPERATURE: -40°C to +85°C
 TRAVEL: KDS11: Pre-travel 0.180" TYP; Overtravel 0.223"
 KDS33: No pre-travel, full travel 0.403"
 DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.
 PACKAGING: Bulk packaging.

Materials

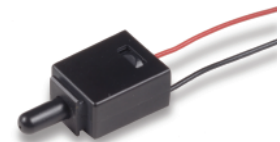
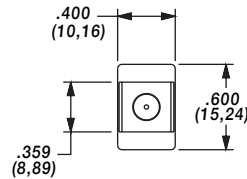
HOUSING: Nylon 6/6 (UL 94V-0)
 ACTUATOR: Nylon 6/6 (UL 94V-0)
 MOVABLE CONTACT: Copper alloy, gold plate over nickel plate.
 FIXED CONTACT: Brass, gold plate over nickel plate.
 WIRE: UL 1061-24 AWG.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

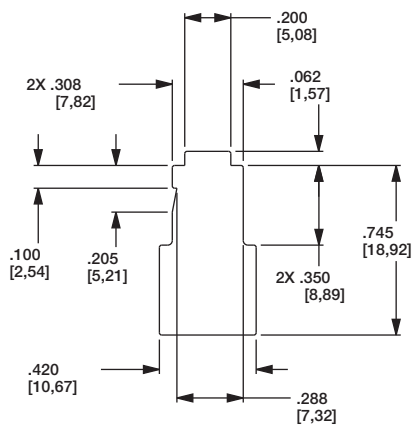
How To Order

Complete part numbers for KDS Series Switches are shown below.

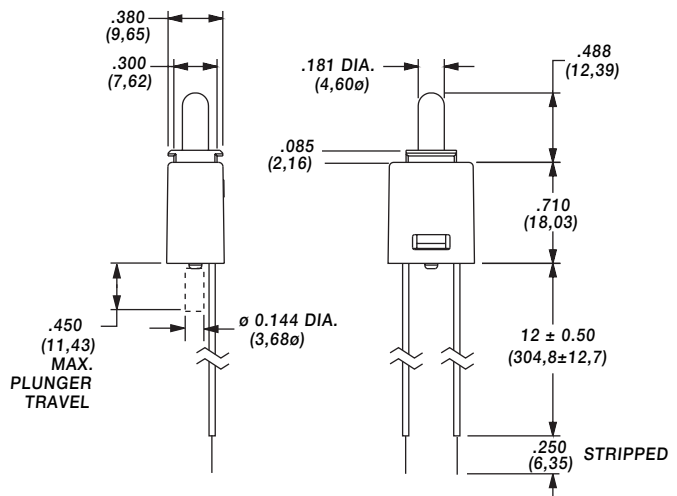
PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
KDS11	OFF	MOM.	SPST N.O.
KDS33	ON	OFF	SPST N.C.



KDS33



PANEL CUT-OUT
THICKNESS 1,02



Detect

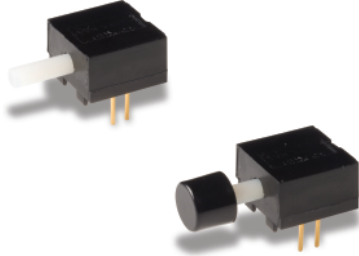
KM Series Subminiature Detect Switches

Features/Benefits

- **Reliable contact design**
- **Available with pretravel and overtravel**
- **RoHS compliant**

Typical Applications

- **Alarm systems**
- **Computers**
- **Detector switch application**



Models Available

Specifications

CONTACT RATING: Q contact material:
0.25 AMPS @ 125 V AC or DC (UL). See page F-29 for additional ratings.

ELECTRICAL LIFE: 10,000 actuations min. at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

Materials

HOUSING & BUSHING: 6/6 nylon (UL94V-2), black.

ACTUATOR: 6/6 nylon (UL 94V-2), natural.

MOVABLE CONTACT: B contact material: Bronze or copper, with gold plate over nickel plate. See page F-39 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: B contact material: Copper, with gold plate over nickel plate. See page F-29 for additional contact materials.

RETURN SPRING: Music wire, phosphor coated.

MOUNTING NUT: Brass, nickel plated.

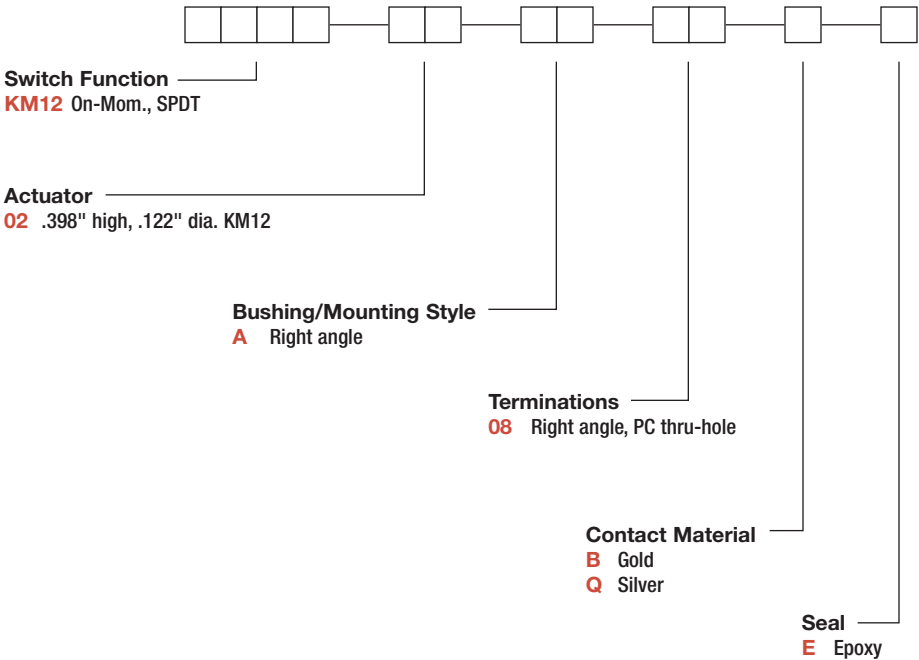
TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages E-28 and E-29. For additional options not shown in catalog, consult Customer Service Center.



Detect



*Dimensions are shown: mm
Specifications and dimensions subject to change*

KM Series Subminiature Detect Switches

SWITCH FUNCTION

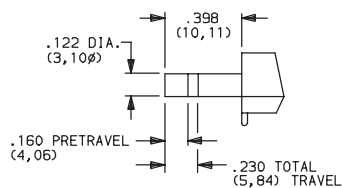


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KM12	ON	MOM.	2-1	4-3	 SPDT
<p>SPDT</p> <p>Part number shown: KM1202A08BE</p>						

ACTUATOR



02 .398" HIGH, .122" DIA.

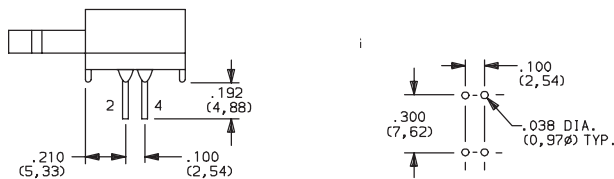


NOTE: Caps available for plunger options, see page E-29.

BUSHING/ MOUNTING STYLE



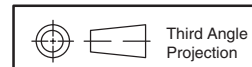
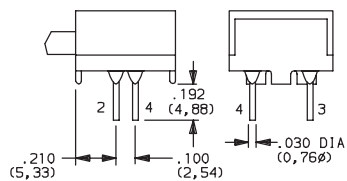
A RIGHT ANGLE



TERMINATIONS



08 RIGHT ANGLE, PC THRU-HOLE



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

KM Series Subminiature Detect Switches

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT AND TERMINAL MATERIAL	RATINGS	
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ²	POWER	0.25 AMPS @ 125 V AC OR DC (KM11, KM12) (UL) 1 AMP @ 125 V AC OR 28 V DC (KM33).


* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate.

² STATIONARY CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).
MOVABLE CONTACT: Phosphor bronze or beryllium copper, silver plated.

³ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate over silver plate.

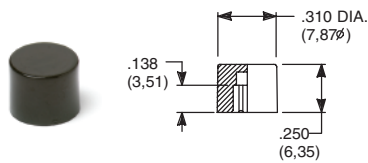
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

KM12 models  when ordered with 'Q' contact material.

SEAL

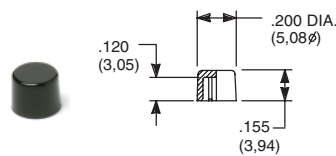
E EPOXY SEAL

AVAILABLE HARDWARE



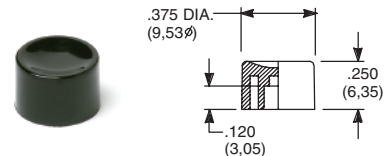
PART NO.
801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
Finish: Gloss



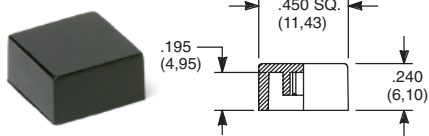
PART NO.
708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
Finish: Gloss



PART NO.
752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
Finish: Gloss



PART NO.
484601000 WHITE
484602000 BLACK
484603000 RED

Material: Nylon
Finish: Gloss

PART NO.
798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Matte

NOTE: Other cap colors available, consult Customer Service Center.



Dimensions are shown: mm
Specifications and dimensions subject to change



E

Detect

MPS Series Magnetic Proximity Sensors

Features/Benefits

- Long life—4M operations
- Sealed contacts
- Quality construction
- Quick and easy installation
- UL 61058 approved

Typical Applications

- Automotive sensors and indicators
- Industrial sensors
- Factory automation equipment
- Server / storage
- Security, alarms for windows



Specifications

CONTACT RATINGS: 3.0 W max. @ 30 V DC or 30 V AC max. @ 0.3 AMP max.; 1.0 msec. max. operate time (including bounce); 1.0 AMP max. carry current.

CONTACT RESISTANCE: 100 m Ω max. initial.

DIELECTRIC STRENGTH: 200 V DC min.

ELECTRICAL CIRCUIT: SPST NO (Contact Form A). Reed switch opens when magnet is removed from proximity. Contacts are held closed when magnet is within actuation range.

OPERATING TEMPERATURE: -40°F to 212°F (-40°C to 100°C).

OPERATING DISTANCE/ALIGNMENT: Operate (pull-in or make) points are nominal values with ± 10% tolerance. Release points are 110% to 150% of the operating points.

MECHANICAL & ELECTRICAL LIFE: 4 million operations.

PACKAGING: Bulk packaging, 10 switch and magnet pairs per package.

Materials

HOUSING/SPACER/COVER: ABS plastic (UL94V-0), white.

REED SWITCH: Rhodium coated reed contacts in hermetically sealed, nitrogen filled glass capsule. Closed when magnet is in close proximity. Used in closed loop circuits.

WIRE LEADS: UL 1061/ UL1007 / UL2468

All are 22 AWG wire: stranded, made of copper or aluminum; Length: 12 in. with ends stripped; Color: white.

POTTING (around wires): Epoxy.

MAGNETS: NdFeB

ADHESIVE MOUNTING: Foam-backed, pressure-sensitive adhesive with release liner.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

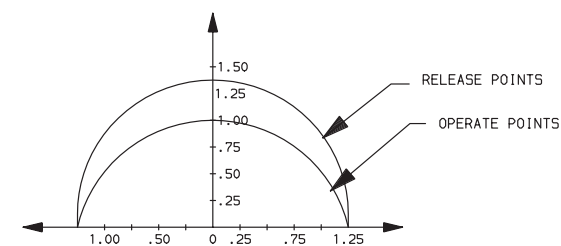
How To Order

PART NUMBER	SWITCH TYPE
MPS45WGW	Subminiature surface mount (adhesive or flange), side exit leads, 1" make gap.

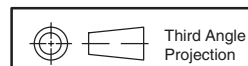
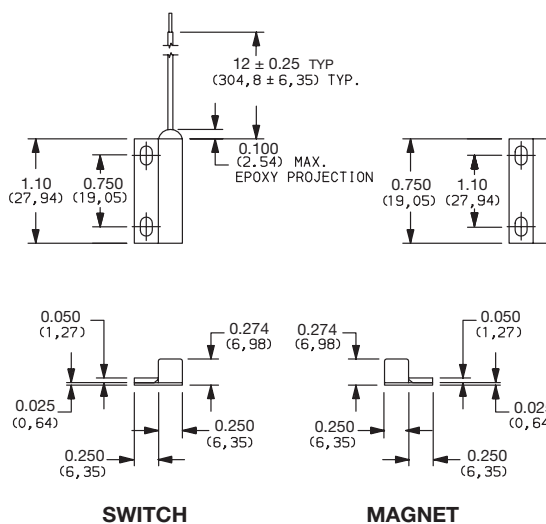
UL 61058



Detect



NOTE: UL 61058 Rating



Dimensions are shown: inches (mm)
Specifications and dimensions subject to change



MPS Series Magnetic Proximity Sensors

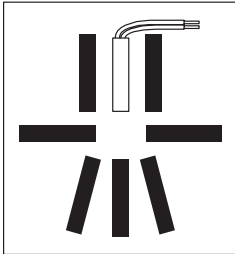
Actuating Positions

When installing recessed and surface mount contacts, magnet position is very important. The switch and magnet must always be parallel or end to end, and never in a 'T' configuration.

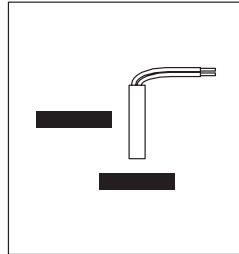
Gap Distance

Gap distance is a combination of the horizontal and vertical plane separation of the switch and magnet. Example: if a recessed magnet is 1/4" off the centerline of the switch, the make gap is reduced by 1/4"

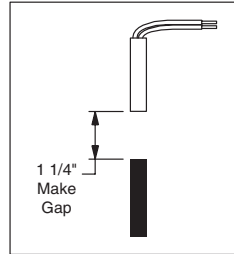
Correct Configuration



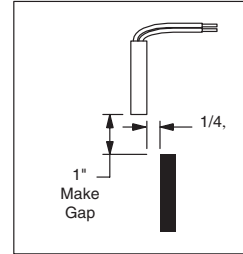
Incorrect Configuration



Center Alignment



Off Center Alignment



ZMA Series Subminiature Snap-acting Switches



Features/Benefits

- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Compact size—Ideal when space is limited
- Various PCB terminals and actuators
- RoHS compatible & compliant

Typical Applications

- PCB detection switch
- Communication devices
- Testing equipment
- Security/Alarm systems
- Consumer electronics

UL61058-1



Specifications

CONTACT RATING: 3A @ 125 V AC 24 V DC
 1 A @125 / 250 V AC 24 V DC
 0.1A @ 125 V AC 60 V DC

ELECTRICAL LIFE: 300,000 cycles @ 0.1A / 10,000 cycles @ 3A.
 MECHANICAL LIFE: 1,000,000 cycles.
 INSULATION RESISTANCE: 100 M ohm min.
 DIELECTRIC STRENGTH: 500 Vrms.
 OPERATING TEMPERATURE: -40°C to 85°C
 OPERATING FORCE: 80 or 150 grams.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max.
 @ 20 V AC or DC max.

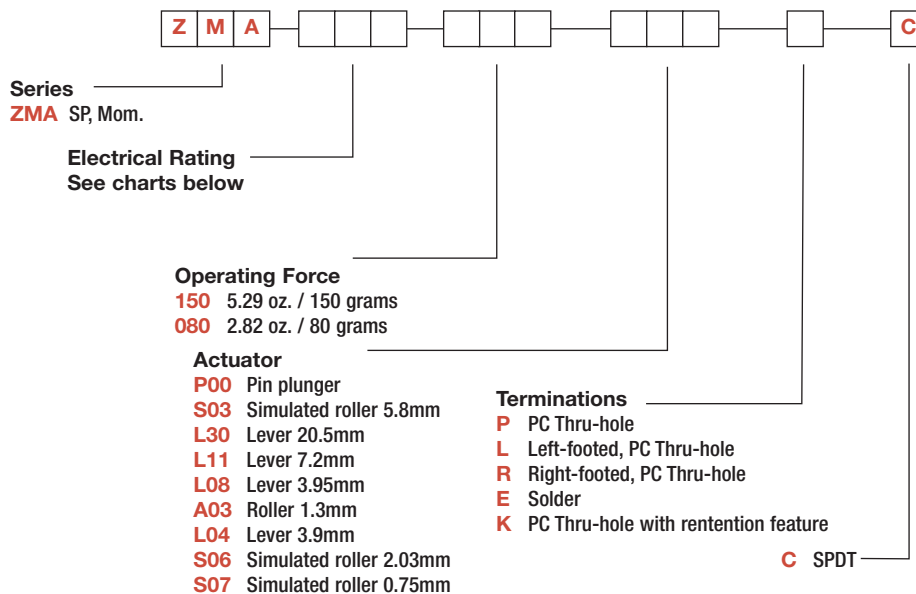
Materials

CASE/COVER: PBT
 ACTUATOR: Button nylon 6/6
 MOVABLE CONTACTS: Silver alloy or gold plated
 STATIONARY CONTACTS: Silver alloy or gold plated
 TERMINALS: Brass, silver plated.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-33 through J-35. For additional options not shown in catalog, consult Customer Service Center.



Detect

Silver Contacts

Option Code	UL 1054	UL 61058-1	4	15
00A	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
03A	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
01A		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

Gold Plated Contacts

Option Code	UL 1054	UL 61058-1	4	15
G00	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
G03	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
G01		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

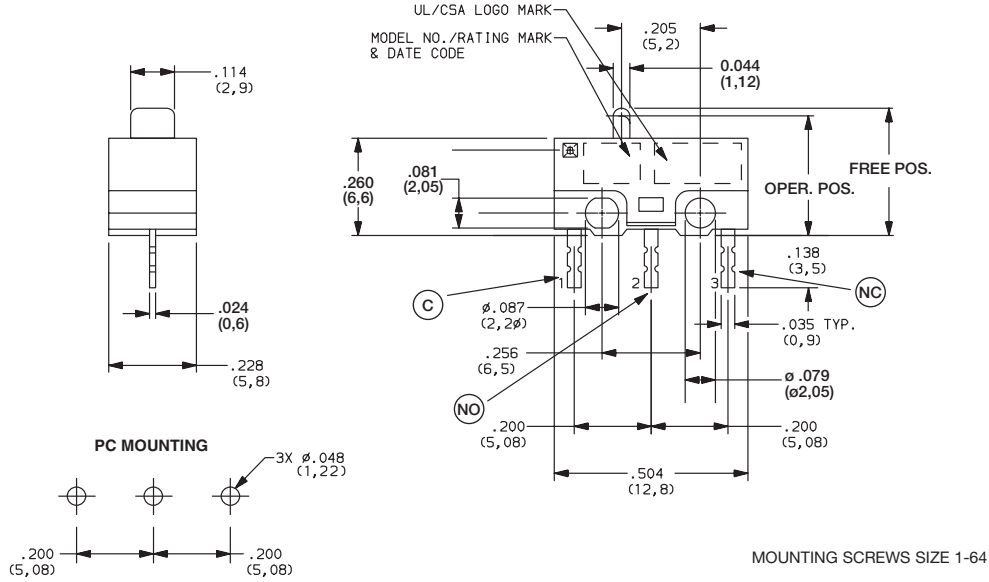


Dimensions are shown: mm
 Specifications and dimensions subject to change

ZMA Series Subminiature Snap-acting Switches

SERIES

ZMA SUBMINIATURE SNAP-ACTING SWITCHES – SP MOMENTARY



ELECTRICAL RATING

Silver Contacts

Option Code	UL c US 1054	UL c US 61058-1		
00A	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
03A	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
01A		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

Gold Plated Contacts

Option Code	UL c US 1054	UL c US 61058-1		
G00	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
G03	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
G01		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

* Note: See Technical Data in section N of this catalog for RoHS compliant and compatible definition and specifications.

All models US with all options.

Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
150	5.29 150
080	2.82 80



Dimensions are shown: mm
Specifications and dimensions subject to change

C&K



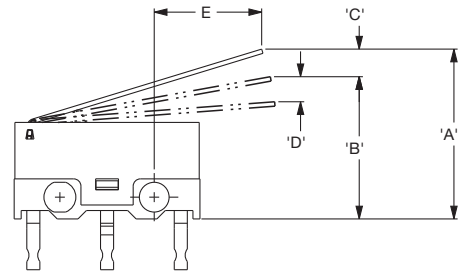
E

Detect

ZMA Series Subminiature Snap-acting Switches

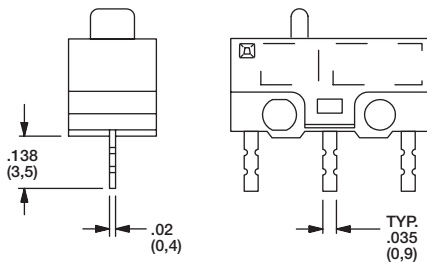
SWITCH CHARACTERISTICS

CODE	OPER. FORCE MAX. (GRAMS)		REL. FORCE MIN. (GRAMS)		'A' FP MAX. (MM)	'B' OP MAX. (MM)	'C' PT MAX. (MM)	'D' OT MIN. (MM)	'E' MIN. (MM)
P00	80	150	21	35	7.35	6.9 ±0.3	0.62	0.2	
S03	25	43	5	7	14.2	9.8 ±0.9	3.5	0.7	5.41
L30 (80gf)	13	21	2	3	16.8	9.5 ±1.9	6.9	0.55	20.15
L30 (150 gf)	13	21	2	3	16.8	9.75 ±1.9	6.9	0.55	20.15
L11	25	39	4	6	11.7	8.68 ±1	4.4	0.6	7.33
L08	27	48	3	8	13.5	10.75 ±0.8	3.5	0.3	3.82
A03	34	65	6	10	16.55	13.65 ±1	3.9	0.5	0.56
L04	30	50	5	8	10.1	7.9 ±0.7	3.0	0.5	3.49
S06	33	49	5	11	12.43	10.7 ±0.8	1.43	1.25	1.97
S07	40	65	2	5	13.0	9.7 ±1	4.3	0.5	0.49

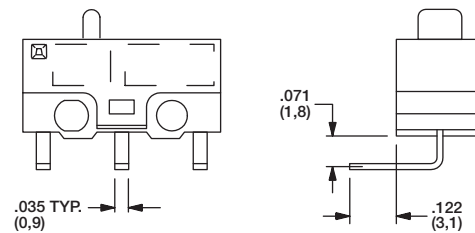


TERMINATIONS

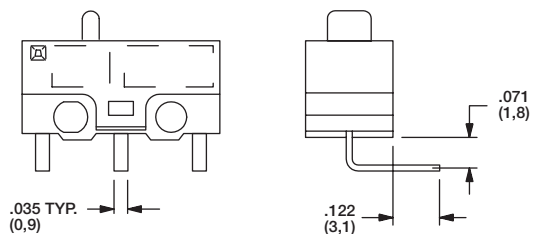
P PC THRU-HOLE



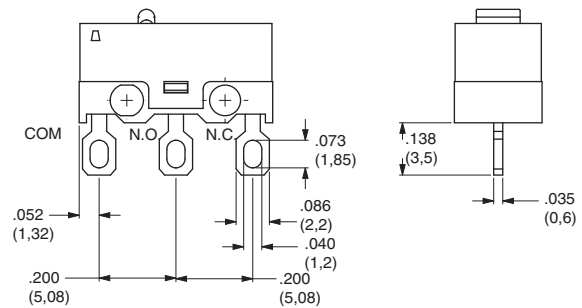
L LEFT FOOTED, PC THRU-HOLE



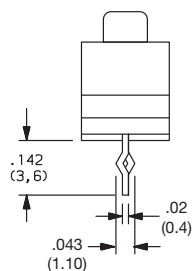
R RIGHT FOOTED, PC THRU-HOLE



E SOLDER



K PC THRU-HOLE WITH RETENTION FEATURE



Detect

KSU Series Micro Mini Surface Mount Detect Switches



Features/Benefits

- New multi contact construction
- Metal actuator
- Low actuating force
- RoHS compliant and compatible

Typical Applications

- Mobile phones and other handheld devices
- Portable medical devices
- Audio devices
- Alarm devices
- Payment terminals
- Smart meters

Specifications

FUNCTION: Momentary action.
CONTACT TYPE: SPST Normally open.
TERMINALS: Gullwing type for SMT.

Mechanical

SWITCHING FORCE: $0,7 \pm 0,5$ N
TRAVEL TO MAKE: 0,65 mm - 0,45/+0,25 mm
MECHANICAL TRAVEL: $1,5 \pm 0,2$ mm
OPERATING LIFE: 100,000 cycles

Packaging

Switches are delivered on continuous tape, in reels of 1,000 pieces

Electrical

	GOLD	SILVER
MAXIMUM POWER:	0.2 VA	0.1 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	10 mA	50 mA
MINIMUM CURRENT:	0.01 mA	1 mA
CONTACT RESISTANCE:	≤100 mΩ	
INSULATION RESISTANCE:	(100 VDC) $10^9 \Omega$	
DIELECTRIC STRENGTH:	≥ 250 Vrms	
BOUNCE TIME:	≤ 3 ms	

Environmental

OPERATING TEMPERATURE: -40°C to +125°C -40°C to +85°C
STORAGE TEMPERATURE: -55°C to + 125°C -40°C to +85°C

Process

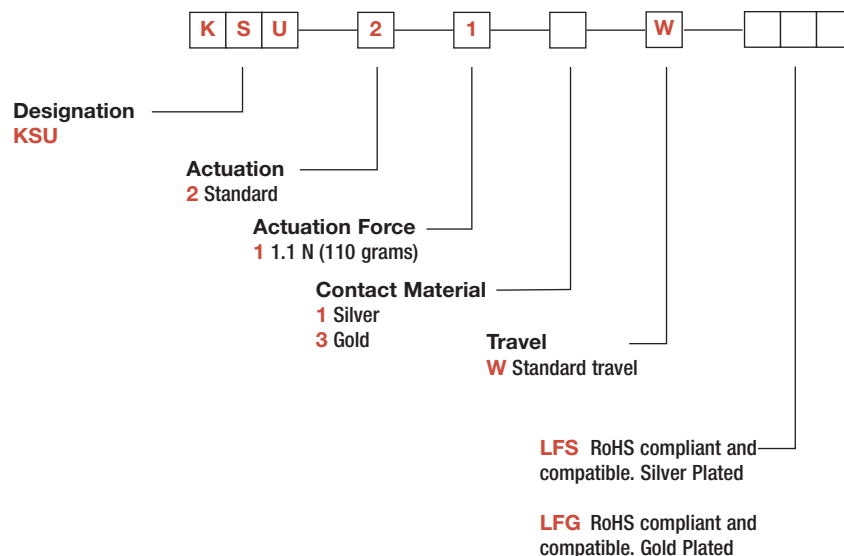
SOLDERING: Compatible with lead free reflow process

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

How To Order

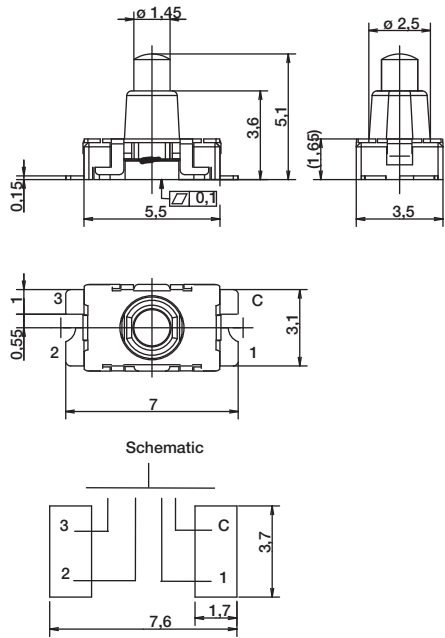
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

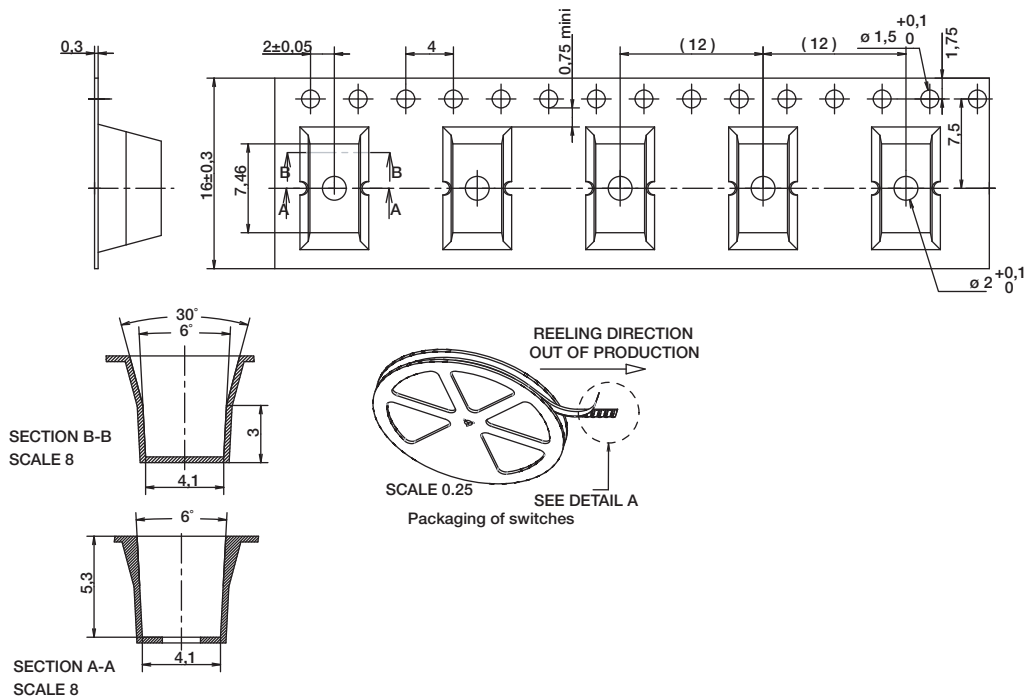


Detect

KSU Series Micro Mini Surface Mount Detect Switches



TAPE & REEL



Detect



Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com

KSR2D/M Series Subminiature Detect Switch for SMT



Features/Benefits

- Gold contacts
- G terminations
- Soft actuator
- RoHS compliant and compatible

Typical Applications

- Automotive
- Industrial electronics
- Medical equipment
- Detector switch applications

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: N.O.
TERMINALS: Gullwing type for SMT

Type	Operating force Newtons	Operating life (operations)	Travel (mm)
KSR2D3MG LFG	1,5 ± 0,5N	100,000	0,3 ± 0,15
KSR2M3G LFG	0,8 ± 0,4N	100,000	0,19 ± 0,11

Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.
For information on specific and custom switches, consult Customer Service Center.

Electrical

MAXIMUM POWER:	Gold
MAXIMUM VOLTAGE:	0.2 VA
MINIMUM VOLTAGE:	32 VDC
MAXIMUM CURRENT DC:	20 mV
MINIMUM CURRENT DC:	10 mA
CONTACT RESISTANCE:	1 mA
INSULATION RESISTANCE	100 mΩ
BOUNCE TIME:	(100 V): 10 ⁹ Ω
	1 ms

Environmental

OPERATING TEMPERATURE:	Gold
STORAGE TEMPERATURE:	-40°C to 125°C
	-55°C to 125°C

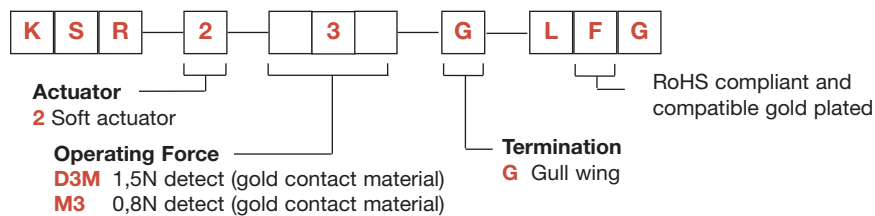
Process

SOLDERING: Compatible with lead free reflow soldering process

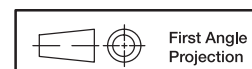
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.



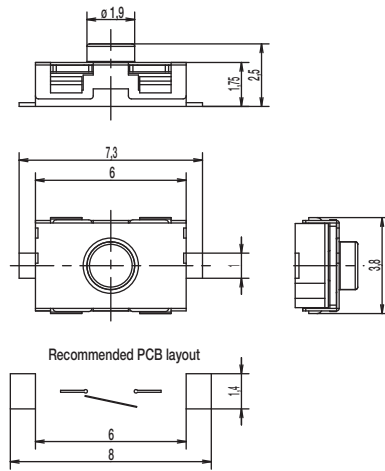
Detect



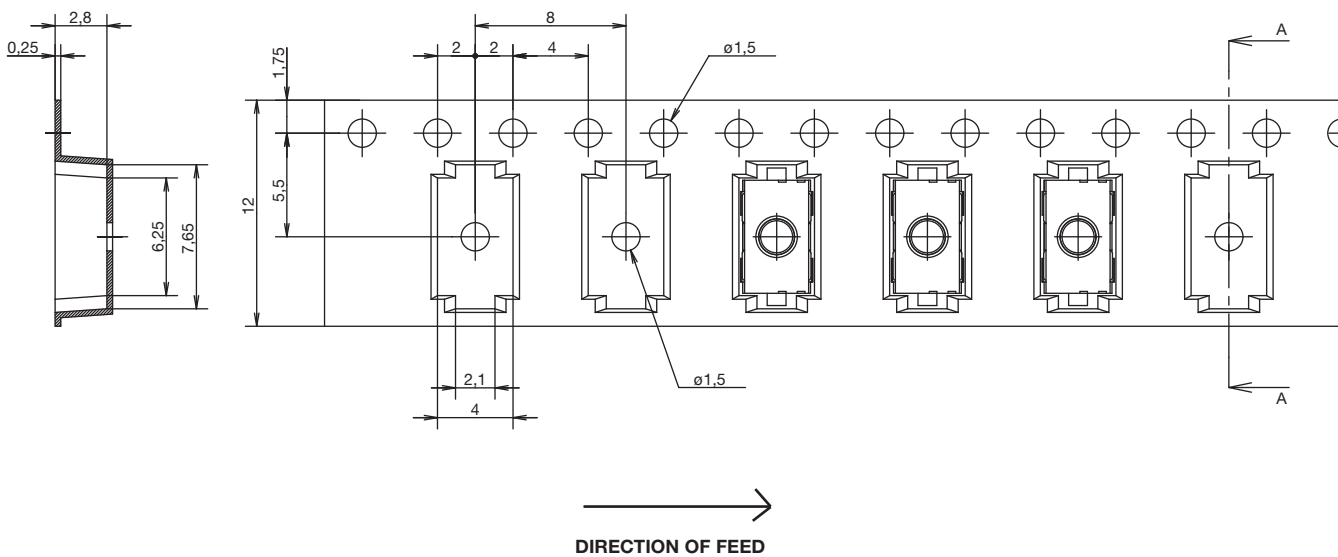
Dimensions are shown: mm
Specifications and dimensions subject to change

KSR2D/M Series Subminiature Detect Switch for SMT

KSR2D/M



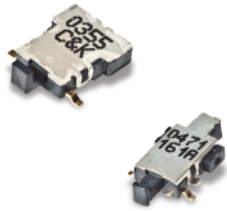
TAPE & REEL



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

KSM Series Side Actuated Detect Switches



Features/Benefits

- Low profile – 1,5 mm
- Momentary, normally closed contact
- Gold contacts
- RoHS compliant and compatible

Typical Applications

- Automotive
- Position sensing switch
- Edge card reset switch
- Smart card presence switch detector
- DSL and fiber optic networks

Specifications

FUNCTION: Momentary action
CONTACT TYPE: SPST Normally closed

Mechanical

TRAVEL TO BREAK:	KSM1131D LFG	0,35 ± 0,15 mm
	KSM6161 LFG	0,5 ± 0,20 mm
TOTAL TRAVEL:	KSM1131D LFG	1,25 ± 0,2 mm
	KSM6161 LFG	1,92 ± 0,2 mm

SWITCHING FORCE:

KSM1131D LFG	0,15N ≤ F _{ce} ≤ 0,90 N
KSM6161 LFG	0,50N ≤ F _{ce} ≤ 0,90 N

OPERATING LIFE:	KSM1131D LFG	50,000 cycles
	KSM6161 LFG	200,000 cycles

Packaging

Switches are delivered on continuous tape, in reels of 2,000 pieces (KSM1131D LFG) and 1250 pieces (KSM6161 LFG)

Electrical

	KSM1131D LFG	KSM6161 LFG
MAXIMUM POWER:	0.2 VA	1.0 VA
MAXIMUM VOLTAGE:	24 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT DC:	50 mA	50 mA
MINIMUM CURRENT DC:	1 mA	
CONTACT RESISTANCE:	≤ 300 mΩ	≤ 900 mΩ
INSULATION RESISTANCE:	≥ 10 ⁹ Ω	≥ 10 ⁹
DIELECTRIC STRENGTH:	≥ 250 Vrms	≥ 250 Vrms
BOUNCE TIME:	≤ 10 ms	≤ 1,25 ms

Environmental

OPERATING TEMPERATURE:	-40°C to +85°C
STORAGE TEMPERATURE:	-55°C to +85°C

Process

SOLDERING: Compatible with lead free reflow process

NOTE: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

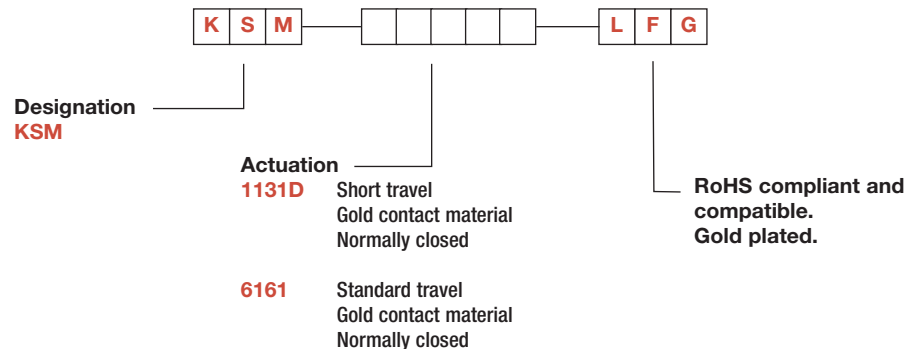
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.



Detect
E

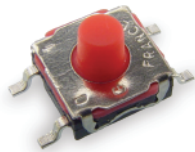


Dimensions are shown: mm

Specifications and dimensions subject to change



KSC4D Series Sealed Detect Switch for SMT



Features/Benefits

- **Soft actuator**
- **J or G terminations**
- **Tape & reel**
- **IP 67**
- **RoHS compliant and compatible**

Typical Applications

- **Automotive**
- **Cellular phones**
- **Industrial electronics**
- **Computer infrastructure and IT**

Specification

FUNCTION: momentary action compatible with permanent actuation
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS: J bend & Gullwing type for SMT
 Compatible with permanent actuation

Mechanical

Type	Operating force FA Newtons	Operating life (operations)	Travel (mm)
KSC4D1J50SH	1,0 - 3,0	500,000	0,6 ± 0,25
KSC4D2J50SH	1,0 - 3,0	2,000,000	
KSC4D350SH	1,0 - 3,0	500,000	

Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM CURRENT:	50 mA	10 mA
MINIMUM CURRENT:	1 mA	0.1 mA
DIELECTRIC STRENGTH (50 Hz, 1 min.):	≥ 250 V	
CONTACT RESISTANCE:	≤ 100 mΩ	
INSULATION RESISTANCE (100 V):	≥ 10 ⁹ Ω	
BOUNCE TIME:	≤ 1 ms	

Electrical

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-55°C to 85°C	-55°C to 125°C

Process

SOLDERING:

- Infrared Reflow according to free soldering process with IEC 61760-1.

Packaging

Reels of 1,000 pieces. Dimensions of reels according to EIA RS481 or IEC 60286-3. External diameter 330 mm ± 2 mm.

NOTE: Part numbers listed above do not represent all possible configurations. For information on specific and custom switches, consult Customer Service Center.

This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

How To Order

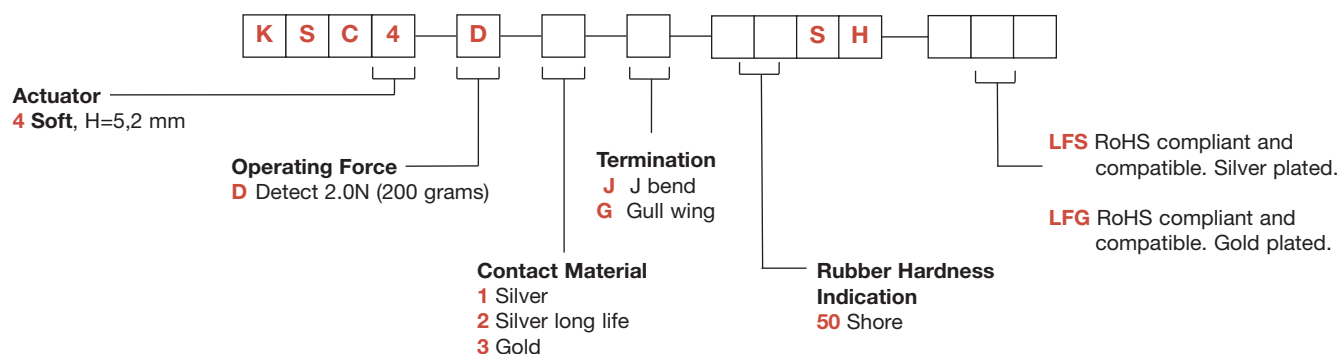
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



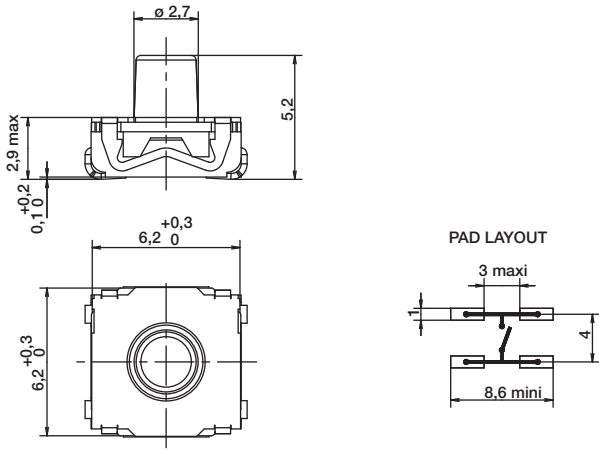
Detect
E



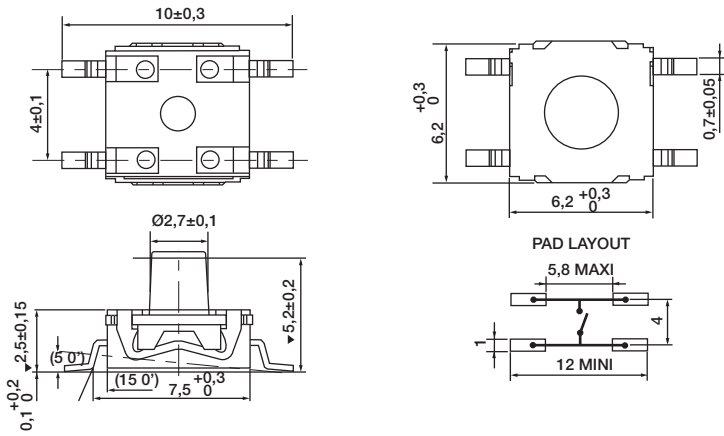
Dimensions are shown: mm
 Specifications and dimensions subject to change

KSC4D Series Sealed Detect Switch for SMT

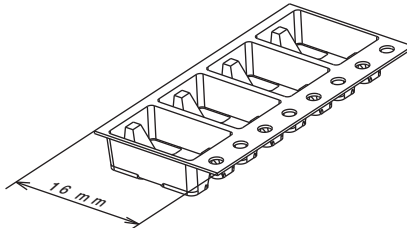
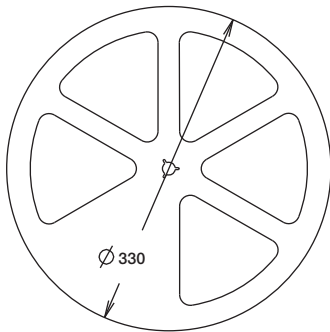
KSC4D1J SOFT, 5,2 mm high



KSC4D1G SOFT, 5,2 mm high



TAPE AND REEL



First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

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Detect

KSJ Detect Series

Spherical Actuator Detect Switches



Features/Benefits

- Straight or vertical detect
- Top or side actuation
- Spherical actuator allows actuation +/- 30°
- High travel
- Adapted for cam actuation
- Sealing IP60

Typical Applications

- Automotive
- Industrial electronics
- Computer infrastructure and IT

Specification

FUNCTION: momentary action
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS: PC pins
 Compatible with permanent actuation

Electrical

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-40°C to 85°C	-55°C to 125°C

Mechanical

Type	Operating force FA Newtons (grams)	Operating life (operations)	Travel
KSJ0VD1860SHLFT	6,0 (600)	100,000	0,50 ± 0,25
KSJ0MD1860SHLFT	6,0 (600)	100,000	0,50 ± 0,25

Process

Wave soldering, compatible with lead free soldering.

Packaging

In boxes of 250 pieces

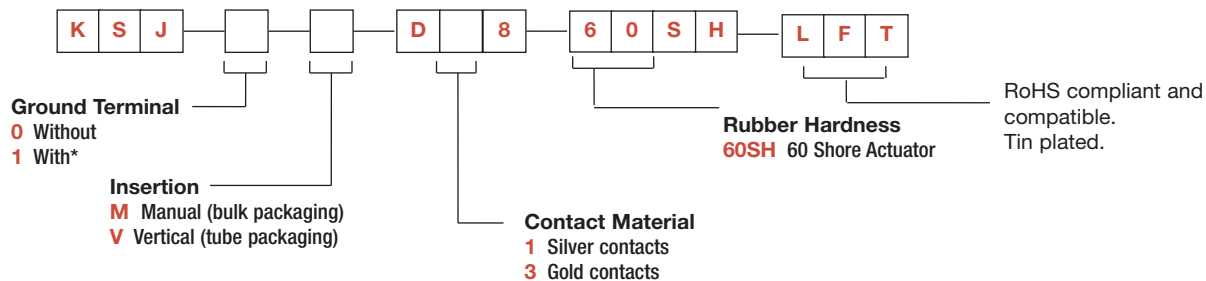
Electrical

	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM CURRENT:	1 mA	1 mA
MAXIMUM CURRENT:	50 mA	10 mA
DIELECTRIC STRENGTH (50 Hz, 1 min.):	≥ 250 V	
CONTACT RESISTANCE:	≤ 100 m ohms	
INSULATION RESISTANCE (100 V):	≥ 10 ⁹ ohms	
BOUNCE TIME:	≤ 1 ms	

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible. For any part number different from those listed above, please consult your local representative.



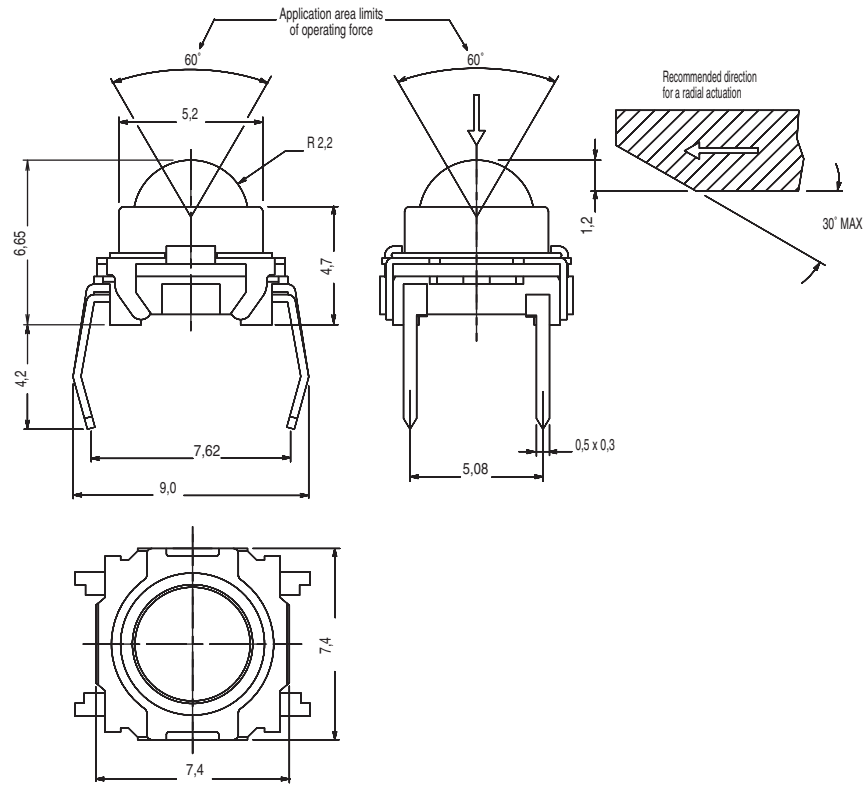
*Note: "1" ground terminal option not available with "V" version. The bracket for the "V" version plays this role.



Dimensions are shown: mm
 Specifications and dimensions subject to change

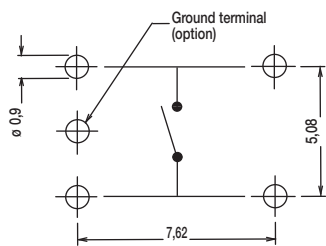
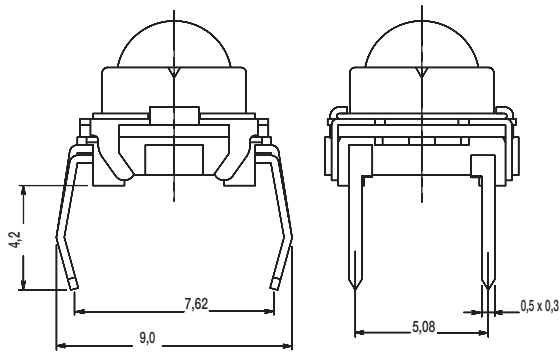
KSJ Detect Series Spherical Actuator Detect Switches

KSJ

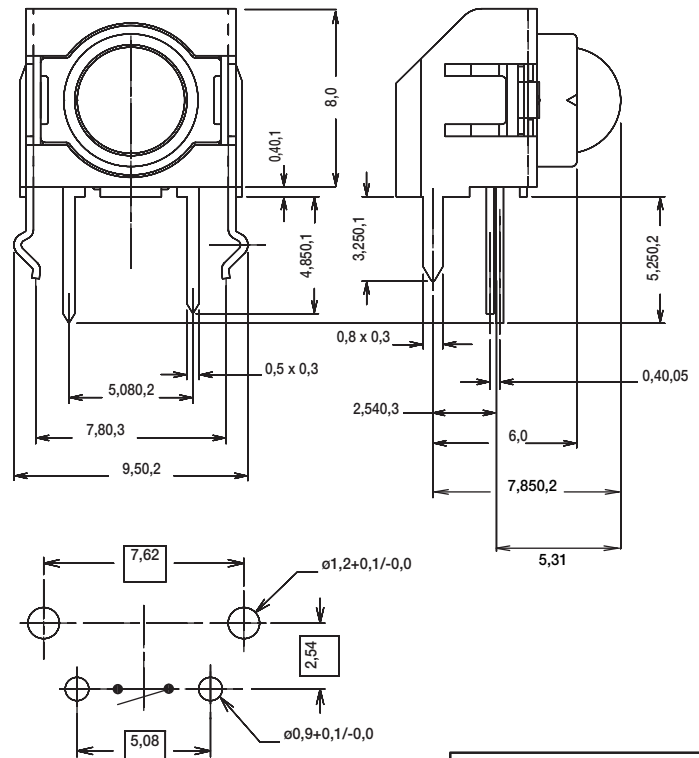


INSERTION

M MANUAL



V VERTICAL



Detect

C&K

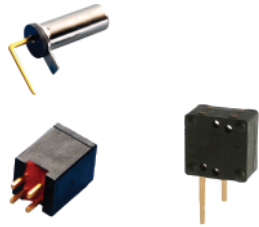


First Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com

RB Series Rolling Ball Sensor Switch

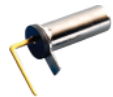


Features/Benefits

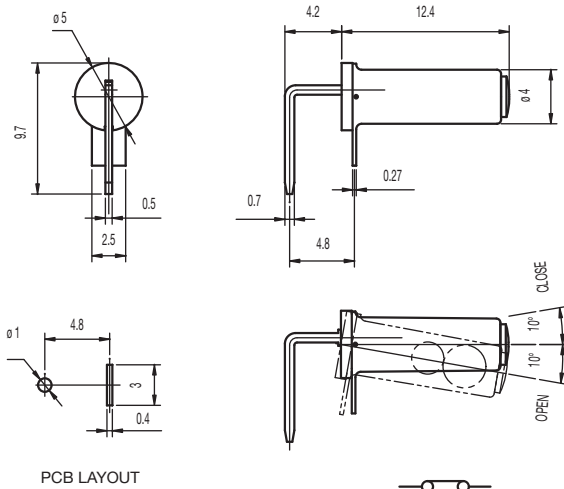
- Different angle options to trigger
- Ultra miniature design
- Patent awarded

Typical Applications

- Household goods
- Electronic toys
- Consumer electronics including irons, portable heaters, games, toys
- Safety and security controls



PART NUMBER	PACKAGING
RB-231X2	1,000 pieces



Specifications

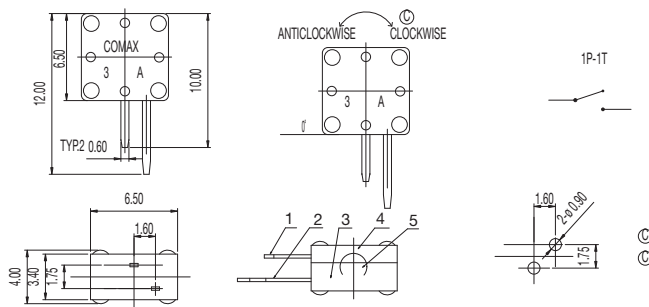
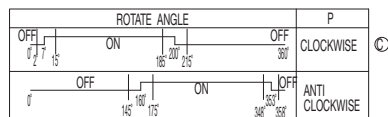
CONTACT ARRANGEMENT: SPST
 SENSOR ANGLE: 0° to -10° scope inside, terminal to disconnection electric current
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

Materials

FRAME: Copper alloy, nickel plated
 COVER: PA 46 (UL94V-0).
 MOVABLE CONTACT: Copper alloy, nickel plated
 TERMINALS: Copper alloy, gold plated
 BRASS BALL: Brass, gold plated



PART NUMBER	PACKAGING
RB-220-07 R	500 pieces



Specifications

CONTACT ARRANGEMENT: SPST
 SENSOR ANGLE: 15° to 90° scope inside, terminal to disconnection electric current
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 20,000 cycles (without load);
 100,000 cycles with load
 INSULATION RESISTANCE: 10 M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz)
 OPERATING TEMPERATURE: -10°C to +50°C

Materials

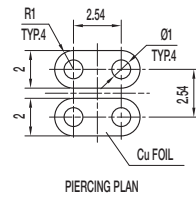
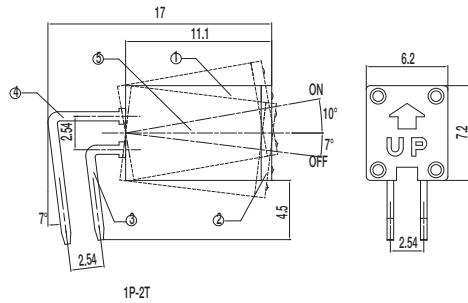
HOUSING: PA
 COVER: PA
 BALL: Gold plated



Detect

RB Series Rolling Ball Sensor Switch

PART NUMBER	PACKAGING
RB-435B	500 pieces



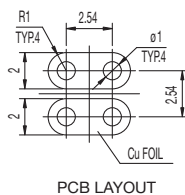
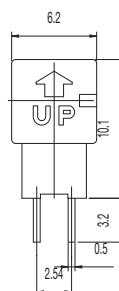
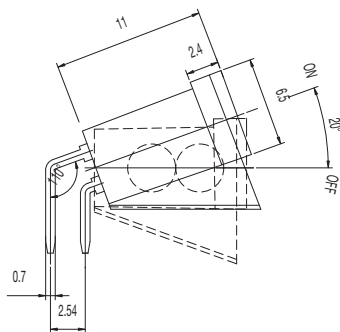
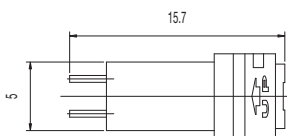
Specifications

CONTACT ARRANGEMENT: SPDT
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INITIAL CONTACT RESISTANCE: 5 Ω max.
 INSULATION RESISTANCE: 1000 M Ω min. @ 500 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

Materials

HOUSING: PA (UL94V-0)
 COVER: PA (UL94V-0)
 MOVABLE CONTACT: Copper alloy, nickel plated
 TERMINALS: Gold plated
 BALL: Steel, gold plated

PART NUMBER	PACKAGING
RB-435X2-20	500 pieces



Specifications

CONTACT ARRANGEMENT: SPDT
 SENSOR ANGLE: -20° to -30° scope inside, terminal to disconnection electric current
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

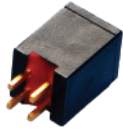
Materials

HOUSING: PBT (UL94V-0)
 COVER: PBT (UL94V-0)
 TERMINALS: Gold plated
 BALL: Steel, gold plated



Detect

RB Series Rolling Ball Sensor Switch



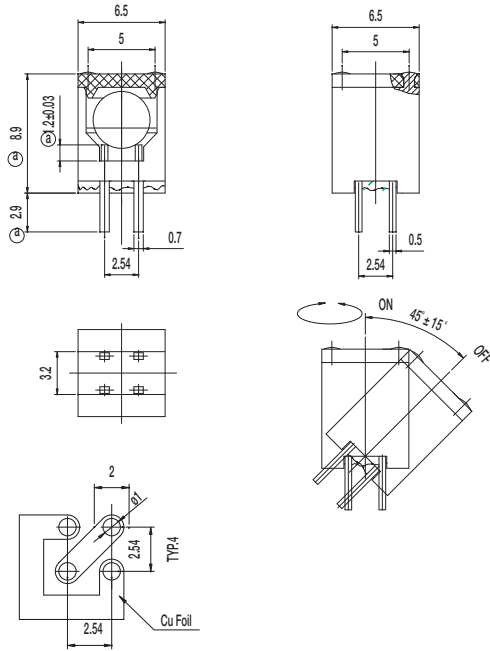
PART NUMBER	PACKAGING
RB-441-45	500 pieces

Specifications

CONTACT ARRANGEMENT: SPDT
 MAXIMUM VOLTAGE: 24 VDC 25mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

Materials

HOUSING: PBT (UL94V-0)
 COVER: PBT (UL94V-0)
 TERMINALS: Gold plated
 BALL: Gold plated



PCB LAYOUT



Detect

Features/Benefits

- **Normally closed function**
- **Vertical detect**
- **Reliable long time compression**
- **IP54**
- **Tape & reel**
- **RoHS compliant and compatible**

Typical Applications

- **Smart meters**
- **Alarm systems**
- **Anti-tamper devices**



Specifications

FUNCTION: Momentary action.
CONTACT TYPE: SPST Normally Closed.
TERMINALS: Gullwing type for SMT.

Mechanical

SWITCHING FORCE: ≤ 2 N
TRAVEL TO BREAK: 0,7 mm
TOTAL TRAVEL: 1,1 mm

Packaging

Switches are delivered on continuous tape, in reels of 2,000 pieces

Electrical

	GOLD	SILVER
MAXIMUM POWER:	0.2 VA	1 VA
MAXIMUM VOLTAGE:	32 VDC	32 VDC
MINIMUM VOLTAGE:	20 mVDC	20 mVDC
MAXIMUM CURRENT:	10 mA	50 mA
MINIMUM CURRENT:	1 µA	1 mA
CONTACT RESISTANCE:	≤ 350 mΩ	
INSULATION RESISTANCE:	> 1 G Ω	
DIELECTRIC STRENGTH:	≥ 250 Vrms	

Environmental

	GOLD	SILVER
OPERATING TEMPERATURE:	-40°C to +125°C	-40°C to +85°C
STORAGE TEMPERATURE:	-55°C to + 125°C	-40°C to +85°C

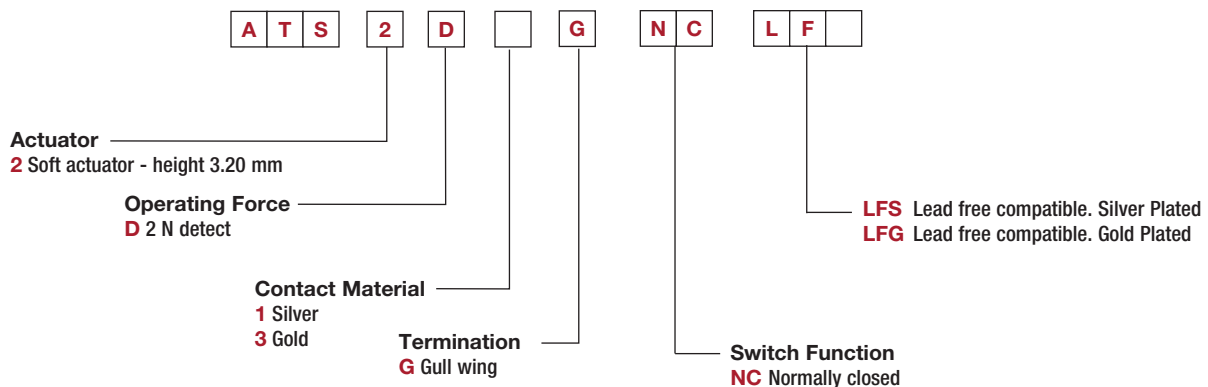
Process

SOLDERING: Compatible with lead free reflow process

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

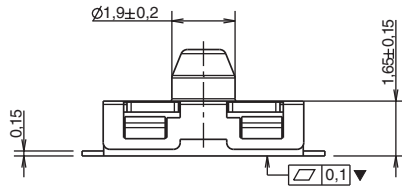
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on the next page. For additional options not shown in catalog, consult Customer Service Center.

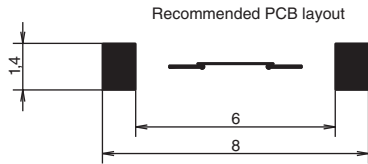
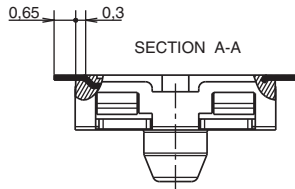
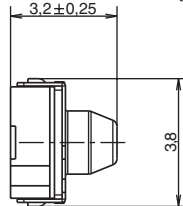
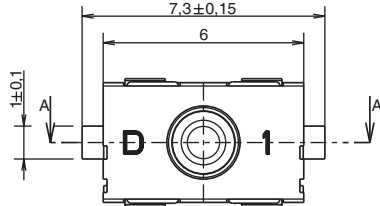


ATS Series Anti-Tampering Switches

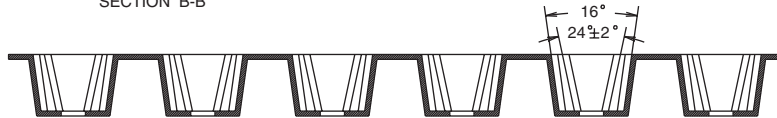
NEW



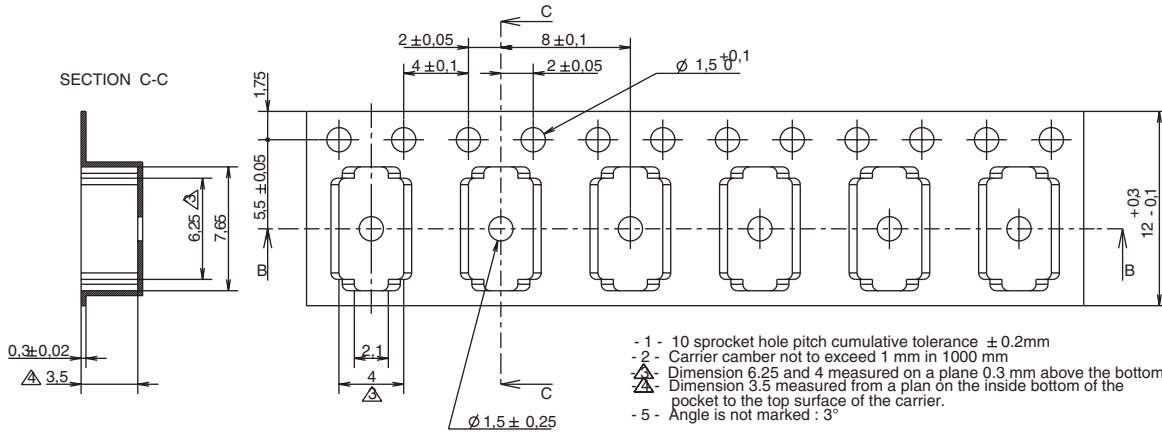
MARKING	PART NUMBER
D - 1	ATS 2D1G NC LFS
D - 3	ATS 2D3G NC LFG



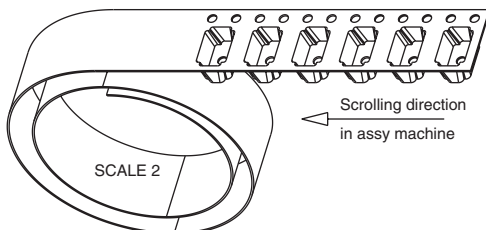
SECTION B-B



SECTION C-C



- 1 - 10 sprocket hole pitch cumulative tolerance $\pm 0.2\text{mm}$
- 2 - Carrier camber not to exceed 1 mm in 1000 mm
- 3 - Dimension 6.25 and 4 measured on a plane 0.3 mm above the bottom of the pocket
- 4 - Dimension 3.5 measured from a plan on the inside bottom of the pocket to the top surface of the carrier.
- 5 - Angle is not marked : 3°



Detect

ASD Series Miniature Sealed Detect Switch

Features/Benefits

- Automotive grade
- Long 2.5 mm travel
- Quiet operation
- 300,000 electrical cycles
- IP67

Typical Applications

- Automotive - electronic door latch
- Automotive - electronic door handles



Preliminary
8 June 16

Specifications

FUNCTION: SPST NO, or SPST NC

Mechanical

OPERATING FORCE:	1.5 N max.
FREE POSITION:	8.75 mm *
OPERATING POSITION:	7.25 mm *
FULL TRAVEL POSITION:	6.25 mm *
MECHANICAL LIFE:	300,000 cycles min.
MAX. OVERLOAD FORCE:	20 N down

* from post center

Electrical

MINIMUM RATING:	1mA 5 VDC (silver plated contacts)
MAXIMUM RATING:	250mA 14 VDC (silver contacts)
ELECTRICAL LIFE:	300,000 cycles min.
CONTACT RESISTANCE:	500 m Ω initial / 1 m Ω max.
INSULATION RESISTANCE:	100 M Ω min.
DIELECTRIC STRENGTH:	250 V min.

Materials

FIXED CONTACTS / TERMINALS: Phosphor bronze / Silver plated
MOVABLE CONTACTS: Phosphor bronze; silver plate
BASE: PBT
COVER: PBT
ACTUATOR: Acetal

Environmental

OPERATING TEMPERATURE: - 40°C to +85°C
STORAGE TEMPERATURE: - 50°C to +95°C

Process

SOLDERING: Hand solder 300°C, 3s max.

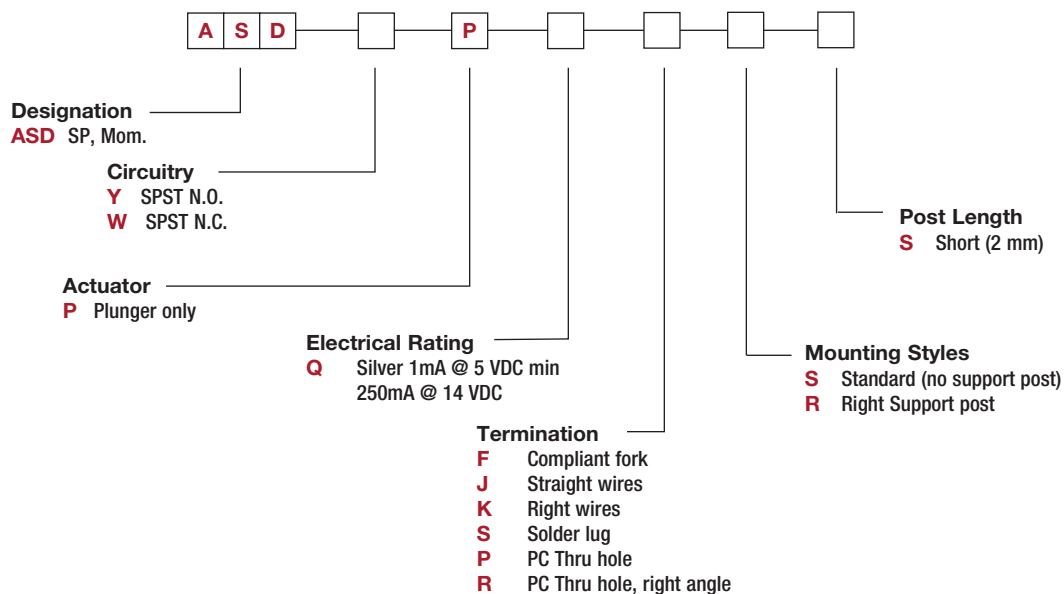
Packaging

Switches are delivered in tray.

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

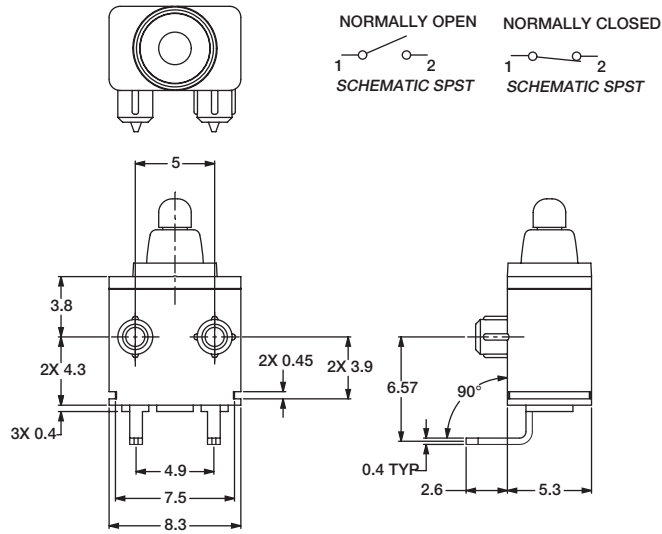
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on the next page. For additional options not shown in catalog, consult Customer Service Center.



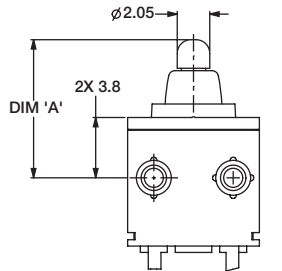
ASD Series Miniature Sealed Detect Switch

Preliminary
8 June 16



ACTUATOR

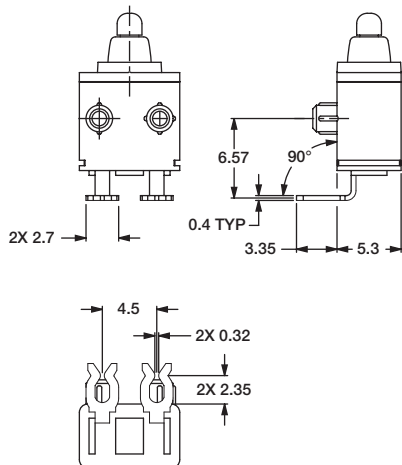
P PLUNGER ONLY



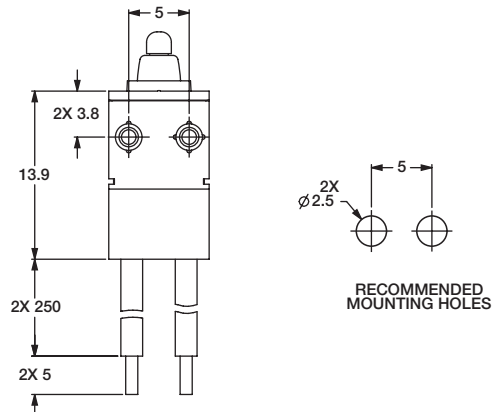
	DIM 'A'
FREE POSITION	8.75
BREAK	7.25
FULL TRAVEL	6.25

TERMINATIONS

F COMPLIANT FORK



J STRAIGHT WIRES



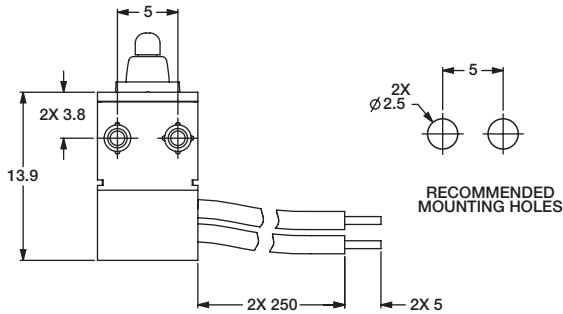
Detect



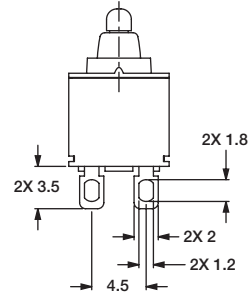
Dimensions are shown: mm
Specifications and dimensions subject to change

TERMINATIONS

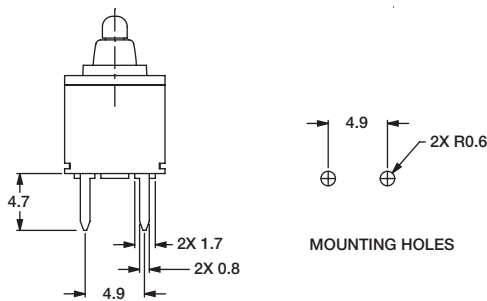
K RIGHT WIRES



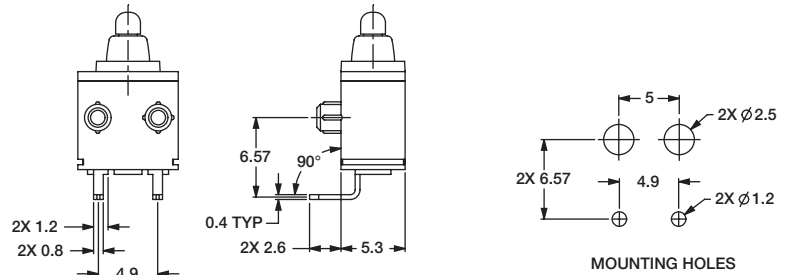
S SOLDER LUG



P PC THRU-HOLE

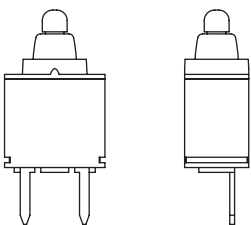


R PC THRU-HOLE - RIGHT ANGLE

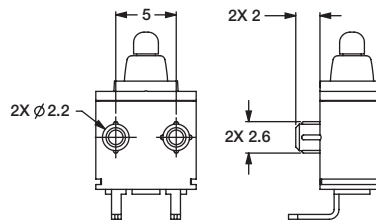


MOUNTING STYLE

S STANDARD (NO SUPPORT POST)










R RIGHT SUPPORT POST



Toggles

Product Selection Guide

Toggles							
Series	7000	Military	E	ET	T	GT	9000
Switch Type	Miniature	Miniature	Miniature	Subminiature	Subminiature	Ultraminiature	Power
Poles/Throws	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT,	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	SPST, SPDT, DPST, DPDT	DPDT
Maximum Current Silver/Gold	5 Amps	5 Amps	7.5 Amps/ 5 Amps	3 Amps/ 2 Amps	3 Amps/ 2 Amps	0.4 VA	10 Amps
Process Sealed			•	•		•	
PCB Mount Options							
Vertical	•	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•	
Vertical Right Angle	•	•	•	•	•	•	•
Surface Mount Options							
Vertical						•	
Right Angle				•		•	
Panel Mount Options							
Rear Mount	•	•	•		•		•
Termination Options							
PCB Thru-hole	•	•	•	•	•	•	•
Wire Wrap	•		•	•	•		
Solder Lug	•	•	•		•		•
Quick Connect	•		•				•
Other Available Options							
Support Brackets	•	•	•	•	•	•	•
Snap-in Retention	•		•	•			
ESD Protection	•		•	•	•		
Tape & Reel				•		•	
Bushing Options							
10-48					•		
1/4-40	•	•	•		•		•
15/32	•						•
M6P 0.75 (Metric)	•						
Page No.	F-3	F-17	F-22	F-30	F-37	F-43	F-48



Toggle
F



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

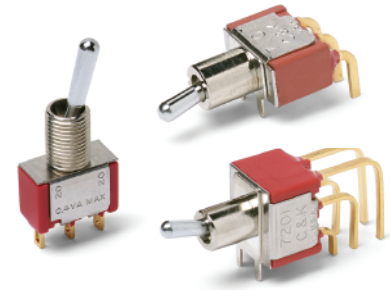
7000 Series Miniature Toggle Switches

Features/Benefits

- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS complaint models available

Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 5 AMPS @ 120 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-15 for additional ratings.

ELECTRICAL LIFE: 7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

For materials see page F-4.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-4 thru F-16. For additional options not shown in catalog, consult our Customer Service Center.

<p>Switch Function</p> <p>7101 SP On-None-On 7103 SP On-Off-On 7105 SP Mom.-Off-Mom. 7107 SP On-Off-Mom. 7108 SP On-None-Mom. 7109 SP None-On-Mom. 7201 DP On-None-On 7203 DP On-Off-On 7205 DP Mom.-Off-Mom. 7207 DP On-Off-Mom. 7208 DP On-None-Mom. 7211 DP On-On-On 7213 DP On-On-Mom. 7215 DP Mom.-On-Mom. 7301 3P On-None-On 7303 3P On-Off-On 7305 3P Mom.-Off-Mom. 7308 3P On-None-Mom. 7401 4P On-None-On 7403 4P On-Off-On 7405 4P Mom.-Off-Mom. 7408 4P On-None-Mom. 7411 4P On-On-On 7413 4P On-On-Mom. 7415 4P Mom.-On-Mom.</p> <p><small>Note: UL models available, see pages F-4 & F-5.</small></p>	<p>Actuator</p> <p>M .200" high P3 Flatted, anti-rotation, .450" high S .420" high T .687" high, 15/32 bushing K2 Locking lever, .704" high K9 Locking lever, .704" high K12 Locking lever, .732" high K19 Locking lever, .732" high L .840" high L1 .640" high L1P Anti-rotation, .640" high L2 .550" high L2P Anti-rotation, .550" high L3 Plastic .940" inch L40 Lever handle without cap L41 .531" high lever handle with cap L42 .838" high lever handle with cap MP Anti-rotation, .200" high P1 Flatted, anti-rotation, .840" high P4 Flatted, anti-rotation, .250" high SP Anti-rotation, .420" high T1 .487" high, 15/32 bushing T1P Anti-rotation, .487" high, 15/32 bushing T2P Flatted, anti-rotation, .610" high, 15/32 bushing TP Anti-rotation, .687" high, 15/32 bushing</p>	<p>Bushing</p> <p>D .280 high, keyway H .296 high, flat Y .350 high, keyway NONE No bushing choice required CW Splashproof D8 .280" high, flat D9 .280" high, keyway H3 .315" high, keyway H4 8mm high, keyway Y1 .378" high, keyway Y3 8.9mm high, keyway Y4 .378" high, flat Y9 .350" high, keyway</p> <p>Terminations</p> <p>A Right angle, PC thru-hole AV2 Vert. right angle, PC thru-hole C PC Thru-hole V3 .460 high, V-bracket Z Solder lug A2 Right angle, PC thru-hole A3 Right angle, PC thru-hole A4 Right angle, PC thru-hole AW1 Right angle, extended, PC thru-hole AW4 Right angle, extended, PC thru-hole V2 .555" high, V-bracket V4 .630" high, V-bracket V6 .460" high, V-bracket V7 .630" high, V-bracket V8 .953" high, V-bracket V9 1.150" high, V-bracket V21 .555" high, snap-in V-bracket V31 .460" high, snap-in V-bracket V41 .630" high, snap-in V-bracket V71 .630" high, snap-in V-bracket V81 .953" high, snap-in V-bracket</p>	<p>Contact Material</p> <p>B Gold P Gold, matte-tin Q Silver S Silver, matte-tin G Gold over silver R Gold over silver, matte-tin</p> <p>Seal</p> <p>E Epoxy I Epoxy potted base</p> <p>Actuator Color/Finish</p> <p>NONE Bright chrome 2 Black 3 Red S Satin chrome</p> <p>KXX Actuator Color/Finish</p> <p>NONE Natural aluminum 2 Black anodized aluminum 3 Red anodized aluminum 7 Blue anodized aluminum</p> <p>Bushing Finish</p> <p>NONE Nickel on all bushings (except D8, satin chrome) 2 Black</p> <p>W .750" long, wire wrap W1 .964" long, wire wrap W3 .425" long, wire wrap W4 1.062" long, wire wrap W5 1.305" long, wire wrap Z3 Quick connect</p>



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Toggle Switches

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page F-15 for additional contact materials.

CENTER CONTACTS & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See above for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking Ring: Brass, nickel plated.
Lockwasher: Steel, nickel plated.

NOTE: Materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

SWITCH FUNCTION



NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1 KEYWAY	POS. 2 KEYWAY	POS. 3 KEYWAY	POS. 1 KEYWAY	POS. 2 KEYWAY	POS. 3 KEYWAY	
SP	7101	U11	ON	NONE	ON	2-3	N/A	2-1	
	7103	U13	ON	OFF	ON	2-3	OPEN	2-1	
	7105	U15	MOM.	OFF	MOM.				
	7107	U17	ON	OFF	MOM.				
	7108	U18	ON	NONE	MOM.	2-3	N/A	2-1	
	7109	U19	NONE	ON	MOM.	N/A	2-3	2-1	SPDT
<p>SPDT</p> <p>Part number shown: 7101SYZBE</p>									
DP	7201	U21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	7203	U23	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	7205	U25	MOM.	OFF	MOM.				
	7207	U27	ON	OFF	MOM.				
	7208	U28	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	7211*	U211*	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
	7213*	U213*	ON	ON	MOM.				
7215*	U215*	MOM.	ON	MOM.					
<p>DPDT</p> <p>Part number shown: 7201SYZQE</p>									

MOM. = Momentary

** U11-U415 model nos. with all options when ordered with G, R, Q or S contact material.

* Wiring for 3-way switch, see Section N.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

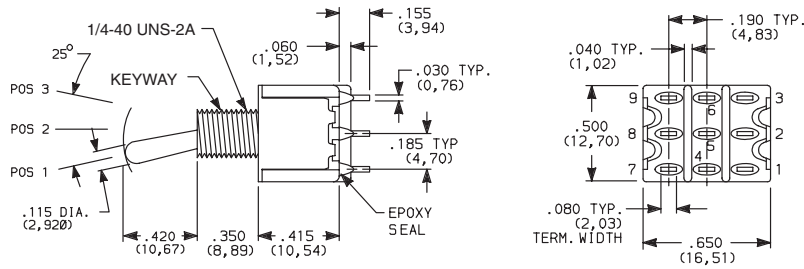


7000 Series Miniature Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
			KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	
3P	7301	U31	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
	7303	U33	ON	OFF	ON	2-3,5-6,8-9	OPEN	2-1,5-4,8-7	
	7305	U35	MOM.	OFF	MOM.				
	7307	U37	ON	OFF	MOM.				
	7308	U38	ON	NONE	MOM.				

3PDT

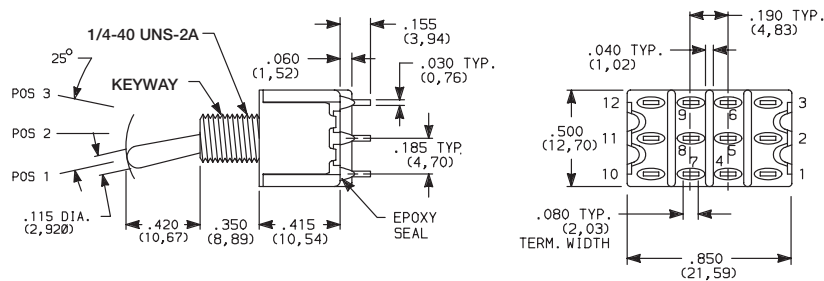


Part number shown: 7301SYZQE

Terminal Numbers
For Reference Only

4P	7401	U41	ON	NONE	ON	2-3,5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	
	7403	U43	ON	OFF	ON	2-3,5-6,8-9,11-12	OPEN	2-1,5-4,8-7,11-10	
	7405	U45	MOM.	OFF	MOM.				
	7408	U48	ON	NONE	MOM.				
	7411*	U411*	ON	ON	ON				
	7413*	U413*	ON	ON	MOM.				
7415*	U415*	MOM.	ON	MOM.					

4PDT



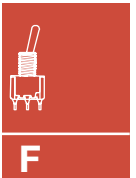
Part number shown: 7401SYZQE

Terminal Numbers
For Reference Only

MOM. = Momentary

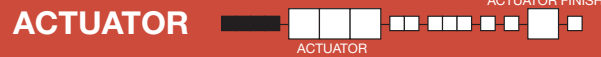
Wiring for 3-way switch, see Section N.

** U11-U415 model nos. with all options when ordered with G, Q, R or S contact material.

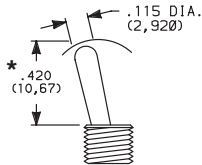


Toggle

7000 Series Miniature Toggle Switches

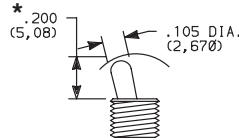


S .420" HIGH ¹
SP ANTIROTATION, .420" HIGH ^{2,3}



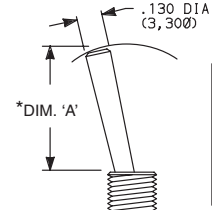
S actuator standard when ordered with C, W-W5, Z & Z3 terminations. Caps are available separately, see page F-16.

M .200" HIGH ¹
MP ANTIROTATION, .200" HIGH ^{2,3}



M actuator standard when ordered with all terminations except C, W-W5, Z & Z3. Caps are available separately, see page F-16.

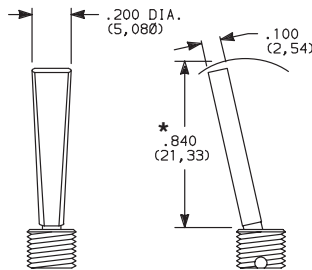
L, L1, L2 .840", .640", .550" HIGH ¹
L1P, L2P ANTIROTATION, .840", .640", .550" HIGH ^{2,3}



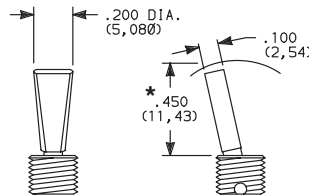
OPTION CODE	DIM 'A'
L	.840 (21,34)
L1, L1P	.640 (16,26)
L2, L2P	.550 (13,97)

Caps are available separately, see page F-16.

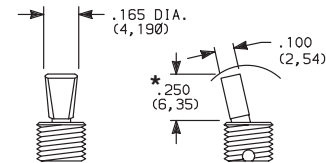
***P1** FLATTED WITH ANTIROTATION, .840" HIGH ^{2,3}



***P3** FLATTED WITH ANTIROTATION, .450" HIGH ^{2,3}

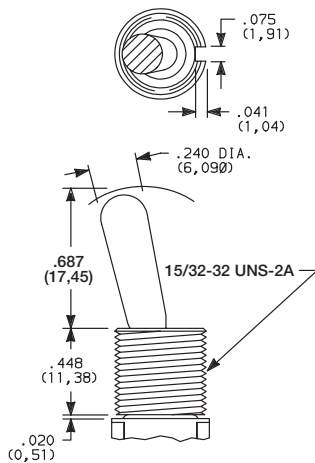


***P4** FLATTED WITH ANTIROTATION, .250" HIGH ^{2,3}

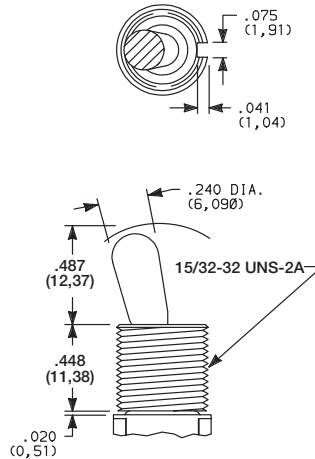


*Dress nut part number 709901201 supplied standard with threaded bushing. (Part number 709903201 with metric threaded bushings.)

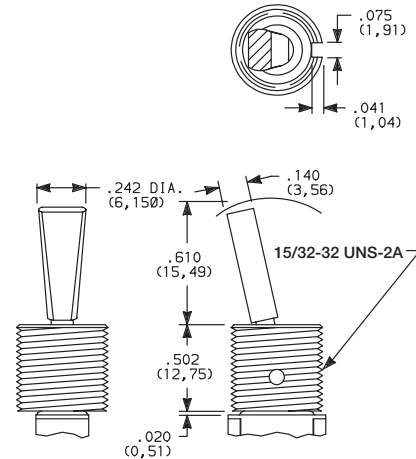
T .687 (17,45) HIGH ^{1,2}
TP ANTIROTATION, .687 (17,45) HIGH, 15/32 BUSHING ^{1,2,3}



T1 .487 (12,37) HIGH ^{1,2}
T1P ANTIROTATION, .487 (12,37) HIGH, 15/32 BUSHING ^{1,2,3}



T2P FLATTED, ANTIROTATION, .610" HIGH, 15/32 BUSHING ^{1,2,3}



Bushing option code not required unless CW splashproof bushing ordered. TP & T1P actuators not available with CW splashproof bushing. All TXX actuators not available on single pole models with A-A4, AW1-AW4 terminations.

Bushing option code not required. T2P actuator not available with CW splashproof bushing or single pole models with A-A4, AW1-AW4 terminations.

- ¹ L, L1, L2, M, S & TXX actuators not available with Y1 bushing.
 - ² L1P, L2P, MP, P1, P3, P4, SP & TXX actuators not available with D8 & H4 bushing.
 - ³ Antirotation: Provides anti-'push-in' feature on actuator.
- * Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

OPTION CODE	ACTUATOR FINISH
NONE	BRIGHT CHROME-With Nickel Plated Bushing
2	BLACK
S	SATIN CHROME

NOTE: Black hardware is supplied when either black actuators or bushings are specified. For additional hardware, see Section N.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

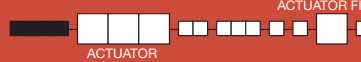


Toggle



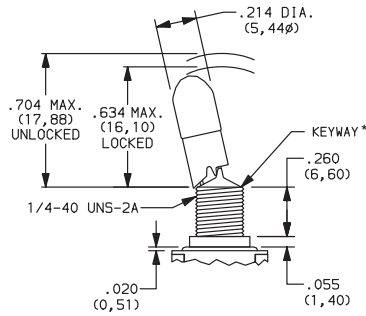
7000 Series Miniature Toggle Switches

ACTUATOR

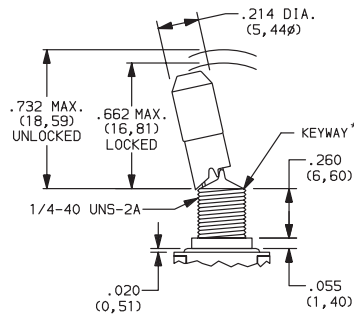


- K2** LOCKING LEVER, .704" HIGH (threaded)
- K9** LOCKING LEVER, .704" HIGH (unthreaded)

- K12** LOCKING LEVER, .732" HIGH (threaded)
- K19** LOCKING LEVER, .732" HIGH (unthreaded)



Replaces K, K8



Replaces K1, K18

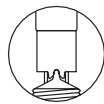
OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK ANODIZED ALUMINUM
3	RED ANODIZED ALUMINUM
7	BLUE ANODIZED ALUMINUM

* All KXX models including KXXCW have a keyway

Locking Positions



-01 Models
2 Position lock



-03 & -11 Models
3 Position lock



-05, -09 & -15 Models
1 Position lock



-07 & -13 Models
2 Position lock



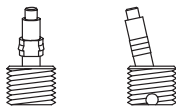
-08 Models
1 Position lock

NOTE: To prevent accidental actuation, toggle must be lifted before being actuated. When released, toggle will lock in place. Overtightening mounting nut may cause actuator to bind.

Locking levers supplied with bushing shown.

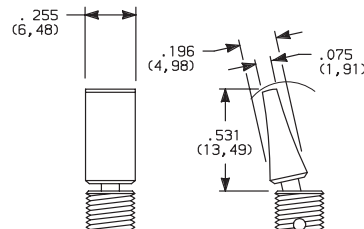
Bushing option code not required unless CW splashproof bushing ordered.

- L40** LEVER HANDLE WITHOUT CAP



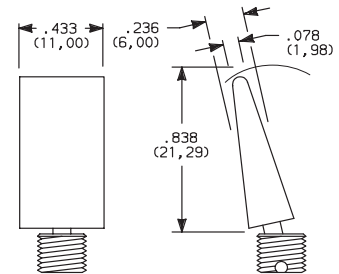
No color choice required

- L41** PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4810

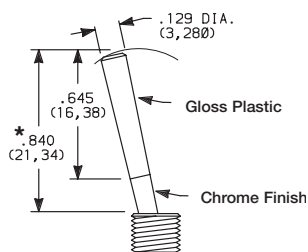


Finish: Matte (L41 & L42).

- L42** PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4811



- L3** PLASTIC .940" HIGH



OPTION CODE	PLASTIC ACTUATOR COLORS
NONE	No Actuator Color (L40 option)
2	BLACK
3	RED

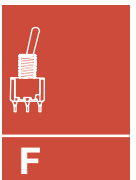
* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

NOTE: Lever handle for L41 & L42 actuators supplied, but not installed. For interchangeability, order L40 actuator option and lever handles separately, see page F-16. L4X actuators not available with H4, Y1, Y4 bushings. Antirotation: Provides anti-'push-in' feature on actuator.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



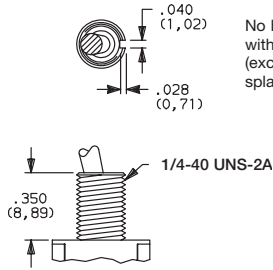
7000 Series Miniature Toggle Switches

BUSHING

BUSHING FINISH

BUSHING

Y .350" HIGH, THREADED, KEYWAY
Y9 .350" HIGH, UNTHREADED, KEYWAY

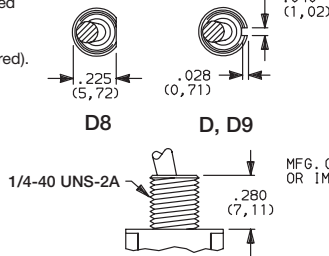


Y bushing standard with C, W-W5, Z or Z3 terminations.

NONE NO BUSHING

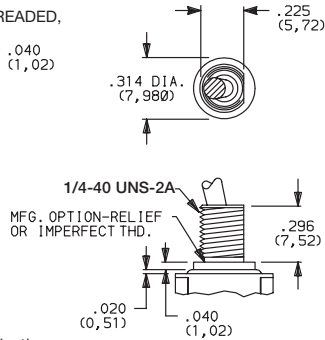
No bushing choice required with KXX, TXX actuators. (exception: Specify CW if splashproof bushing desired).

D .280" HIGH, THREADED, KEYWAY
D8 .280" HIGH, UNTHREADED, FLAT³
D9 .280" HIGH, UNTHREADED, KEYWAY

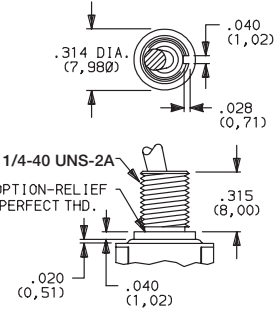


D9 bushing standard with all terminations except C, W-W5, Z or Z3. Add .070 (1,78) to all actuators lengths with D, D8 & D9 bushings.

H .296" HIGH, FLAT THREADED, HIGH TORQUE^{1,2}

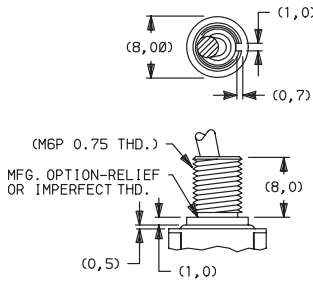


H3 .315" HIGH, KEYWAY THREADED, HIGH TORQUE^{1,2}

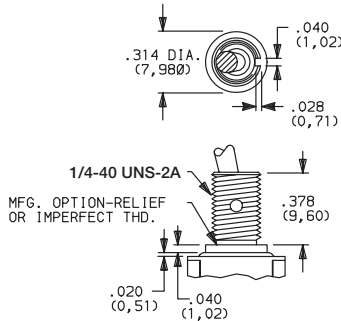


Subtract .020 (0,51) from all actuator lengths for H3 bushing.

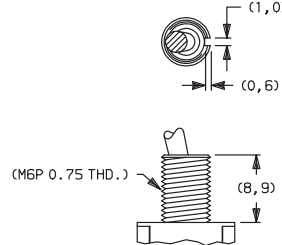
H4 8mm HIGH, KEYWAY, THREADED, METRIC HIGH TORQUE^{1,2,3}



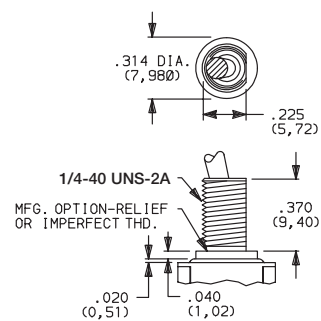
Y1 .378" HIGH, KEYWAY, THREADED, HIGH TORQUE^{1,2,4}



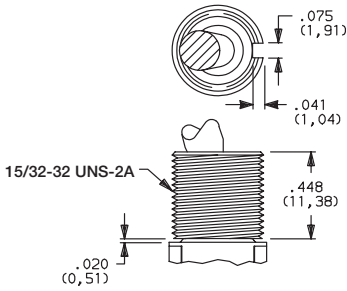
Y3 8.9mm HIGH, KEYWAY, THREADED, METRIC



Y4 .378" HIGH, FLAT, THREADED, HIGH TORQUE^{1,2,5}

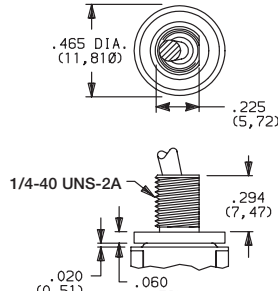


CW THREADED, SPLASHPROOF^{1,2}
For T & T1 actuators.



IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.

For actuators other than T, T1 and KXX.



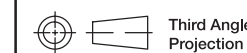
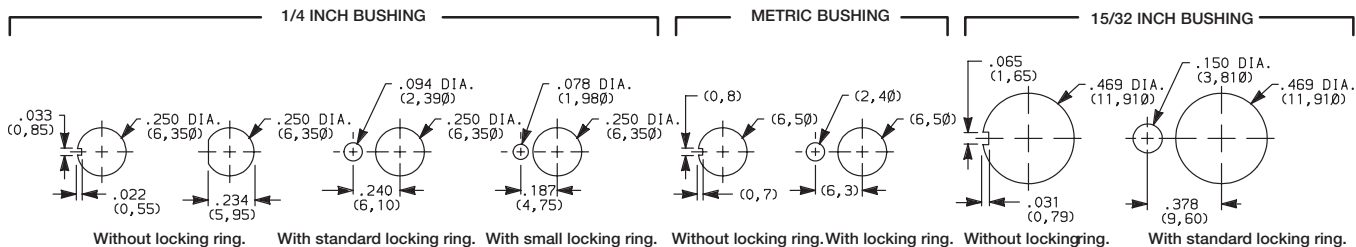
IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal and external bushing seal washer standard. IP65 degree of protection for LXP, MP, PX or SP with CW option.

OPTION CODE	BUSHING FINISH
NONE	NICKEL on all bushings except 'D8' satin chrome.
2	BLACK

- Will withstand 12 in.-lbs. of torque with no distortion.
- CW, H, H3, H4, Y1 & Y4 bushings not available on single pole models with A4 terminations.
- D8 & H4 bushings available only with L, L1, L2, M & S actuators.
- Y1 bushing available only with LXP, MP, PX & SP actuators.
- Y4 bushing not available with L4X actuators.

NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

PANEL MOUNTING



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

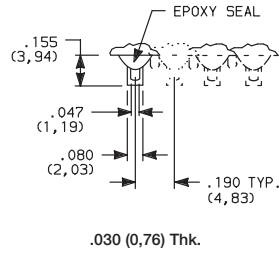
Toggle
F

C&K

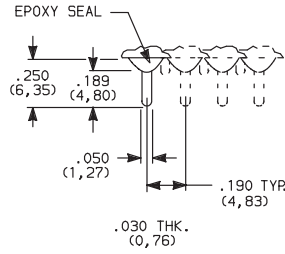
7000 Series Miniature Toggle Switches

TERMINATIONS

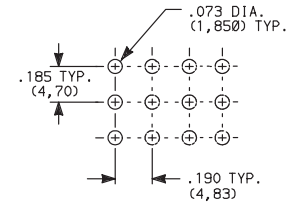
Z SOLDER LUG



C PC THRU-HOLE



PC MOUNTING

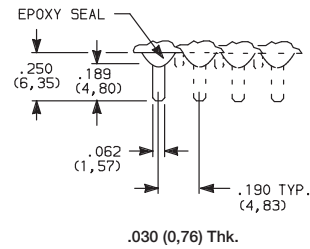


SPDT thru 4PDT

Not available with P, R or S contact materials.

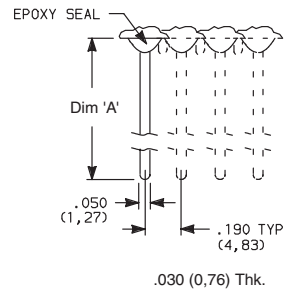
SPDT thru 4PDT

Z3 QUICK CONNECT



W, W1, W3, W4, W5 WIRE WRAP

WIRE WRAP



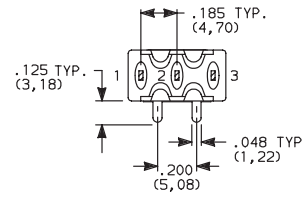
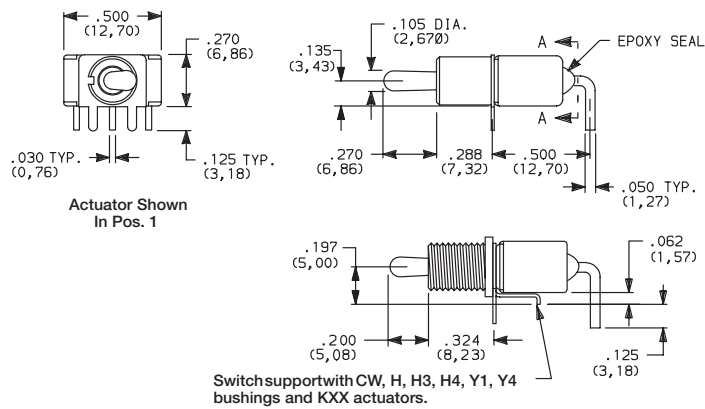
OPTION CODE	DIM 'A'
W	.750 (19,05)
W1	.964 (24,48)
W3	.425 (10,80)
W4	1.062 (26,97)
W5	1.305 (33,15)

SPDT thru 4PDT

Not available with P, R or S contact materials.
Mating quick connector available, order part number 530100000, page F-16.

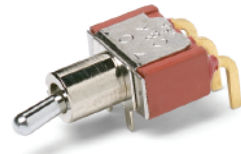
SPDT thru 4PDT

A RIGHT ANGLE, PC THRU-HOLE



SECTION A-A

Terminal Nos.
For Reference Only

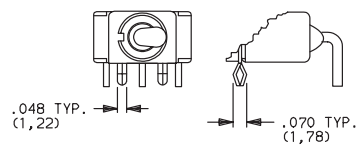


7101MD9ABE
Horizontal Actuation
SPDT

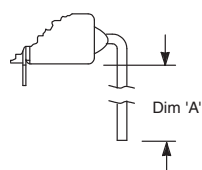
Part No. Shown: 7101MHABE

Switch support with CW, H, H3, H4, Y1, Y4 bushings and KXX actuators.

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

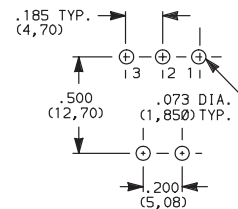


AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE

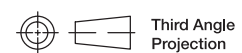


OPTION CODE	DIM 'A'
AW1	.72 (18,3)
AW4	.83 (21,1)

PC MOUNTING



Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.



Third Angle
Projection



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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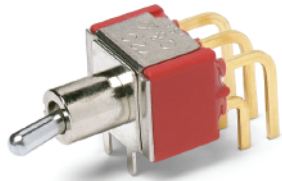


Toggle

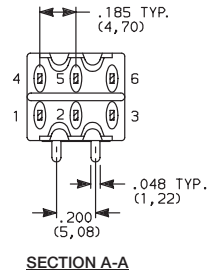
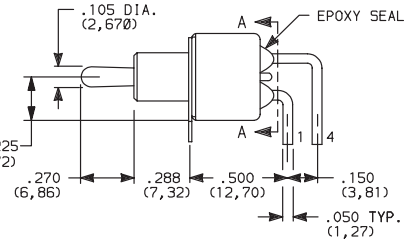
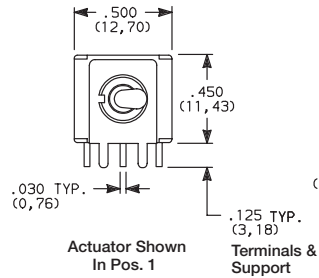
7000 Series Miniature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

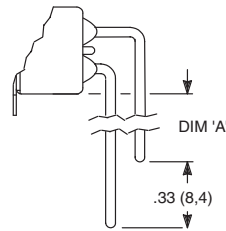
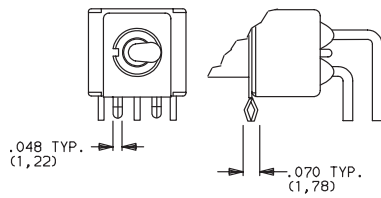


7201MD9ABE
Horizontal Actuation
DPDT



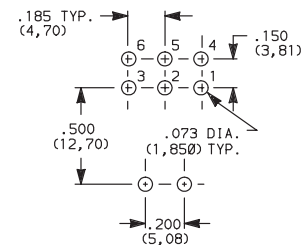
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



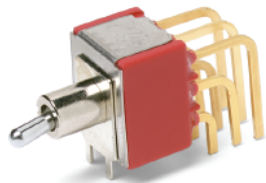
OPTION CODE	DIM 'A'
AW1	.40 (10,2)
AW4	.50 (12,7)

PC MOUNTING

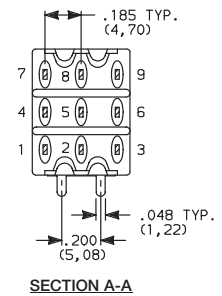
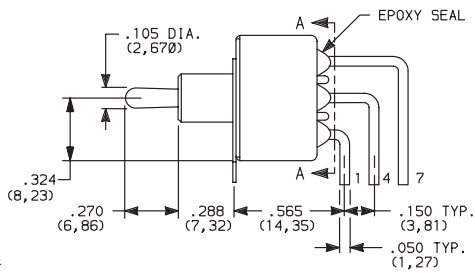
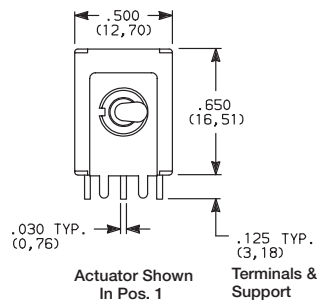


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

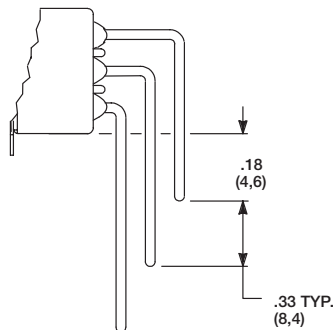
A RIGHT ANGLE, PC THRU-HOLE



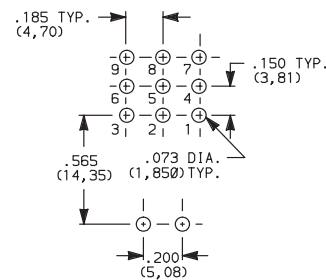
7301MD9ABE
Horizontal Actuation
3PDT



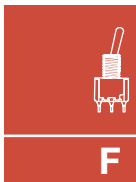
AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



PC MOUNTING



Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.



Toggle

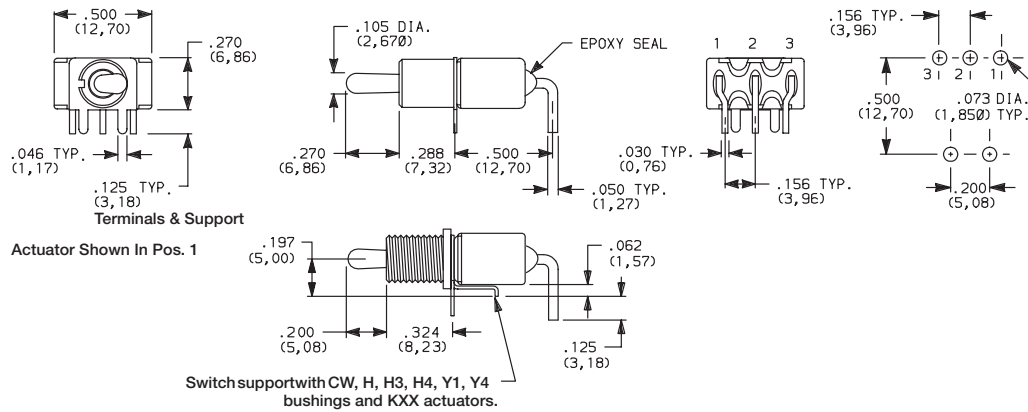


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Toggle Switches

TERMINATIONS

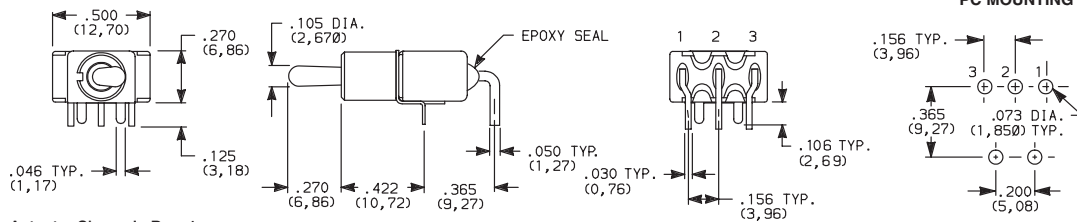
A2 RIGHT ANGLE, PC THRU-HOLE,
.156" PITCH



7101MHA2BE
Horizontal Actuation
SPDT

Not available with TXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option. Part No. Shown: 7101MHA2BE

A4 RIGHT ANGLE, PC THRU-HOLE
.156" PITCH

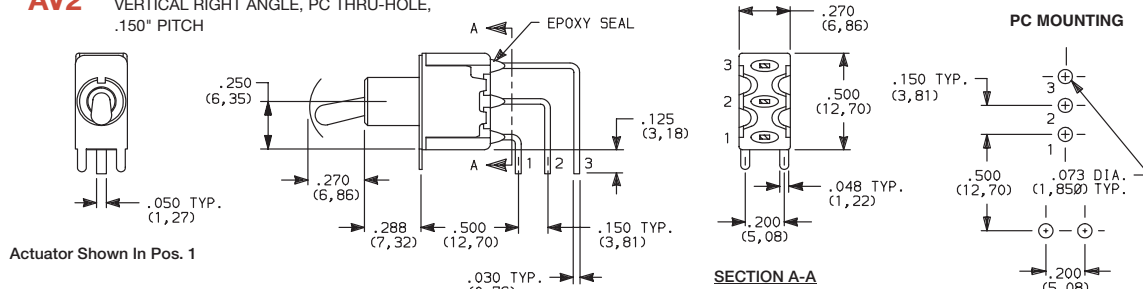


7101MD9A4BE
Horizontal Actuation
SPDT

Not available with KXX & TXX actuators, CW, H, H3, H4, Y1 & Y4 bushings, and I seal. Terminal bend radii and lead-in manufacturing option.

NOTE: The A4 option is available with any contact material and can be UL recognized and CSA certified. The PC pattern must clear switch support legs.

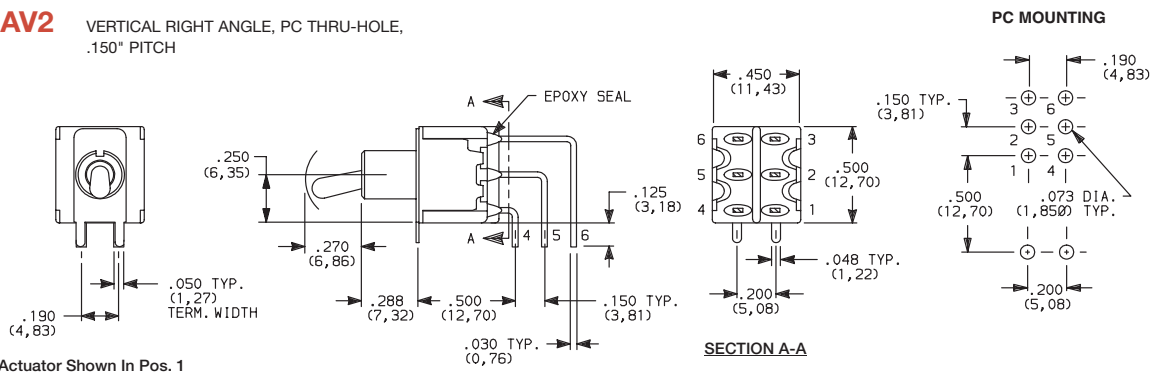
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



7101MD9AV2BE
Horizontal Actuation
SPDT

Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



7201MD9AV2BE
Vertical Actuation
DPDT

Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.



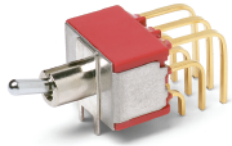
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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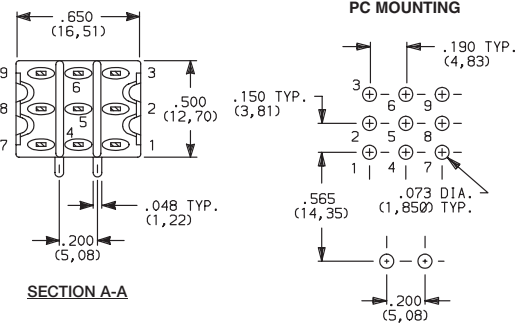
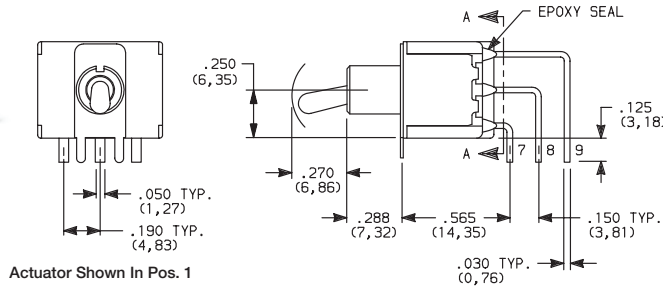
7000 Series Miniature Toggle Switches

TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH

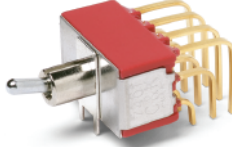


7301MD9AV2BE
Vertical Actuation
3PDT

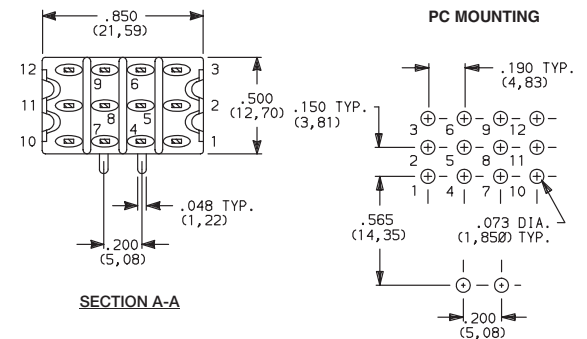
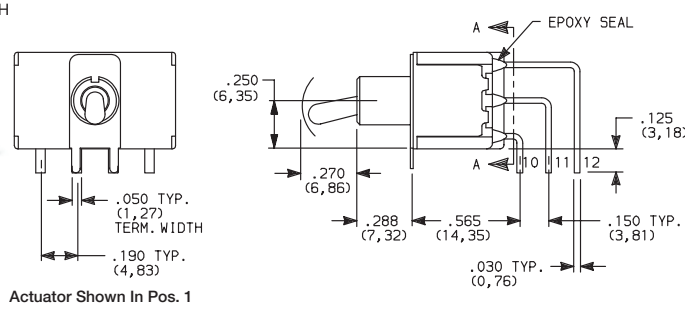


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



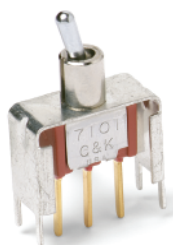
7401MD9AV2BE
Vertical Actuation
4PDT



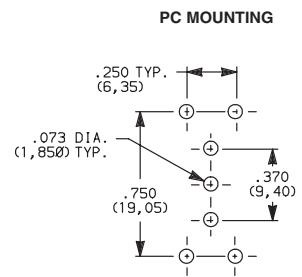
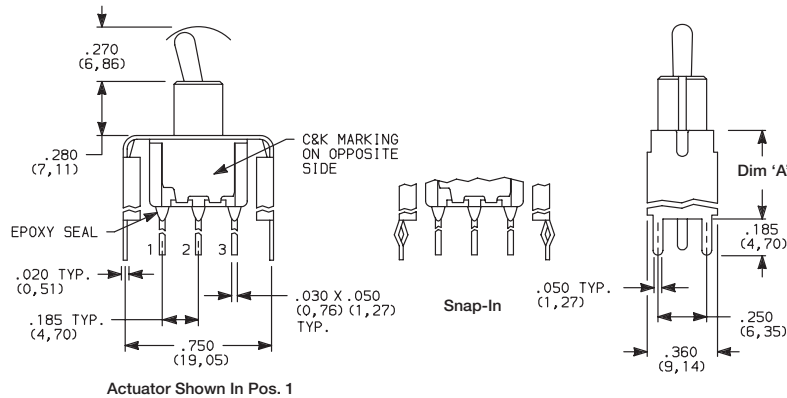
Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



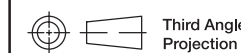
7101MD9_BE
SPDT



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6	.460 (11,68)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)

Not available with I seal option.

Toggle



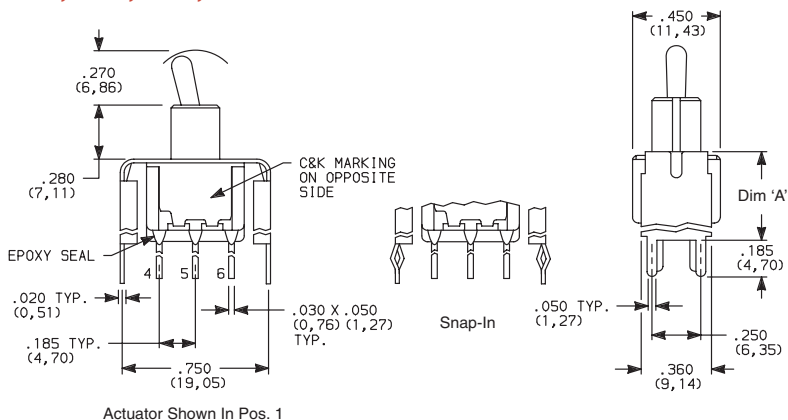
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Toggle Switches

TERMINATIONS

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

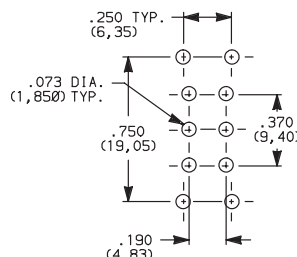
V21, V61, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



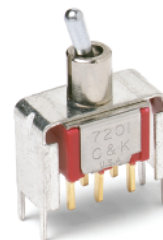
Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



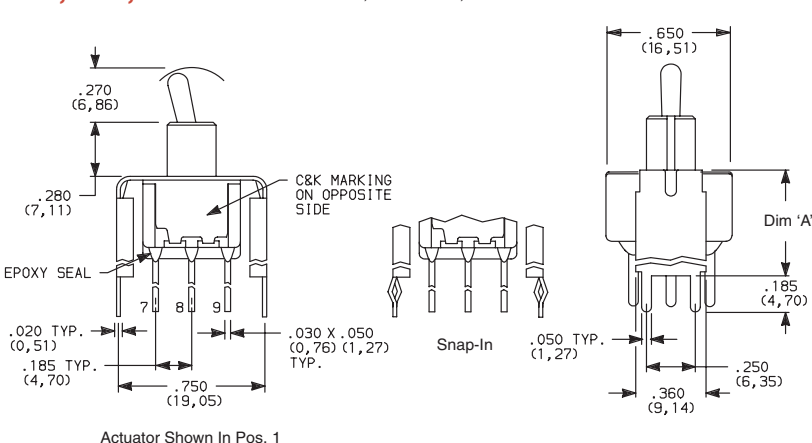
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11,68)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7201MD9_BE
DPDT

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

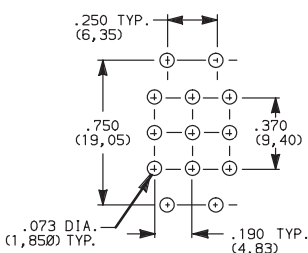
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



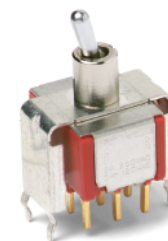
Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



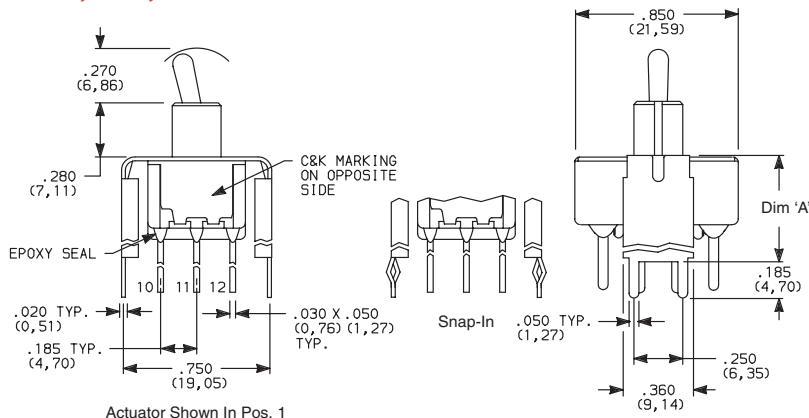
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7301MD9_BE
3PDT

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

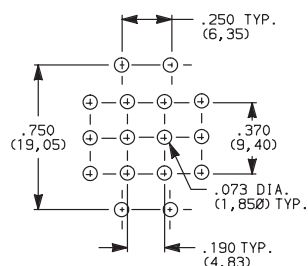
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



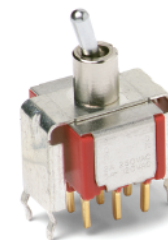
Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7401MD9_BE
4PDT



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

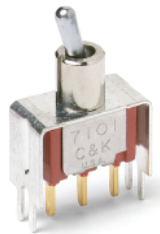


7000 Series Miniature Toggle Switches

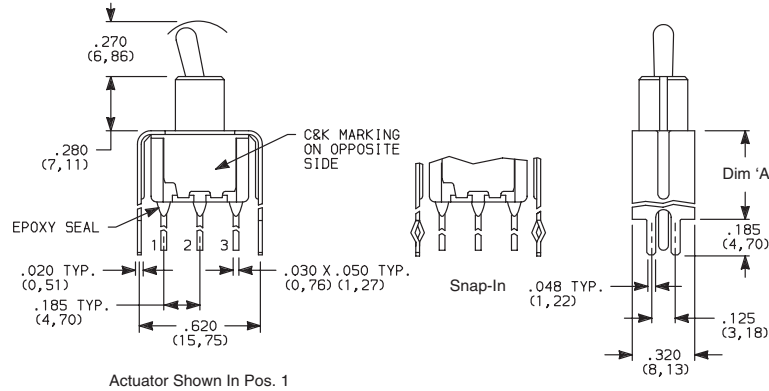
TERMINATIONS

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN

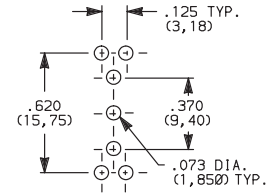


7101MD9_BE
SPDT



Actuator Shown In Pos. 1

PC MOUNTING

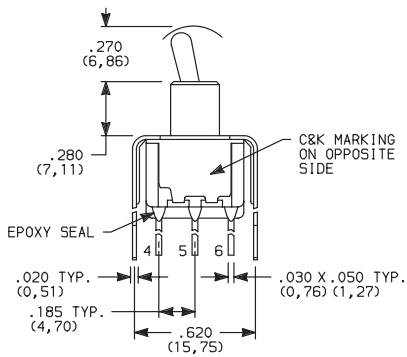


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

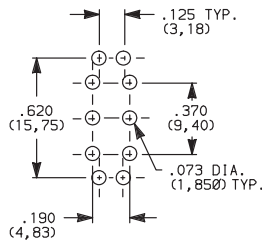
V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING

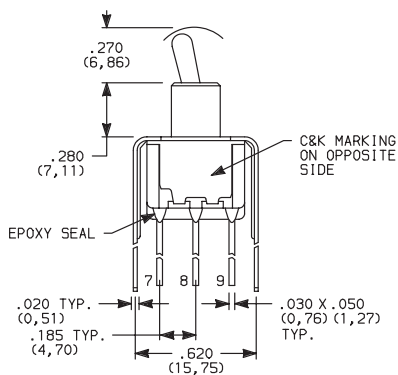


7201MD9_BE
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

V4, V9 VERTICAL MOUNT, V-BRACKET

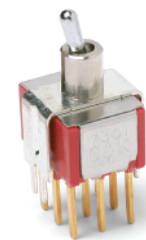
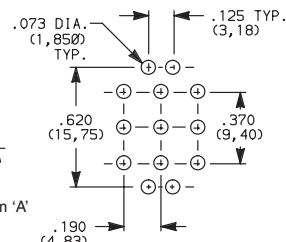
V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



7301MD9_BE
3PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9	1.150 (29,21)



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Toggle

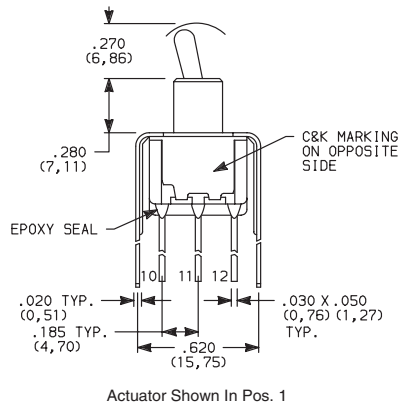


7000 Series Miniature Toggle Switches

TERMINATIONS

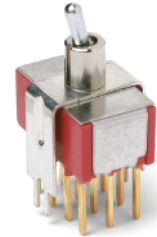
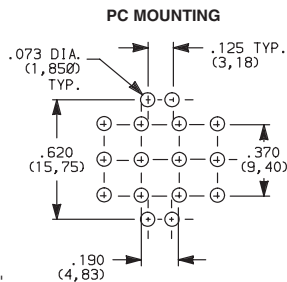
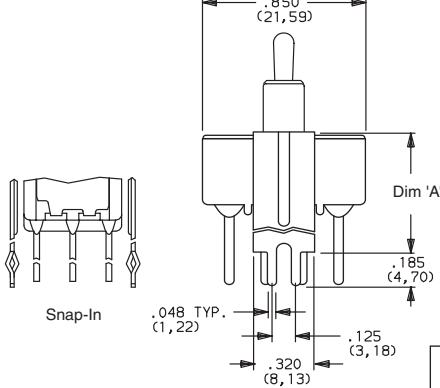
V4, V9 VERTICAL MOUNT, V-BRACKET

V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.



7401MD9_BE
4PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9	1.150 (29,21)

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte tin alloy nickel plate.

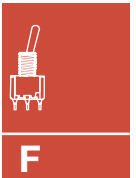
NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

U11-U415 model numbers  with all options when ordered with G, S, R, or Q contact material.

B contact material standard with all terminations except C, Z & Z3.

Q contact material standard with C, Z & Z3 terminations.

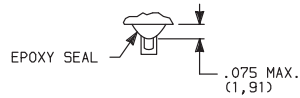
P, S & R contact materials not available with Z & Z3 terminations.



7000 Series Miniature Toggle Switches

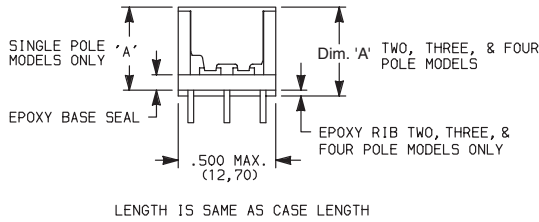
SEAL

E EPOXY SEAL



Compatible with "bottom-wash" PC board cleaning methods.

I EPOXY POTTED BASE

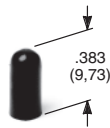


NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

Available with C, W-W5, Z & Z3 terminations only.

AVAILABLE HARDWARE

Cap

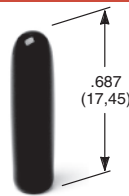


PART NO.

896801000 WHITE
896802000 BLACK
896803000 RED

Material: Polyethylene
Finish: Matte

Cap

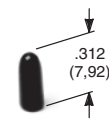


PART NO.

763701000 WHITE
763702000 BLACK
763703000 RED

Material: Vinyl
Finish: Matte

Cap

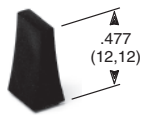


PART NO.

706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte

L41 Lever handle

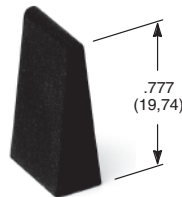


PART NO.

481001000 WHITE
481002263 BLACK
481003000 RED

Material: Nylon
Finish: Matte

L42 Lever handle



PART NO.

481101000 WHITE
481102263 BLACK
481103000 RED

Material: Nylon
Finish: Matte

Fits Z3 Termination female connector



PART NO.

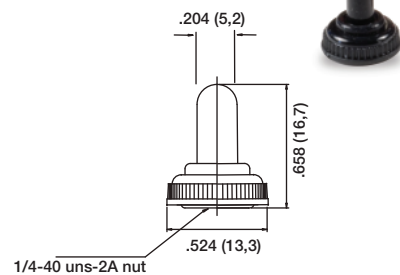
530100000

Available in loose pieces.

NOTE: Additional nuts, locking rings and lockwashers available separately, see Section N.

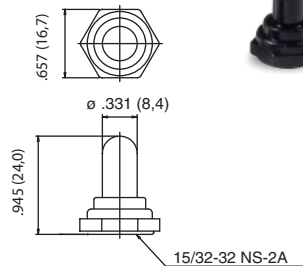
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



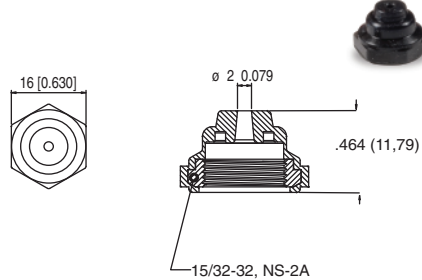
NOTE: For use with S actuator style when combined with D, H, H3, Y, and Y4 bushings

703D02000 Sealing Boot



NOTE: For use with T and TP style actuators. **Cannot be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, 7407.**

704D02000 Sealing Boot



NOTE: For use with T, TP and T2P style actuators. **Cannot be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, and 7407.**



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Toggle



Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches

Features/Benefits

- Qualified to MIL-S-83731
- 50 μ inch selective gold contact plating
- Epoxy sealed terminals for process compatibility
- Rated for logic level to 5 amp resistive loads and 2 amp inductive loads
- Flame retardant housing material
- RoHS compliant and compatible

Test Requirement	MIL-S-83731/9, 10, 13, 14, 15, 16
1. Strength of Terminal	1 lb. – solder lug
2. Strength of Actuating Lever Pivot and Stop	10 lbs. & 8 lbs. throughout range
3. Strength of Mounting Means	15 lbs. in. torque on bushing
4. Dielectric (Sea Level) Indication	1000 VAC Group B, 750 VAC after electrical endurance. 500 μ A max. leakage
5. Contact Voltage Drop	2.5 millivolt initial, 5.0 millivolt after mechanical endurance @ 2-6 VDC 0.1 amp
6. Temperature Rise	50° C rise max. @ rated resistive load after endurance test
7. Short Circuit	10 operations carry 100 amps resistive load @ lowest DC volts
8. Mechanical Life	20K operations at specified high and low temperatures
9. Electrical Endurance	10K operations at specified high and low temperatures
10. Overload	50 operations @ 150% of rated resistive load
11. Electrical Endurance at Sea Level	10K operations resistive load @ room temperature 10K operations inductive load @ room temperature 10K operations lamp load @ room temperature Performed on different test samples
12. Vibration	Method 204 of MIL-STD-202, test condition A .06 D. A. or 10 G's 10-500 Hz, 10 usec. max. chatter
13. Shock	Fuse-method 213 or MIL-STD-202, 10 usec. max. chatter
14. Salt Spray Test Upon Completion	48 hours – method 101 of MIL-STD-202, test condition B 10 operations resistive load (toggle sealed switches only)
15. Moisture Resistance Test Upon Completion	Method 106 of MIL-STD-202 100 VDC potential between current carrying parts and panel
16. Sand & Dust	Method 110 of MIL-STD-202, test condition B 6 hours @ 23°C 2.5K operations mechanical life (toggle sealed switches only)
17. Explosion	MIL-STD-202 method 109, maximum rated DC inductive load (toggle sealed switches only)
18. Sealing	Toggle seal – 5 operations under 0.5 inches of H ₂ O above top of bushing
19. A.) Toggle Seal B.) Bushing Seal	(Toggle sealed switches only) (Panel sealed switches only)
20. Temperature Operation	Mechanical life, –25°C to +71°C
21. Life Low Cur. Level	No requirement
22. Fungus	No requirement
23. Intermediate Current	20K operations, 35/40 milliamps @ 5 VDC resistive load @ +71°C
24. Thermal Shock	Method 107 of MIL-STD-202 test condition A; 5 cycles @ –55°C/+85°C

RATINGS

CURRENT RATINGS – HIGH LEVEL

Current Capacity in Amperes – Per Pole		
28V dc	115V ac, 400 Hz	125V ac, 60 Hz
Lamp Load		
1	1	1
Resistive Load		
5	5	5
Inductive Load		
2	2	2

CURRENT RATINGS – LOGIC LEVEL

0.5 Volt – Amp (VA) Max. @ 28 V Max. (AC or DC)

MATERIALS

CASE: Diallyl phthalate (DAP) (UL 94 V-0).
 BUSHING: Brass, nickel plated.
 HOUSING: Stainless steel.
 ACTUATOR: Brass, chrome plated.
 SWITCH SUPPORT: Brass, tin plated.
 TERMINALS: Gold over nickel over copper alloy.
 TERMINAL SEAL: Epoxy.
 CONTACTS: Gold over nickel over silver over brass.
 PANEL SEAL: Silicone rubber.
 MOUNTING HARDWARE: Two hexagon nut, brass with nickel plating; one lockwasher, steel with nickel plating; one locking ring, brass with nickel plating.



F

Toggle

HOW TO ORDER: Complete part numbers for MIL-S-83731 TOGGLE SWITCHES are shown on pages F–18 through F–21.



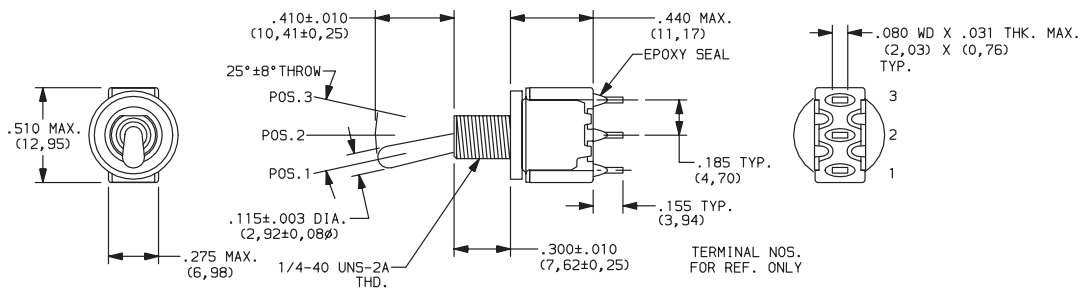
Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



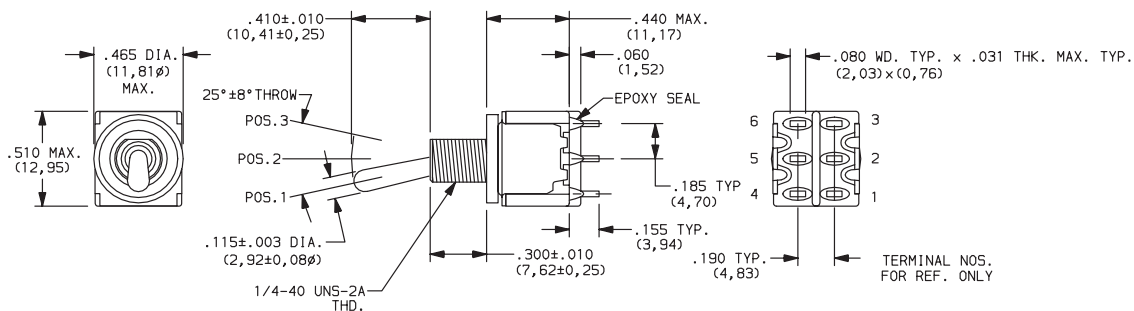
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/9-211	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/9-231	ON	NONE	ON				
	M83731/9-261	ON	NONE	MOM.				
	M83731/9-271	MOM.	OFF	MOM.				
	M83731/9-311	ON	OFF	MOM.				
M83731/9-341	NONE	ON	MOM.	N/A	2-3	2-1		

SPDT

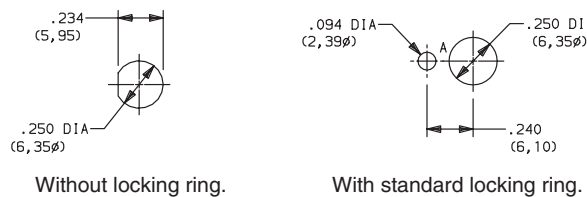


NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	M83731/10-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT
	M83731/10-231	ON	NONE	ON				
	M83731/10-261	ON	NONE	MOM.				
	M83731/10-271	MOM.	OFF	MOM.				
	M83731/10-311	ON	OFF	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	
	M83731/10-321	ON	ON	ON				
	M83731/10-331	ON	ON	MOM.				
	M83731/10-341	NONE	ON	MOM.	N/A	2-3,5-6	2-1,5-4	
M83731/10-351	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4		

DPDT



PANEL MOUNTING



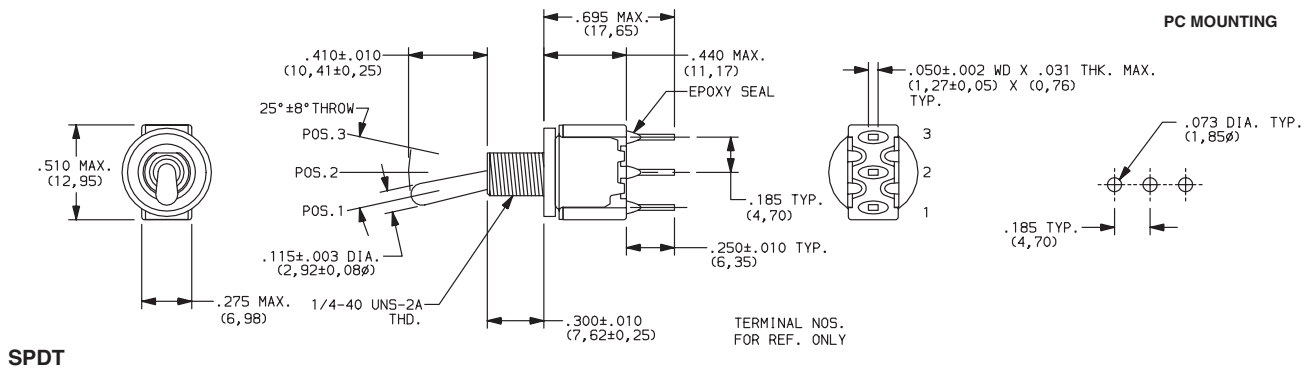
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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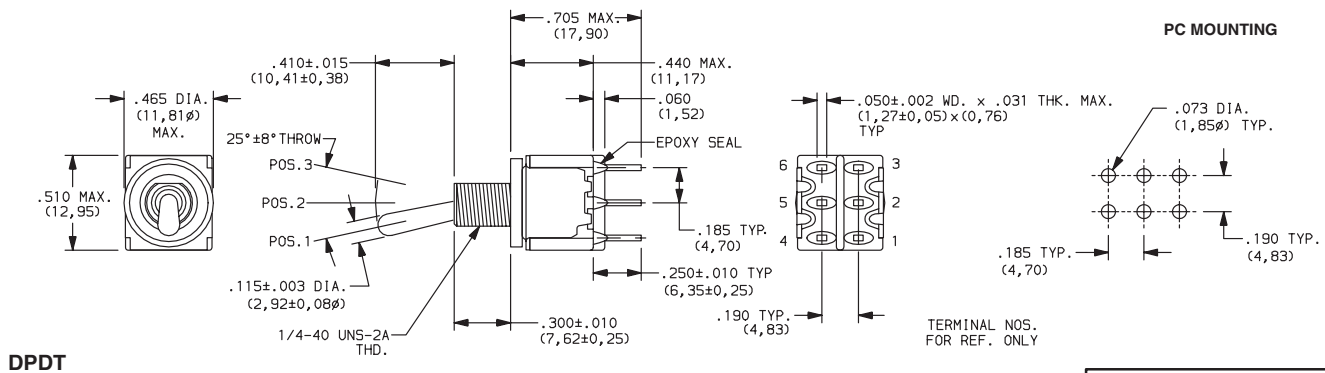
Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/9-212	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/9-232	ON	NONE	ON				
	M83731/9-262	ON	NONE	MOM.				
	M83731/9-272	MOM.	OFF	MOM.				
	M83731/9-312	ON	OFF	MOM.				
	M83731/9-342	NONE	ON	MOM.				



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	M83731/10-212	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT
	M83731/10-232	ON	NONE	ON				
	M83731/10-262	ON	NONE	MOM.				
	M83731/10-272	MOM.	OFF	MOM.				
	M83731/10-312	ON	OFF	MOM.				
	M83731/10-322	ON	ON	ON				
	M83731/10-332	ON	ON	MOM.				
	M83731/10-342	NONE	ON	MOM.				
M83731/10-352	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4		



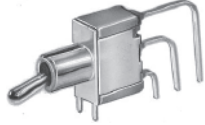
DPDT



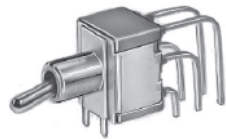
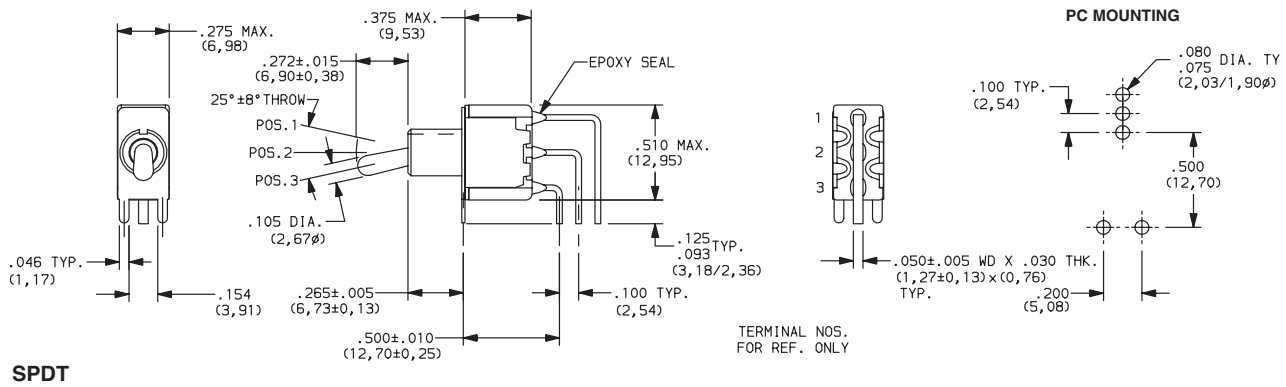
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



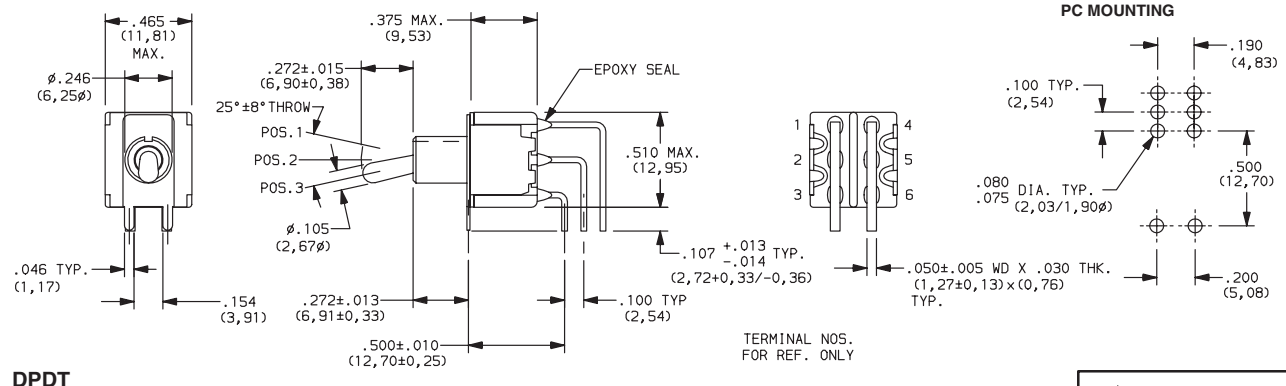
Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/13-211	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/13-231	ON	NONE	ON				
	M83731/13-261	ON	NONE	MOM.				
	M83731/13-271	MOM.	OFF	MOM.				
	M83731/13-311	ON	OFF	MOM.				
	M83731/13-341	NONE	ON	MOM.	N/A	2-3	2-1	



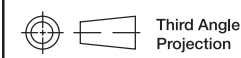
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	M83731/14-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT
	M83731/14-231	ON	NONE	ON				
	M83731/14-261	ON	NONE	MOM.				
	M83731/14-271	MOM.	OFF	MOM.				
	M83731/14-311	ON	OFF	MOM.				
	M83731/14-321	ON	ON	ON				
	M83731/14-331	ON	ON	MOM.				
	M83731/14-341	NONE	ON	MOM.				
	M83731/14-351	MOM.	ON	MOM.	N/A	2-3,5-6	2-1,5-4	



Toggle

F

DPDT



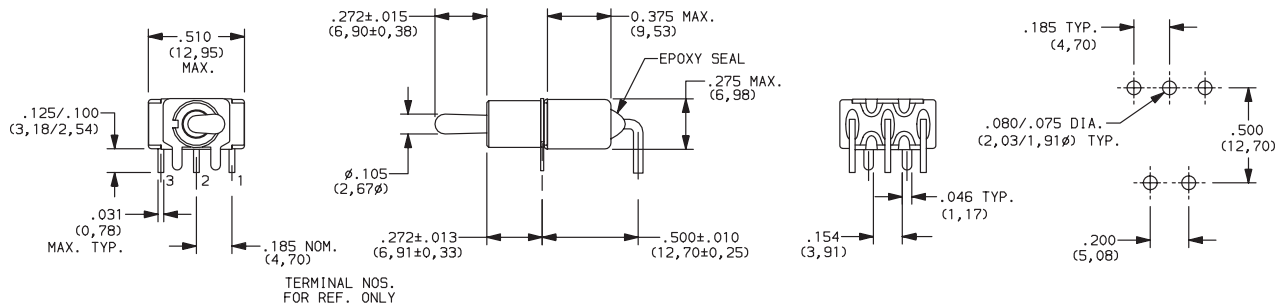
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/15-211	ON	OFF	ON	2-3	OPEN	2-1	 1 ● 2 (COMM) ● 3 SPDT
	M83731/15-231	ON	NONE	ON				
	M83731/15-261	ON	NONE	MOM.				
	M83731/15-271	MOM.	OFF	MOM.				
	M83731/15-311	ON	OFF	MOM.				
	M83731/15-341	NONE	ON	MOM.	N/A	2-3	2-1	

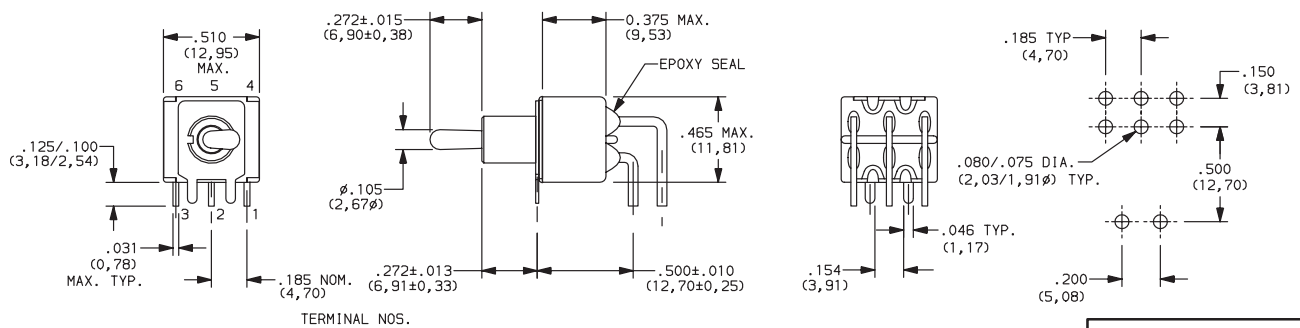
PC MOUNTING



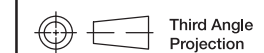
SPDT

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	M83731/16-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 2 ● (COMM) ● 6 1 ● 5 ● 4 DPDT
	M83731/16-231	ON	NONE	ON				
	M83731/16-261	ON	NONE	MOM.				
	M83731/16-271	MOM.	OFF	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	
	M83731/16-311	ON	OFF	MOM.				
	M83731/16-321	ON	ON	ON	N/A	2-3,5-6	2-1,5-4	
	M83731/16-331	ON	ON	MOM.				
	M83731/16-341	NONE	ON	MOM.				
	M83731/16-351	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	

PC MOUNTING



DPDT

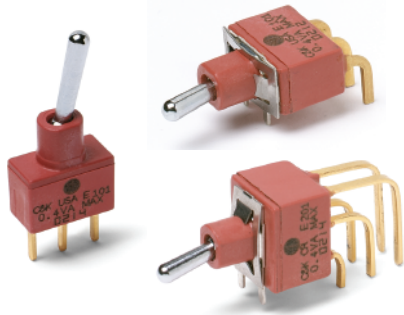


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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E Series Sealed Miniature Toggle Switches



Features/Benefits

- Sealed against solder and cleaning process contaminants
- UL 94V-0 Nylon case and bushing
- Multi-positions
- ESD protection available
- RoHS compliant models available

Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-29 for additional ratings.

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

ELECTROSTATIC DISCHARGE (ESD) OPTION: F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: Brass, chrome plated with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-29 for additional contact materials.

TERMINAL SEAL: Epoxy.

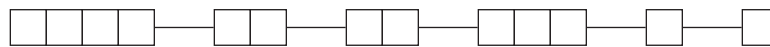
HARDWARE: Nut & Locking ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-23 thru F-29. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Switch Function

- E101** SP, On-None-On
- E103** SP, On-Off-On
- E105** SP, Mom.-Off-Mom.
- E107** SP, On-Off-Mom.
- E108** SP, On-None-Mom.
- E201** DP, On-None-On
- E203** DP, On-Off-On
- E205** DP, Mom.-Off-Mom.
- E207** DP, On-Off-Mom.
- E208** DP, On-None-Mom.
- E211** DP, On-On-On
- E213** DP, On-On-Mom.
- E215** DP, Mom.-On-Mom.
- **E301** 3P, On-None-On

Actuator

- M** .300" high
- S** .500" high
- L3** Plastic, .940" high

Bushing

- D1** .250" high
- *F1** Conductive, .250" high
- D9** .280" high
- **Y** Threaded, .350" high

Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- V3** .460" high, V-bracket
- Z** Solder lug
- A3** Right angle, PC thru-hole
- AV3** Vertical right angle, PC thru-hole
- V6** .460" high, V-bracket
- V9** 1.150" high, V-bracket
- V31** .460" high, snap-in V-bracket
- V61** .460" high, snap-in V-bracket
- W** .750" long, wire wrap
- Z3** Quick connect

Contact Material

- B** Gold
- P** Gold, matte-tin
- Q** Silver
- S** Silver, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

Seal

- E** Epoxy



Toggle
F

* F1 available with SP and DP versions only, please see page F-19

** Y threaded bushing available for 1 & 2 pole only



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series Sealed Miniature Toggle Switches

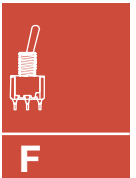
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	E101	ON	NONE	ON	2-3	N/A	2-1	
	E103	ON	OFF	ON	2-3	OPEN	2-1	
	E105	MOM.	OFF	MOM.				
	E107	ON	OFF	MOM.				
	E108	ON	NONE	MOM.	2-3	N/A	2-1	
<p>SPDT</p> <p>Part number shown: E101SD1CBE</p> <p>Terminal Numbers For Reference Only</p>								
DP	E201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	E203	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	E205	MOM.	OFF	MOM.				
	E207	ON	OFF	MOM.				
	E208	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	E211**	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
	E213**	ON	ON	MOM.				
E215**	MOM.	ON	MOM.					
<p>DPDT</p> <p>Part number shown: E201SD1CBE</p> <p>Terminal Numbers For Reference Only</p>								

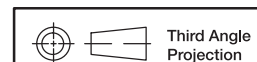
MOM. = Momentary

** Wiring for 3-way switch, see Section N.

All models with all options when ordered with G,R, Q or S contact material except with F1 conductive bushing.



Toggle



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series Sealed Miniature Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
3P	E301	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
3PDT								

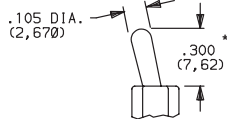
MOM. = Momentary

** Wiring for 3-way switch, see Section N.

All models with all options when ordered with G, R, Q or S contact material except with F1 conductive bushing.

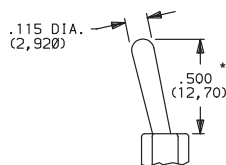
ACTUATOR

M .300" HIGH



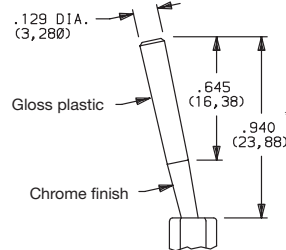
Standard when ordered with A, A3, AV2, AV3, V2-V61 terminations. Finish: Chrome.

S .500" HIGH



Standard when ordered with C, Z, Z3, W & W4 terminations. Finish: Chrome.

L3 PLASTIC, .940" HIGH



OPTION CODE	L3 ACTUATOR COLOR
2	BLACK

Other colors available, consult Customer Service Center. No color choice required for S & M actuators.

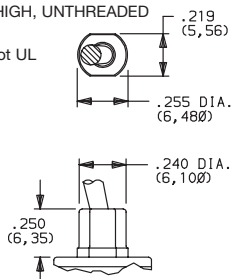
* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

BUSHING

D1 .250" HIGH, UNTHREADED

F1 ESD CONDUCTIVE BUSHING, .250" HIGH, UNTHREADED

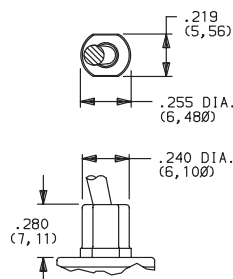
F1 bushing is not UL approved



ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

Available with M & S actuator options and A, A3, AV2, AV3, V3-V61 termination options.

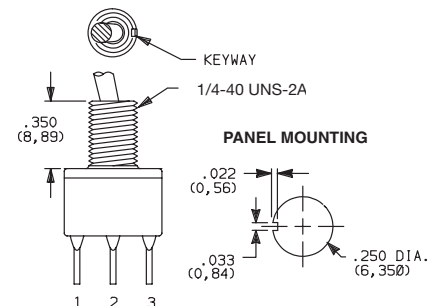
D9 .280" HIGH, UNTHREADED



E3XX models not available with D9 bushing.

NOTE: Internal o-ring actuator seal standard for all bushing options.

Y THREADED, INSULATED, .350" HIGH WITH KEYWAY



Available only with C, Z, Z3, & W terminations. Available for 1&2 pole only.

Hardware: One dress nut part number 299D01201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard.

Will withstand 4 in.-lbs. of torque with no distortion.



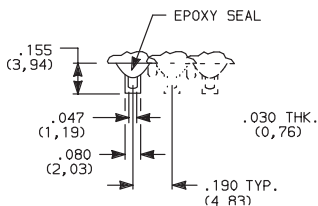
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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E Series Sealed Miniature Toggle Switches

TERMINATIONS

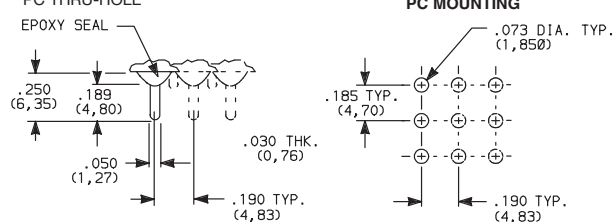
Z SOLDER LUG



Not available with F1 conductive bushing or P, R or S contact material.

SPDT thru 3PDT

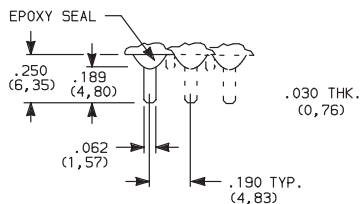
C PC THRU-HOLE



Not available with F1 conductive bushing.

SPDT thru 3PDT

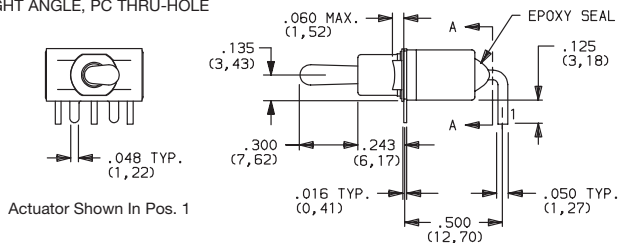
Z3 QUICK CONNECT



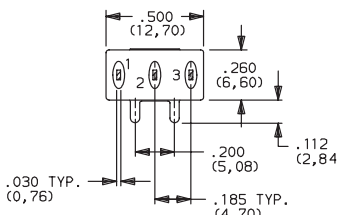
Not available with F1 conductive bushing or P, R or S contact material. Mating quick connector available; order part number 530100000, page F-16.

SPDT thru 3PDT

A RIGHT ANGLE, PC THRU-HOLE

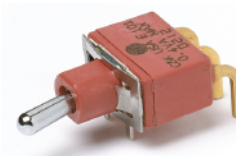
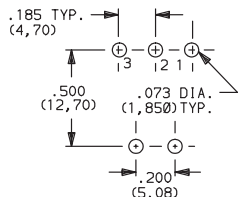


Actuator Shown In Pos. 1



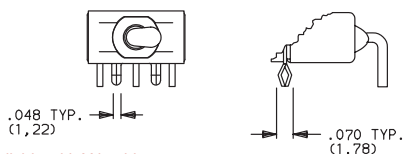
Terminal Nos. For Reference Only

PC MOUNTING



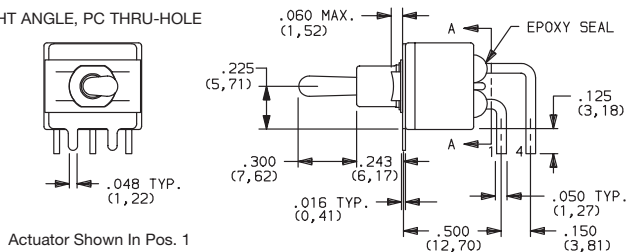
E101MD1ABE
Horizontal Actuation
SPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

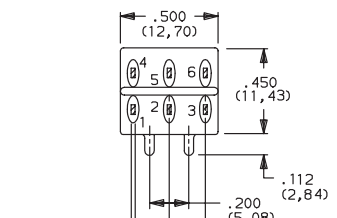


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

A RIGHT ANGLE, PC THRU-HOLE

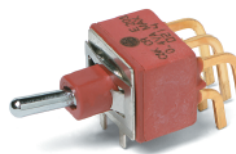
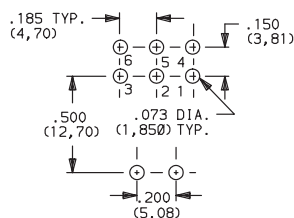


Actuator Shown In Pos. 1



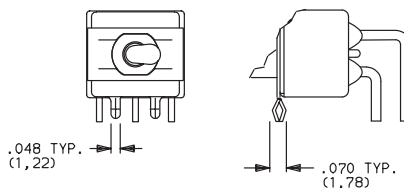
Terminal Nos. For Reference Only

PC MOUNTING



E201MD1ABE
Horizontal Actuation
DPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

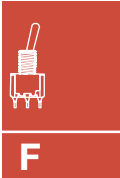


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

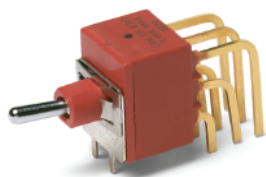


Toggle

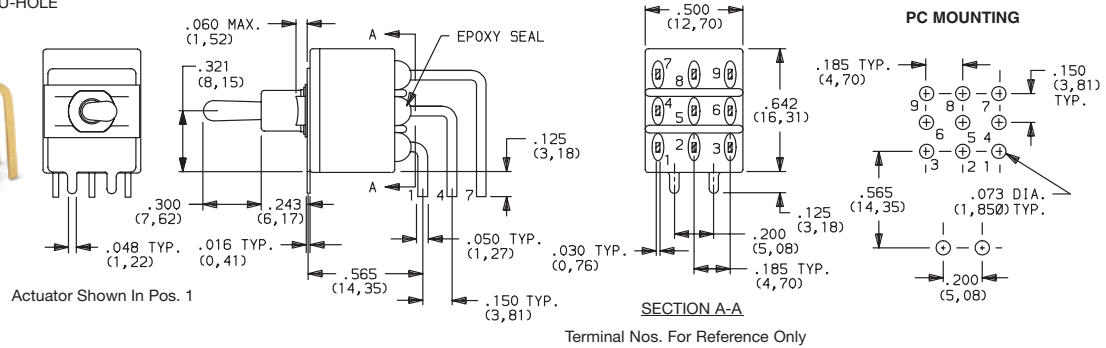
E Series Sealed Miniature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

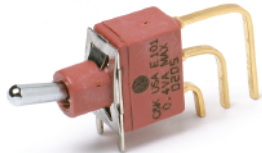


E301MD1ABE
Horizontal Actuation
3PDT

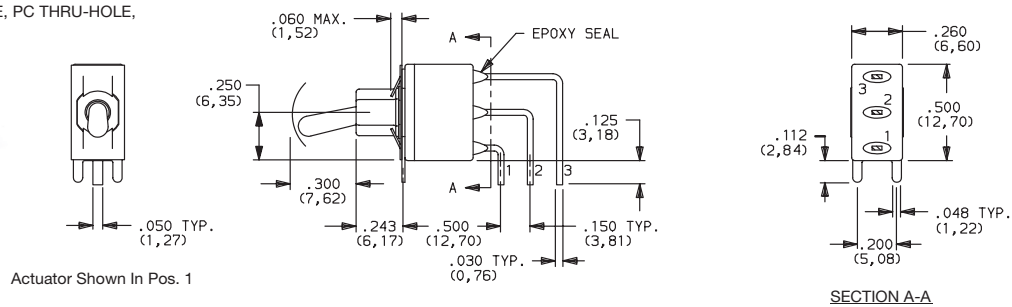


Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

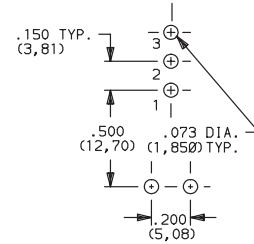
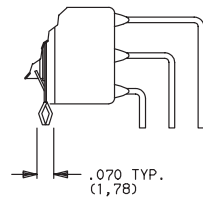
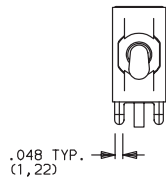
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



E101MD1AV2BE
Vertical Actuation
SPDT

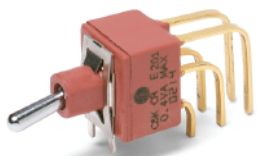


AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH

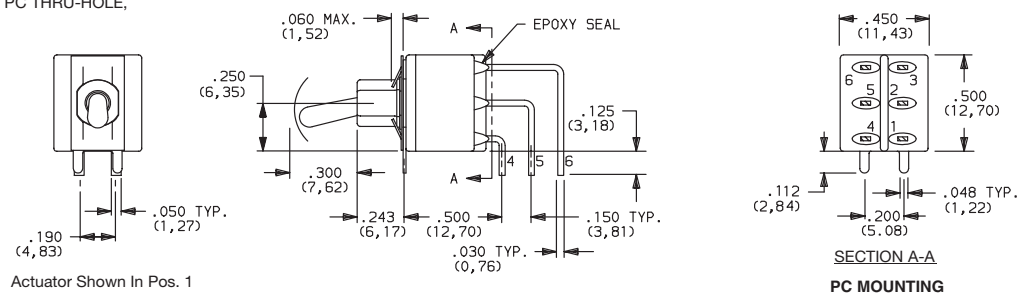


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

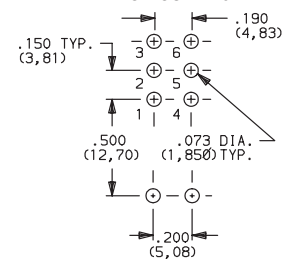
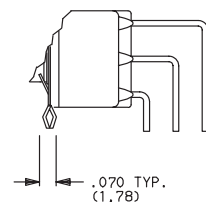
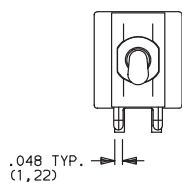
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



E201MD1AV2BE
Vertical Actuation
DPDT



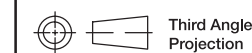
A3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

Toggle

F

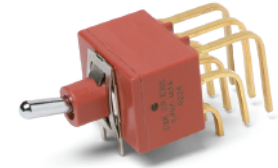
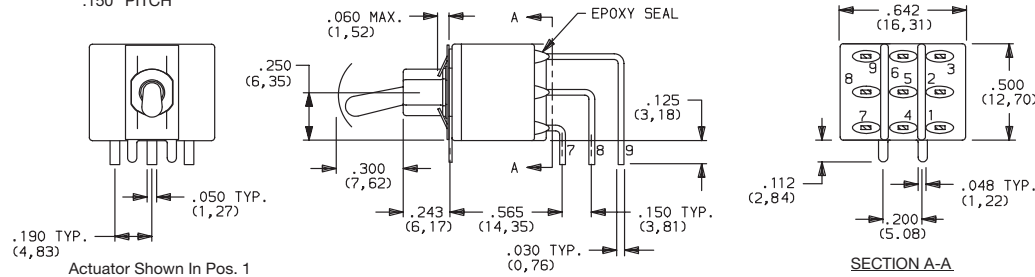


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series Sealed Miniature Toggle Switches

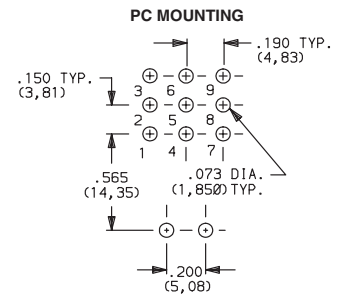
TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



E301MD1AV2BE
Vertical Actuation
3PDT

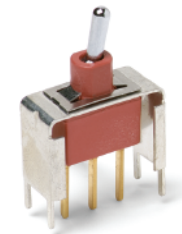
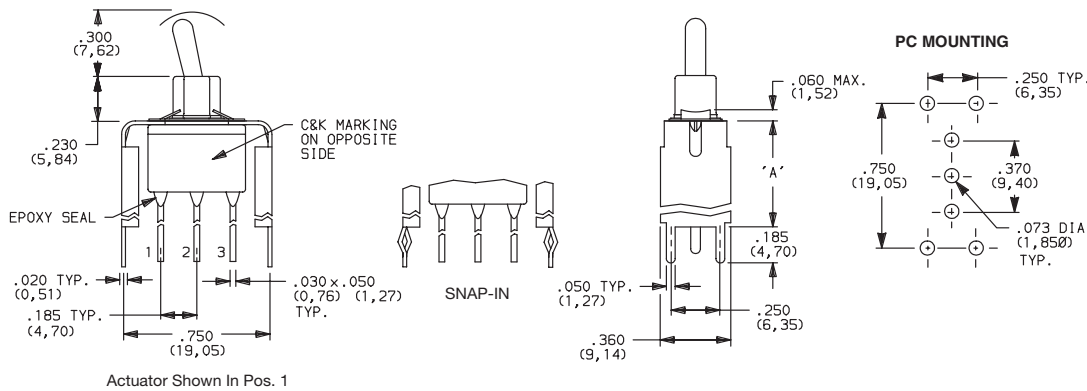
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE
.150" PITCH



Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

V6 VERTICAL MOUNT, V-BRACKET

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



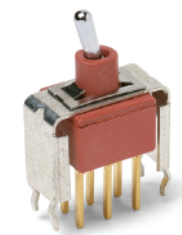
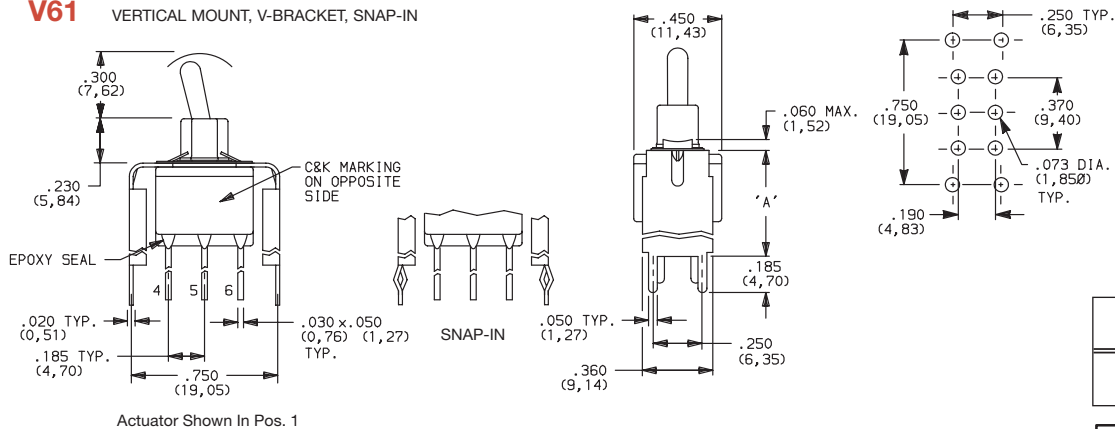
E101MD1_BE
SPDT

OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)

Not available with Y bushing.

V6 VERTICAL MOUNT, V-BRACKET

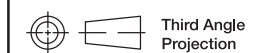
V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E201MD1_BE
DPDT

OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)

Not available with Y bushing.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series Sealed Miniature Toggle Switches

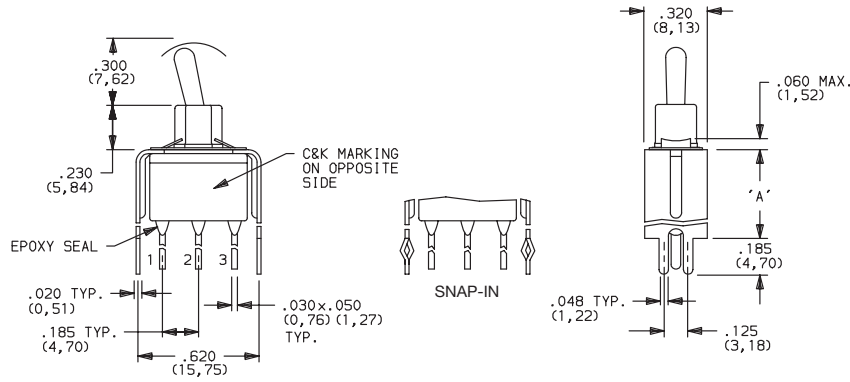
TERMINATIONS

V3, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



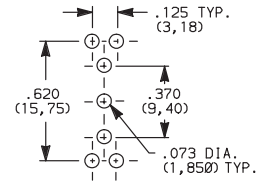
E101MD1_BE
SPDT



Actuator Shown In Pos. 1

Not available with Y bushing.

PC MOUNTING



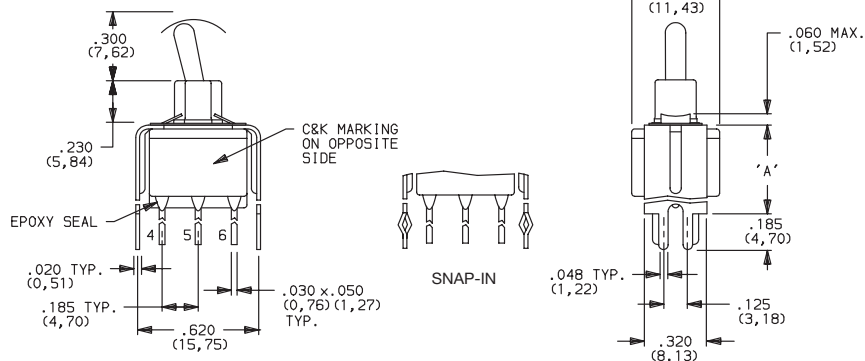
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

V3, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



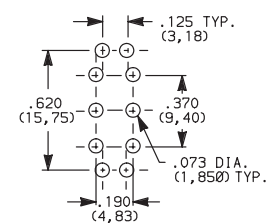
E201MD1_BE
DPDT



Actuator Shown In Pos. 1

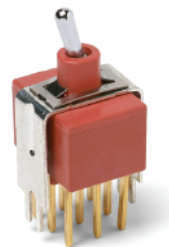
Not available with Y bushing.

PC MOUNTING

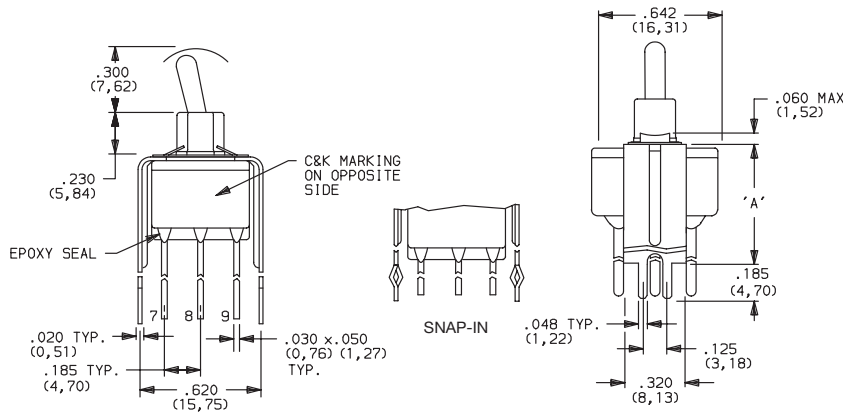


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

V9 VERTICAL MOUNT, V-BRACKET



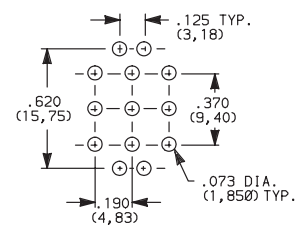
E301MD1_BE
3PDT



Actuator Shown In Pos. 1

Not available with D9 & Y bushings.

PC MOUNTING



OPTION CODE	DIM 'A'
V9	1.150 (29,21)

Toggle

F



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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E Series Sealed Miniature Toggle Switches

CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	E1XX AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 7.5 AMPS @125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. DC E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, with gold flash over silver plate. Or copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

All models **CAUS** with all options when ordered with S, R, G, or Q contact material except with F1 conductive bushing.

B contact material standard with all terminations.

P, S & R contact materials not available with Z & Z3 terminations.



Third Angle
Projection

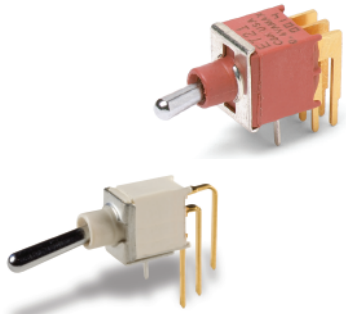
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



Toggle

ET Series Sealed Subminiature Toggle Switches



Features/Benefits

- Sealed against solder and cleaning process contaminants
- ESD protection available
- Thru-hole and surface mount models
- Compact size and small footprint save PCB space
- RoHS compliant models available

Typical Applications

- Hand-held telecommunications
- Instrumentation
- Medical equipment

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page F-35 for additional ratings.

ELECTRICAL LIFE: ETX1 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

ELECTROSTATIC DISCHARGE (ESD) RESISTANT OPTION: M3 & S3 insulating actuator only: 9,000 V DC min. @ sea level, actuator to terminals. F1 conductive bushing only: Dissipates up to 20,000 V DC from actuator to ground. M3 & S3 actuator and F1 bushing options are not recommended for use together.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches are shipped in tape and reel packaging, see page F-36 for drawings and reel information.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) or glass filled 4/6 nylon, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: M3 & S3 anti-static actuator: Nylon 4/6, black standard (UL 94V-0). All other actuators: Brass, chrome plated. Internal o-ring seal standard with all actuators.

SWITCH SUPPORT: Brass, tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See F-35 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, G, P or R contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-31 thru F-36. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Switch Function

- ET01 SP, On-None-On
- ET02 SPST, Off-None-On
- ET03 SP, On-Off-On
- ET05 SP, Mom.-Off-Mom.
- ET07 SP, On-Off-Mom.
- ET08 SP, On-None-Mom.
- ET21 DP, On-None-On
- ET23 DP, On-Off-On
- ET24 DP, On-On-On
- ET25 DP, Mom.-Off-Mom.
- ET27 DP, On-Off-Mom.
- ET28 DP, On-None-Mom.

Actuator

- M .240" high
- M3 Plastic, anti-static, .240" high
- S .400" high
- L .320" high
- S1 .540" high

Bushing

- D1 .177" High, Unthreaded
- F1 .177" high, unthreaded, ESD conductive

Terminations

- A Right angle, PC thru-hole
- AV Vertical right angle, PC thru-hole
- C PC Thru-hole
- SA Right angle, surface mount
- SA1 Right angle, surface mount rear-facing
- V3 Vertical mount, V-bracket
- AV3 Vertical right angle, snap-in, PC thru-hole
- V31 Vertical mount, V-bracket, snap-in
- W Wire wrap

Contact Material

- B Gold
- P Gold, matte tin
- Q Silver
- S Silver/matte-tin
- G Gold over silver
- R Gold over silver, matte-tin

Seal

- E Epoxy

Plastic Actuator Color

- NONE No actuator color
- 2 Black
- 1 White



Toggle



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series Sealed Subminiature Toggle Switches

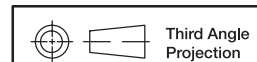
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	ET01	ON	NONE	ON	2-3	N/A	2-1	
	ET03	ON	OFF	ON	2-3	OPEN	2-1	
	ET05	MOM.	OFF	MOM.				
	ET07	ON	OFF	MOM.				
	ET08	ON	NONE	MOM.	2-3	N/A	2-1	
	ET02	OFF	NONE	ON	OPEN	N/A	3-1	
SPDT <p>Part number shown: ET01MD1CBE ET02 Models: Omit terminal 2</p>								
DP	ET21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	ET23	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	ET25	MOM.	OFF	MOM.				
	ET27	ON	OFF	MOM.				
	ET28	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	ET24**	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
DPDT <p>Part number shown: ET21MD1CBE</p>								

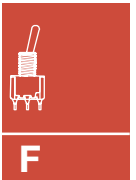
MOM. = Momentary

** Wiring for 3-way switch, see Section N.

All models with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

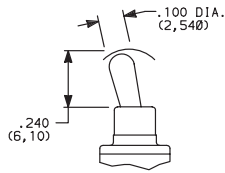


Toggle

ET Series Sealed Subminiature Toggle Switches

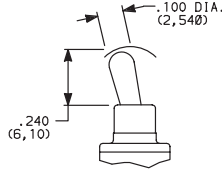
ACTUATOR

M .240" HIGH



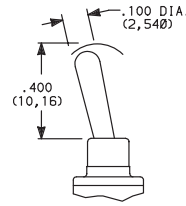
Standard with A, AV, V3 & V31 terminations.

M3 PLASTIC, ANTISTATIC,
.240" HIGH



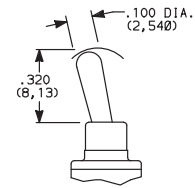
Material: Nylon 4/6 (UL 94V-0), black standard.
Static resistance: 9,000 V DC min. @ sea level,
actuator to terminals. Not available with F1
conductive bushing option. Not UL approved.

S .400" HIGH

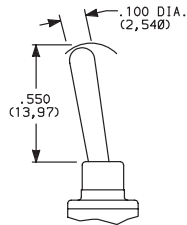


Standard with C or W terminations.

L .320" HIGH



S1 .540" HIGH



OPTION CODE	PLASTIC ACTUATOR COLOR
(NONE)	BLACK (M3 & S3 only)
1	WHITE (M3 & S3 only)

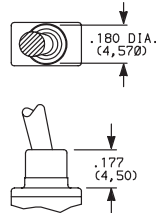
NOTE: All actuators have chrome finish (except M3 & S3).

BUSHING

D1 .177" HIGH, UNTHREADED

F1 ESD, CONDUCTIVE BUSHING
UNTHREADED, .177" HIGH

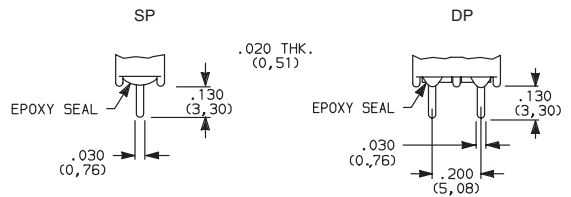
F1 bushing is not UL approved



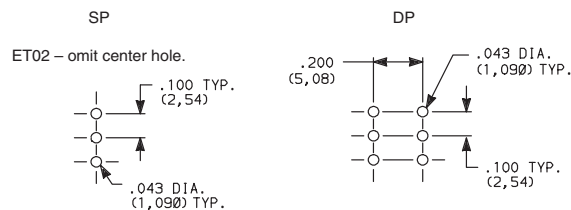
NOTE: ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground. Available with all metal actuator options and A, AV, AV3, V3 and V31 termination options only. Internal actuator o-ring seal standard.

TERMINATIONS

C PC THRU-HOLE



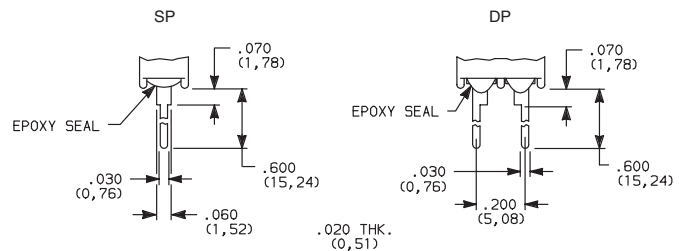
PC MOUNTING



SP and DP

Not available with F1 conductive bushing.

W WIRE WRAP



SP and DP

Not available with F1 conductive bushing.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



Toggle

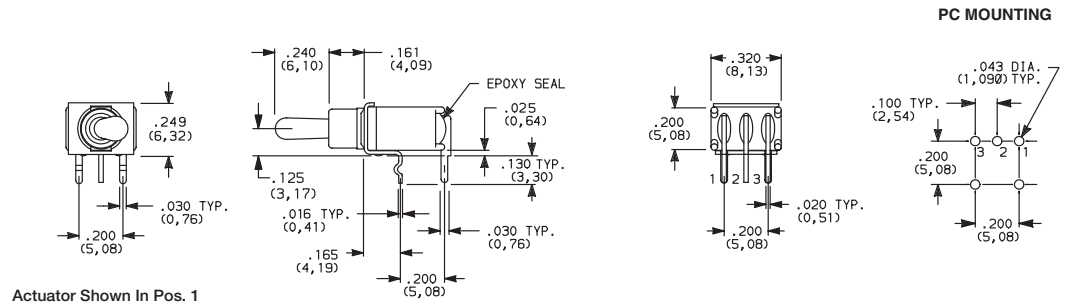


ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

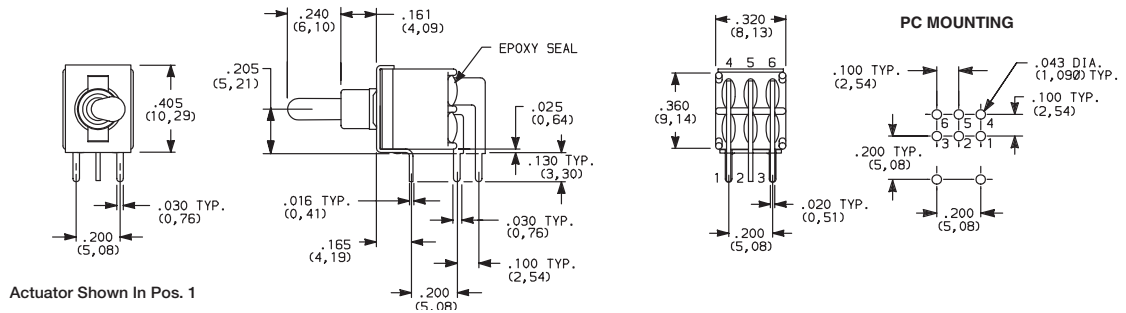
ET01MD1ABE
Horizontal Actuation
SPDT



Not available with ET02 model.

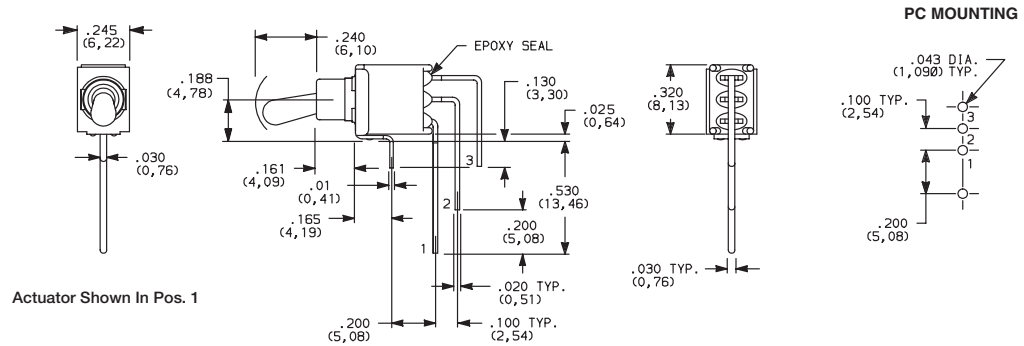
A RIGHT ANGLE, PC THRU-HOLE

ET21MD1ABE
Horizontal Actuation
DPDT



AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET01MD1AVBE
Vertical Actuation
SPDT

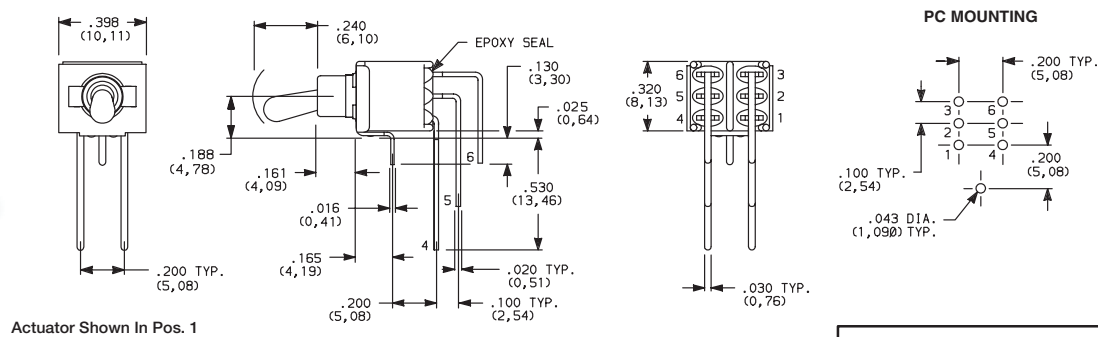


ET02 - omit terminal 2.

NOTE: Terminal bend radii and lead-in manufacturing option.

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET21MD1AVBE
Vertical Actuation
DPDT



NOTE: Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

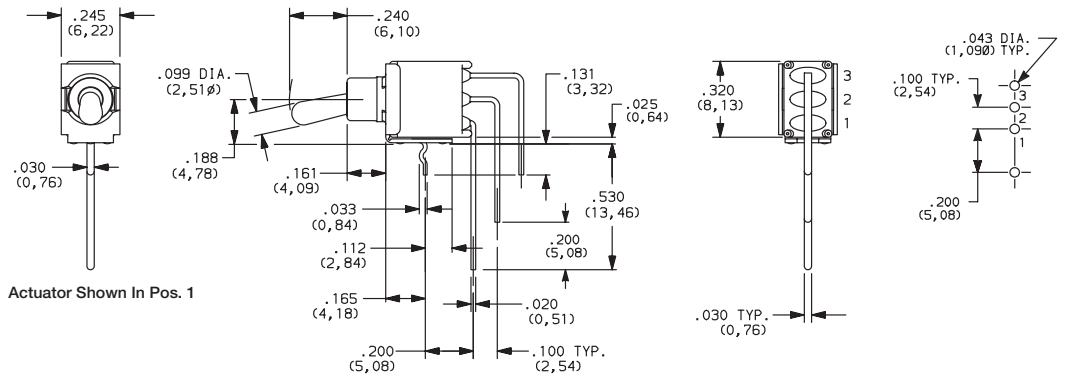


Toggle

ET Series Sealed Subminiature Toggle Switches

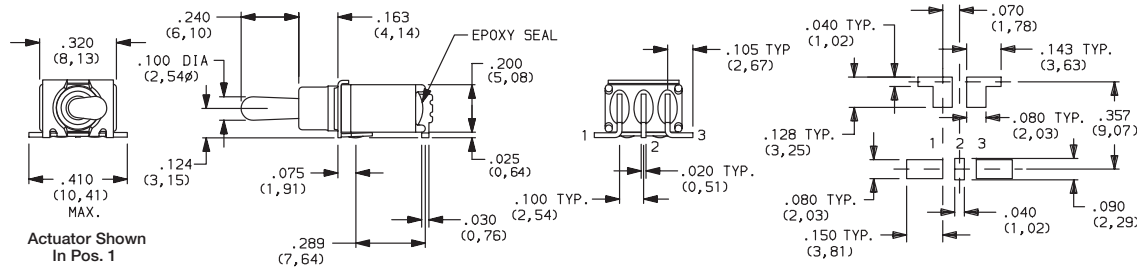
TERMINATIONS

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



ET01SD1AV2BE
Vertical Actuation
SPDT

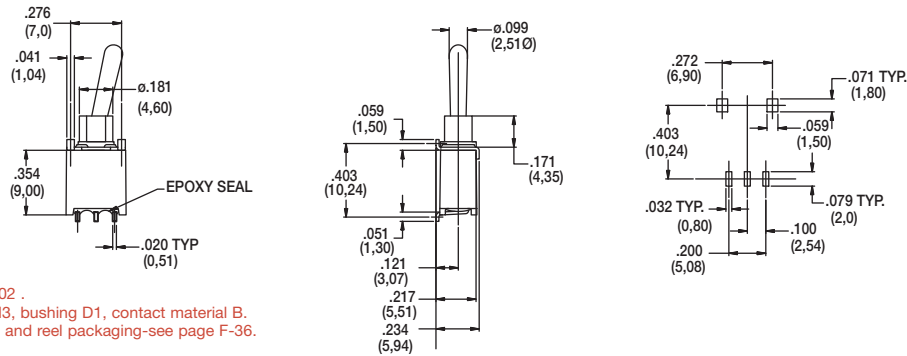
SA RIGHT ANGLE, SURFACE MOUNT



ET01M3D1SAPE
Horizontal Actuation
SPDT Only

Not available with S and S1 actuators. Standard with tape & reel packaging. See page F-36.

SA1 RIGHT ANGLE, SURFACE MOUNT

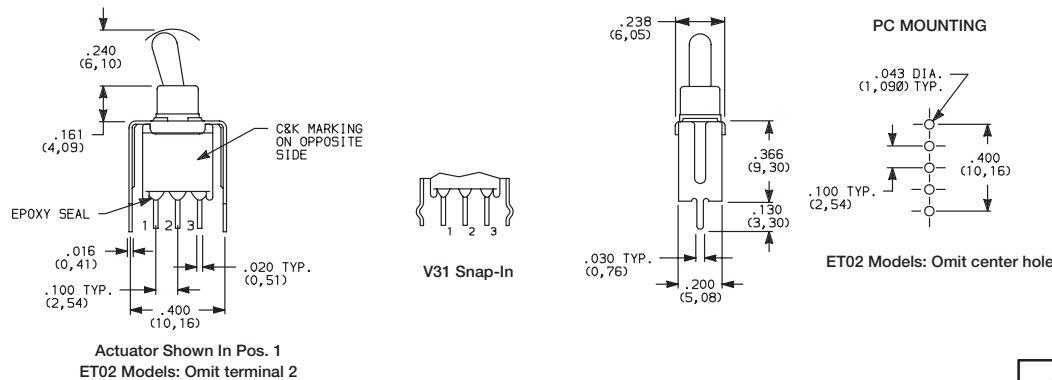


ET01M3D1SA1BE
Horizontal Actuation
SPDT Only

Not available in ET02.
Actuators M and M3, bushing D1, contact material B.
Standard with tape and reel packaging-see page F-36.

V3 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



ET01MD1V3BE
SPDT



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



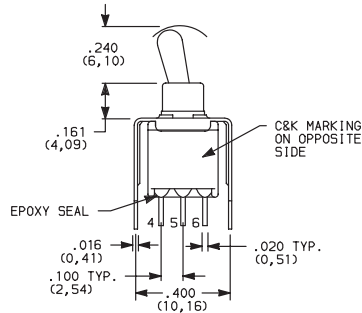
Toggle
F



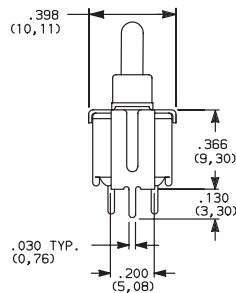
ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

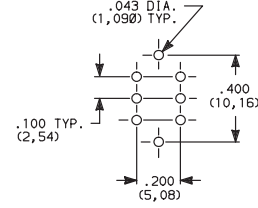
V3 VERTICAL MOUNT, V-BRACKET



Actuator Shown In Pos. 1



PC MOUNTING



ET21MD1V3BE
DPDT

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	ETX1 MODELS: 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	ETX1 MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

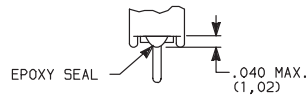
⁶ TERMINALS: Copper alloy, with matte tin over nickel plate.

NOTE: Any models supplied with Q, B, G, P or R contact material are RoHS compliant.

All models **C&K** with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

SEAL

E EPOXY SEAL



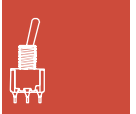
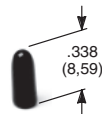
AVAILABLE HARDWARE

Cap

PART NO.

706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte



F

Toggle

NOTE: Other colors available, consult Customer Service Center.



Third Angle
Projection

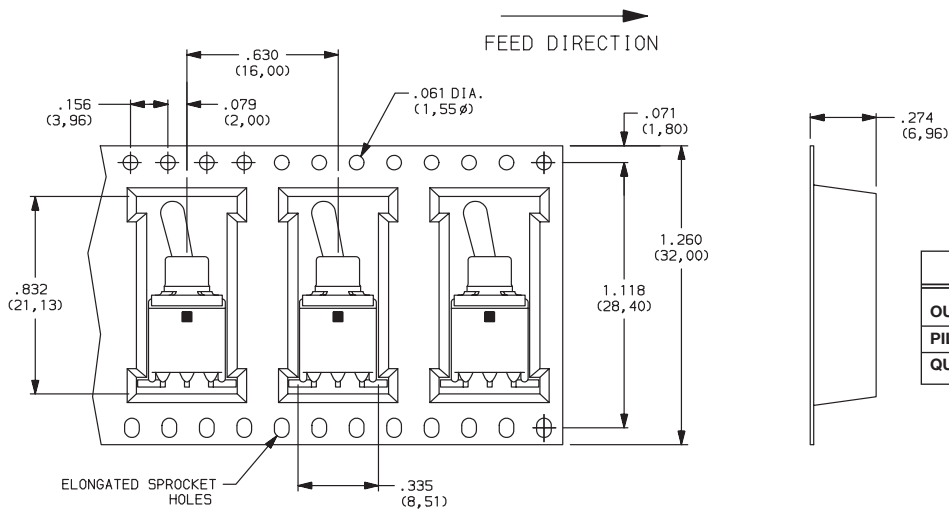
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K

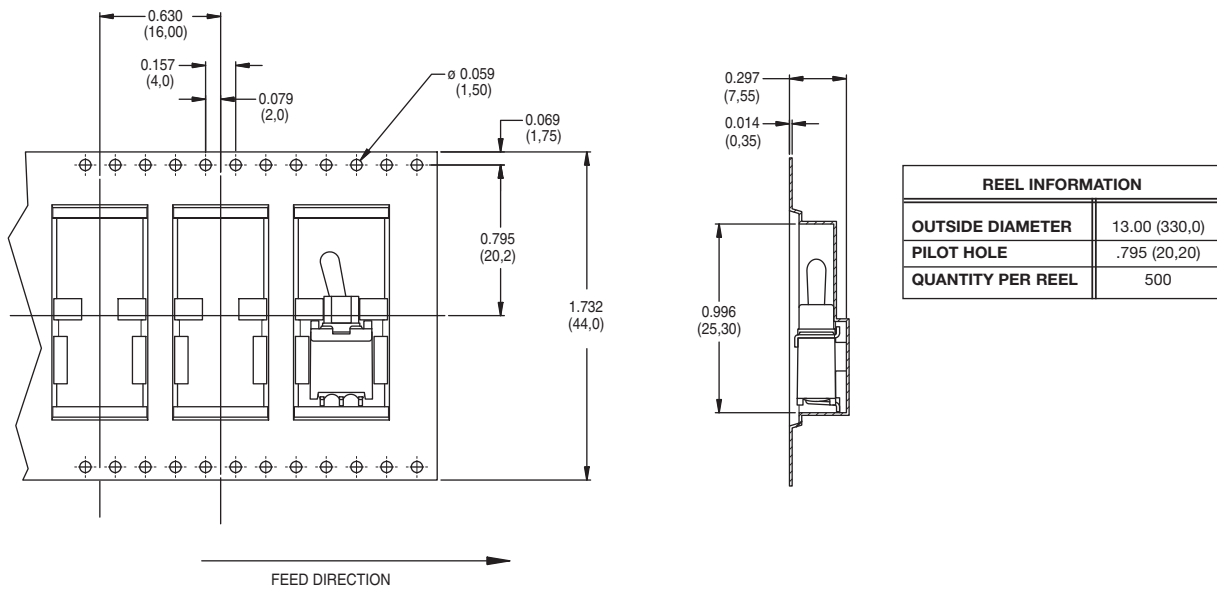
ET Series Sealed Subminiature Toggle Switches

TAPE & REEL

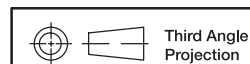
For part number ET01M3D1SAPE



For part number ET01M3D1SA1BE



Toggle



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

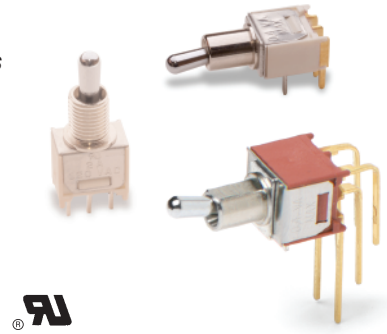
T Series Subminiature Toggle Switches

Features/Benefits

- Compact size—small footprint
- Single and double pole models
- PC and panel mount options available
- RoHS compliant models available

Typical Applications

- Hand-held telecommunications
- Instrumentation
- Medical equipment



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material (TX01 models): 3 AMPS @ 120 V AC or 28 V DC. All other models: 2 AMPS @ 120 V AC or 28 V DC. See page F-42 for additional ratings.

ELECTRICAL LIFE: TX01 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with P, R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0) or glass filled nylon 4/6, flame retardant, heat stabilized.

ACTUATOR: Brass, chrome plated.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See above for additional contact materials.

CENTER CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-42 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking Ring: Brass, nickel plated.

Lockwasher: Steel, nickel plated. Additional hardware available separately, see Section N.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-38 thru F-42. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

Switch Function

- T101** SPDT On-None-On
- T102** SPDT Off-None-On
- T103** SPDT On-Off-On
- T105** SPDT Mom.-Off-Mom.
- T107** SPDT On-Off-Mom.
- T108** SPDT On-None-Mom.
- T201** DPDT On-None-On
- T203** DPDT On-Off-On
- T205** DPDT Mom.-Off-Mom.
- T207** DPDT On-Off-Mom.
- T208** DPDT On-None-Mom.
- T211** DPDT On-On-On.

Actuator

- P3** Flatted, anti-rotation, .490" high
- S** .370" high
- K** Locking lever, round tip
- L1** .640" high
- M1** .220" high
- S1** .410" high
- M** .210" high
- L** .290" high

Bushing

- H** .220" high, threaded, flat
- H9** .220" high, unthreaded, flat
- CF** Splashproof, .310" high, threaded, flat
- D9** .260" high, unthreaded, keyway
- T** .310" high, threaded, flat
- T9** .310" high, unthreaded, flat
- TD** .260" high, threaded, keyway
- TK** .310" high, threaded, keyway
- Y** .220" high, threaded, keyway
- Y9** .220" high, unthreaded, keyway

Terminations

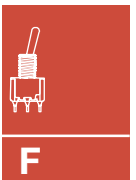
- A** Right angle, PC thru-hole
- AV** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- V3** Vertical mount V-bracket
- Z** Solder lug
- W** Wire wrap

Contact Material

- B** Gold
- P** Gold, matte tin
- Q** Silver
- G** Gold over silver
- R** Gold over silver, matte-tin

Seal

- E** Epoxy



F
Toggle



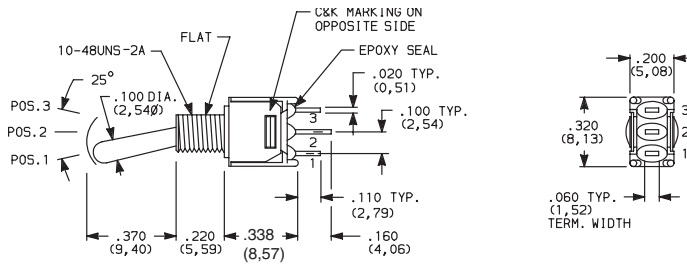
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

T Series Subminiature Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	T101	ON	NONE	ON	2-3	N/A	2-1	
	T103	ON	OFF	ON	2-3	OPEN	2-1	
	T105	MOM.	OFF	MOM.				
	T107	ON	OFF	MOM.				
	T108	ON	NONE	MOM.				
	T102	OFF	NONE	ON	OPEN	N/A	3-1	

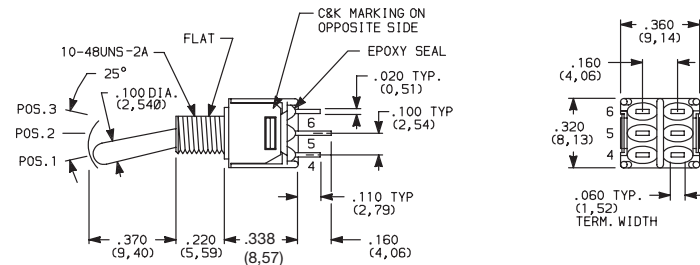
SPDT



Part number shown: T101SHZQE

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	T201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	T203	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	T205	MOM.	OFF	MOM.				
	T208	ON	NONE	MOM.				
	T211*	ON	ON	ON				

DPDT



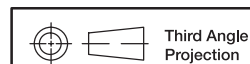
Terminal Nos.
For Reference Only

Part number shown: T201SHZQE

MOM. = Momentary
* Wiring for 3-way switch refer to page N-10

All models with all options when ordered with G, L, R or Q contact material.

Toggle

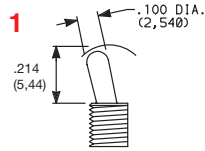


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

T Series Subminiature Toggle Switches

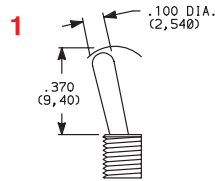
ACTUATOR

M .210" HIGH



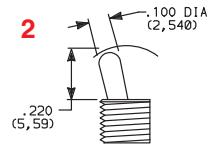
Standard with A, AV or V3 terminations.

S .370" HIGH

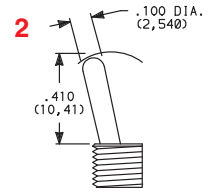


Standard with Z, C or W terminations.

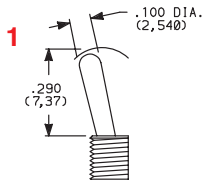
M1 .220" HIGH
(with "T" bushing)



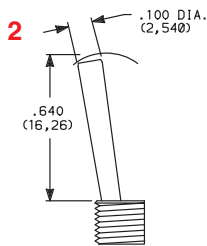
S1 .410" HIGH
(with "T" bushing)



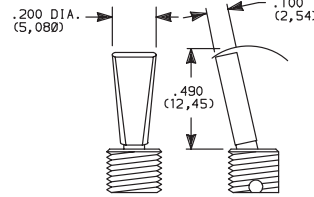
L .290" HIGH



L1 .640" HIGH



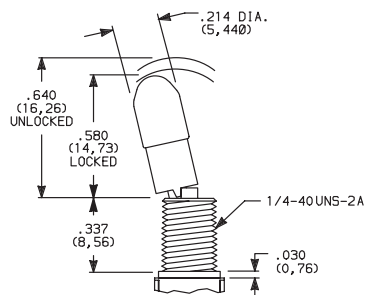
P3 ANTI-ROTATION, FLATTED,
.450" HIGH



Available with T & T9 bushings only.
Dress nut part number 709901201
supplied standard with threaded bushing.

1 Actuator shown with standard H bushing.
Subtract .040 (1,02) for TD and D9 bushings,
subtract .090 (2,29) for T, T9, TK, K9 &
CF bushings.
2 Actuators shown with T, T9, TK & CF bushings,
add .050 (1,27) for TD and D9 bushings,
add .090 (2,29) for H, H9, Y & Y9 bushings.
All actuators have chrome finish (except K).

K LOCKING LEVER



Locking Positions



-01 & -02 Models
2 Position lock



-03 & -11 Models
3 Position lock



-08 Models
1 Position lock

K actuators have natural aluminum finish.

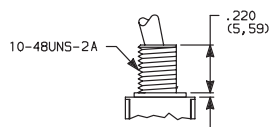
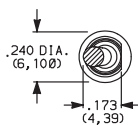
Not available with CF bushing option.

Bushing option code not required. Not available with TX05 & TX07 models.

Keyway on right side. To prevent accidental actuation, toggles
must be lifted before being actuated. When released, toggles
again lock in place. Overtightening mounting nut may cause
actuator to bind.

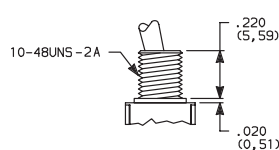
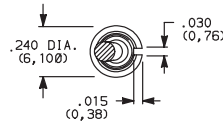
BUSHING

H .220" HIGH THREADED, FLAT

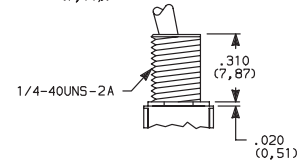
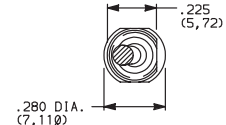


H standard with C, W & Z terminations.
H9 standard with A, AV & V3 terminations.

Y .220" HIGH THREADED, KEYWAY



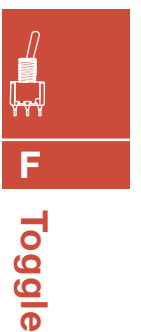
T .310" HIGH THREADED, FLAT



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K

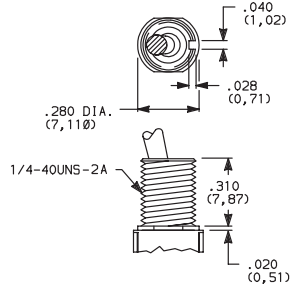


Toggle

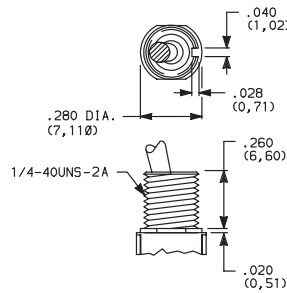
T Series Subminiature Toggle Switches

BUSHING

TK .310" HIGH THREADED, KEYWAY

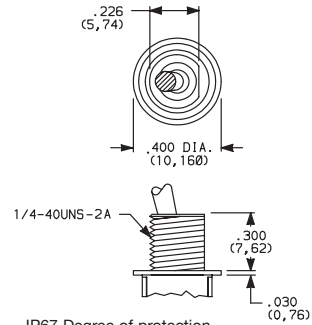


TD .260" HIGH THREADED, KEYWAY



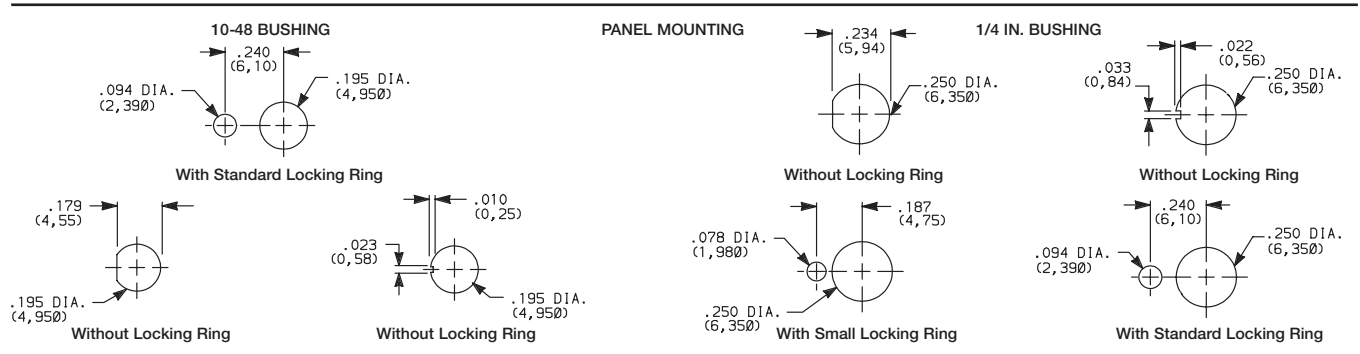
D9 .260" HIGH UNTHREADED, KEYWAY

CF SPLASHPROOF, .310" HIGH THREADED, FLAT



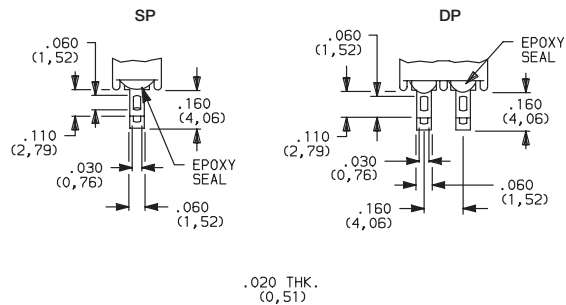
IP67 Degree of protection.
Internal o-ring actuator seal and external bushing seal washer standard.

Not available with K locking lever option.



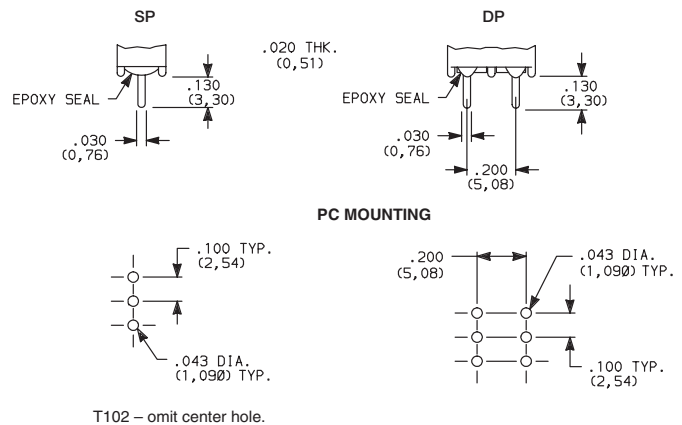
TERMINATIONS

Z SOLDER LUG



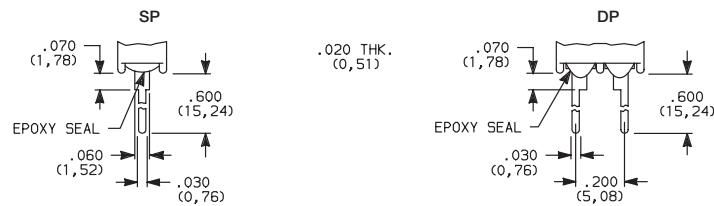
Not available with P or R contact materials.

C PC THRU-HOLE

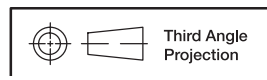


T102 - omit center hole.

W WIRE WRAP



Toggle

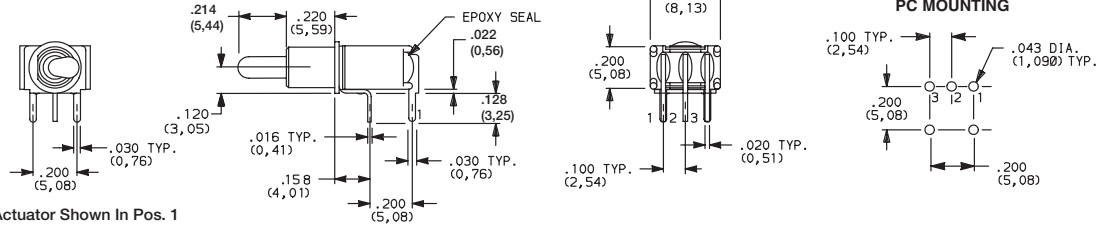


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

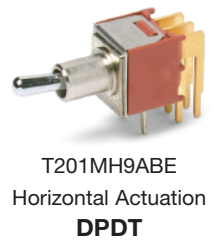
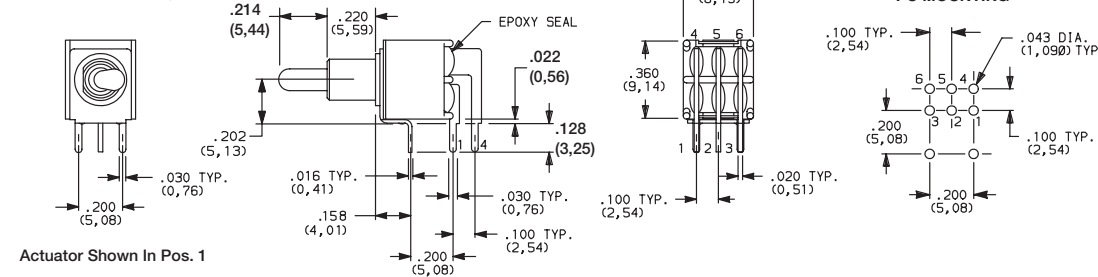
T Series Subminiature Toggle Switches

TERMINATIONS

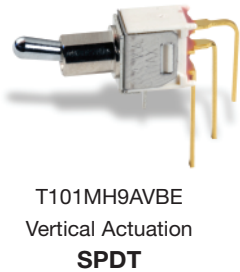
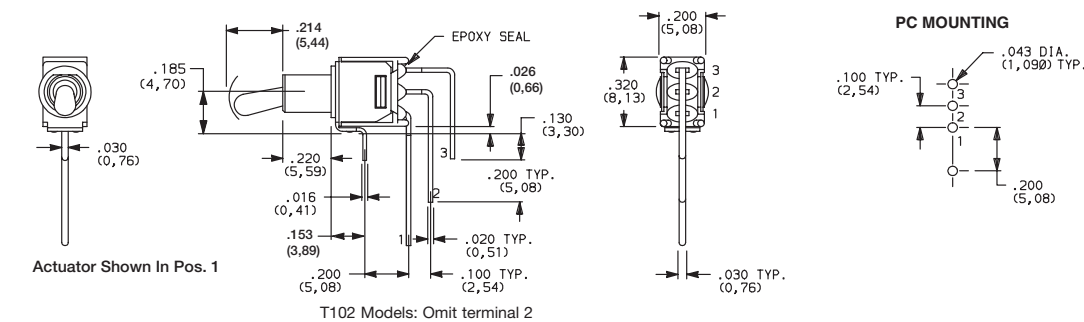
A RIGHT ANGLE, PC THRU-HOLE



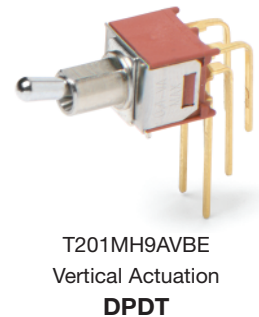
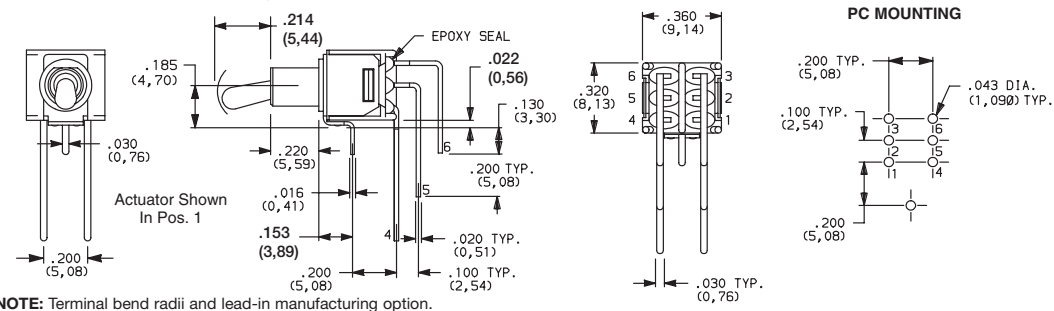
A RIGHT ANGLE, PC THRU-HOLE



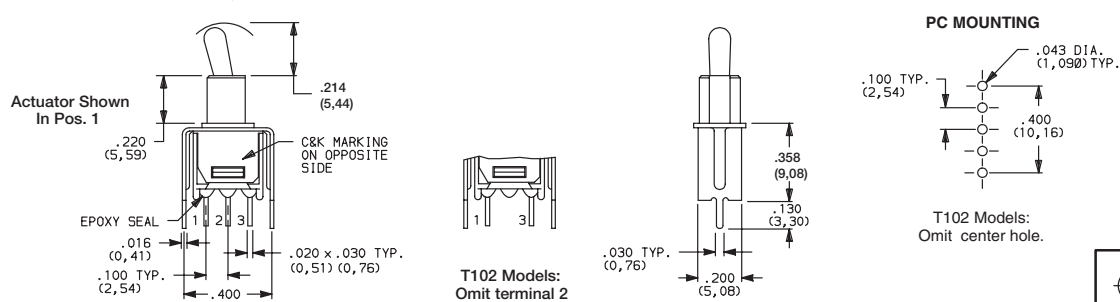
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



V3 VERTICAL MOUNT, V-BRACKET



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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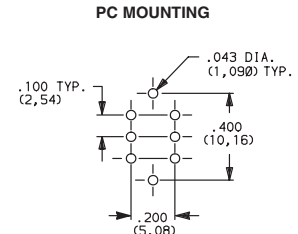
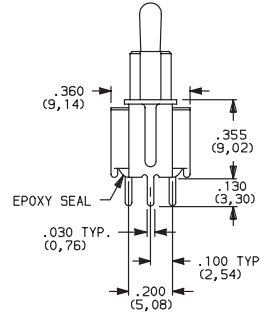
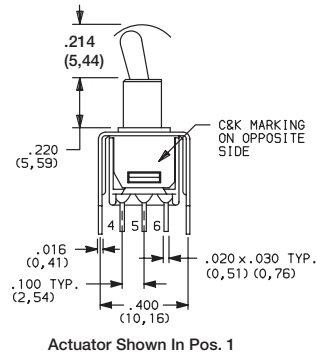
T Series Subminiature Toggle Switches

TERMINATIONS

V3 VERTICAL MOUNT, V-BRACKET



T201MH9V3BE
DPDT



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	TX01 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC.
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	TX01 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

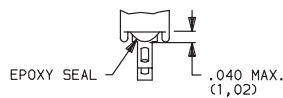
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- ¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² END CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- ⁴ END CONTACTS: Coin silver, silver plated.
- ⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

All models with all options when ordered with R, G, or Q contact material.
B contact material standard with A, AV, V3 & W terminations.
Q contact material standard with C & Z terminations.

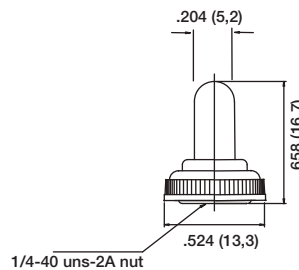
SEAL

E EPOXY SEAL



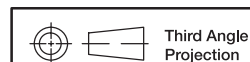
AVAILABLE HARDWARE

759D02000 SEALING BOOT



* Note: For use with S1 actuator style when combined with T, TK, and CF bushings.

Toggle



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

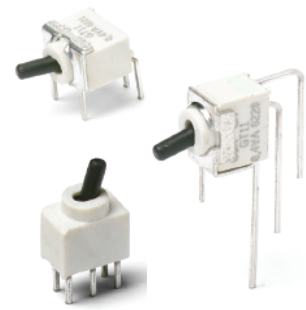
GT Series Sealed Ultraminiature Toggle Switches

Features/Benefits

- Sealed against solder and cleaning process contaminants
- Ultraminiature size, smallest footprint available
- Thru-hole and surface mount models
- High temperature materials (UL 94V-0)
- RoHS compliant and compatible

Typical Applications

- Hand-held telecommunications
- Small instrumentation



Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.
 MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: Below 50 m Ω typ. initial @ 2-4 V DC, 100 mA.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -30°C to 85°C.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).
 PACKAGING: Surface mount switches shipped in anti-static tape and reel packaging per EIA 481-3, see page F-47 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Materials

HOUSING AND BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).
 ACTUATOR: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0), with standard internal o-ring seal.
 SWITCH SUPPORT: Brass, tin plated.
 MOVABLE CONTACTS: Copper alloy, with gold plate over nickel plate.
 STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.
 TERMINALS: Gold.
 TERMINAL SEAL: Epoxy. All terminals insert molded.

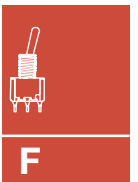
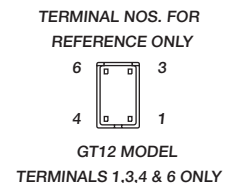
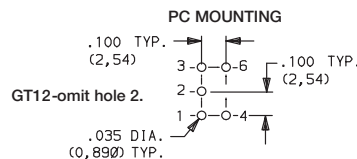
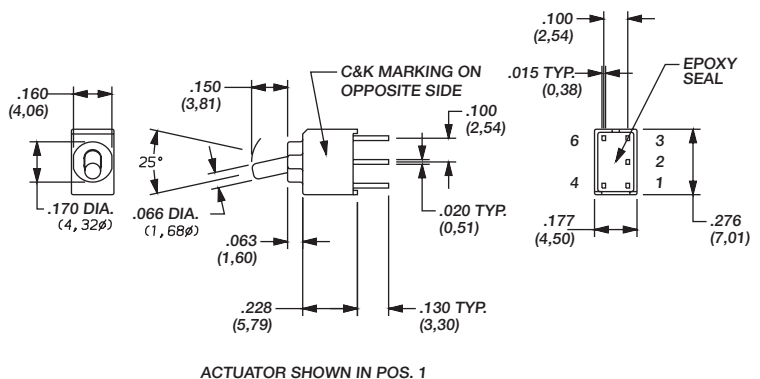
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Complete part numbers for GT Series Sealed Ultraminiature Toggle Switches are shown on pages F-43 thru F-47.



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT11MCBE	ON	NONE	ON
GT13MCBE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MCBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		

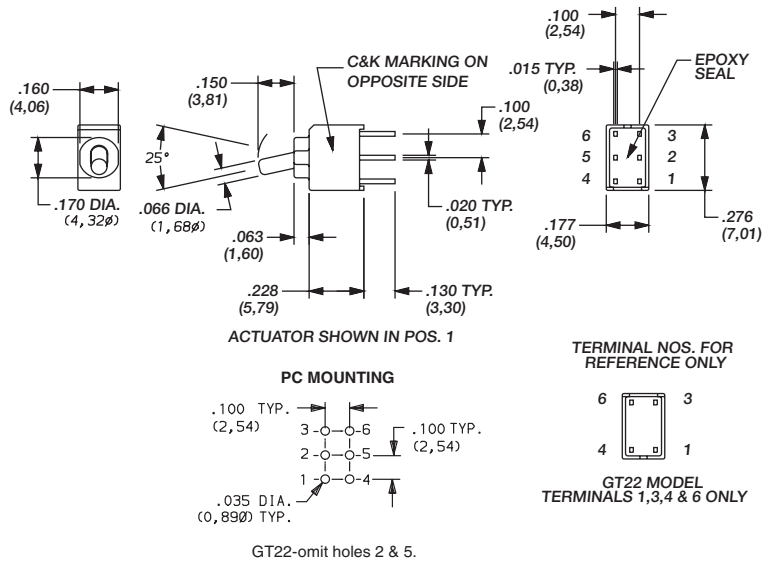


Toggle

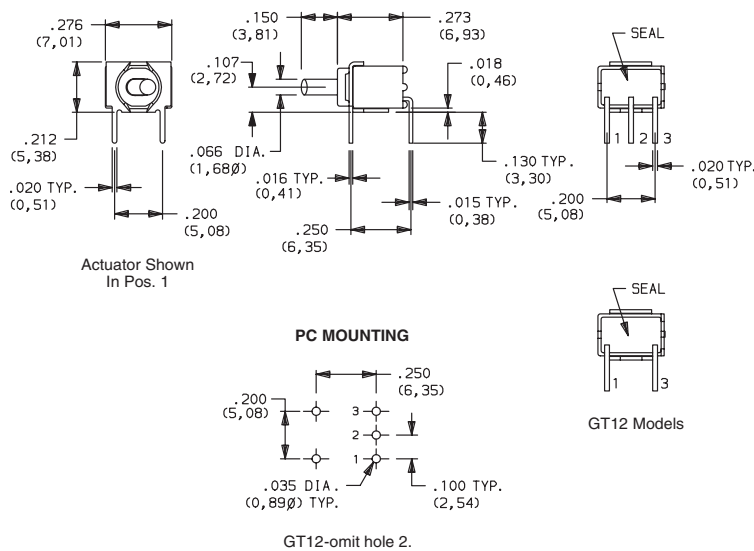


Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

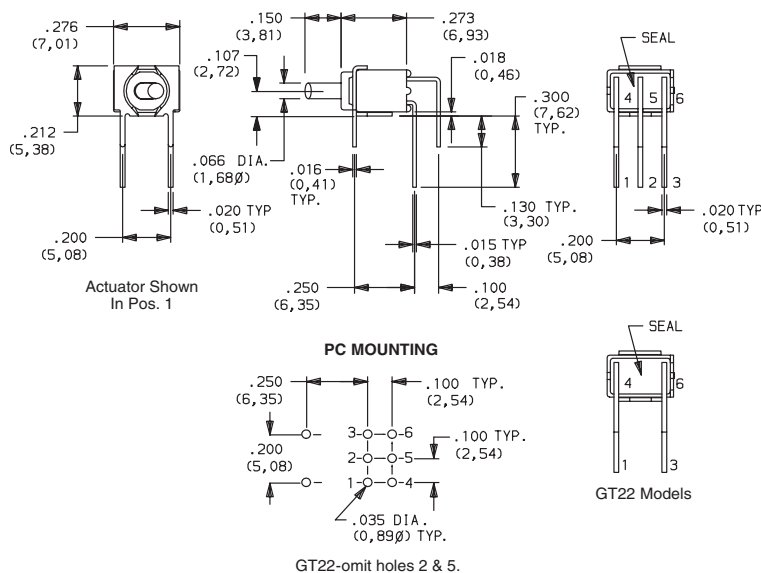
GT Series Sealed Ultraminiature Toggle Switches



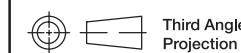
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MCBE GT23MCBE	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MCBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
DPST			



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT11MABE GT13MABE	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12MABE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MABE GT23MABE	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MABE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



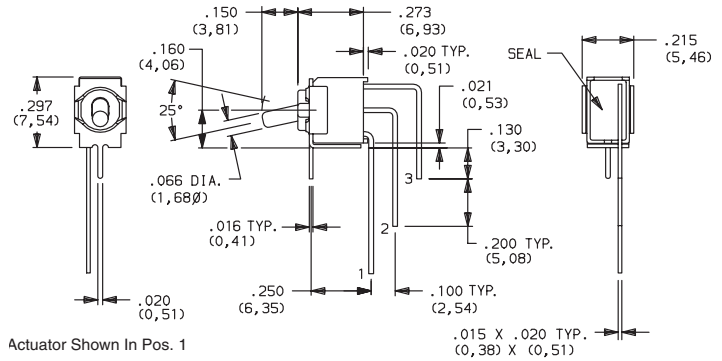
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

GT Series Sealed Ultraminiature Toggle Switches

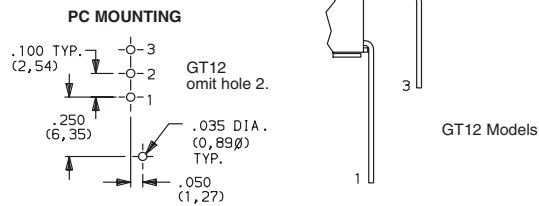


GT11MAVBE
Vertical
Actuation
SPDT

PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT11MAVBE GT13MAVBE	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12MAVBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			



Actuator Shown In Pos. 1



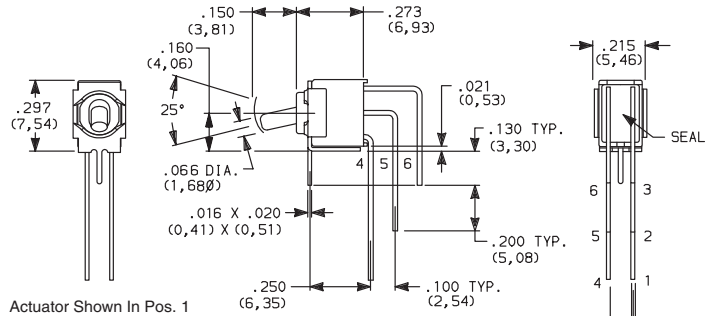
PC MOUNTING

GT12 Models

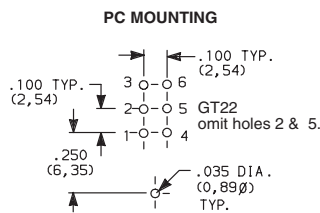


GT21MAVBE
Vertical
Actuation
DPDT

PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT21MAVBE GT23MAVBE	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MAVBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



Actuator Shown In Pos. 1



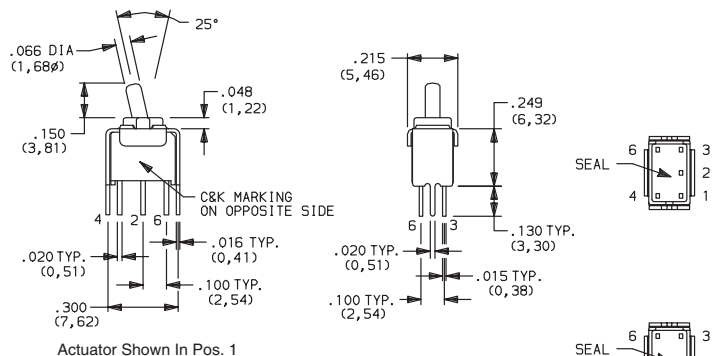
PC MOUNTING

GT22 Models:
1, 3, 4 & 6 terminals only.

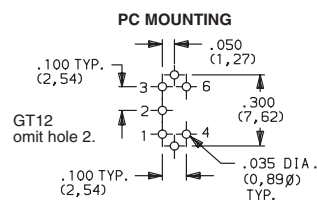


GT11MV3BE
SPDT

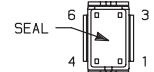
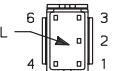
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT11MV3BE GT13MV3BE	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



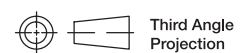
Actuator Shown In Pos. 1



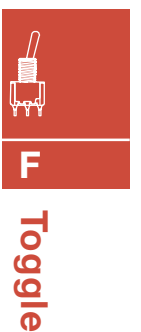
PC MOUNTING



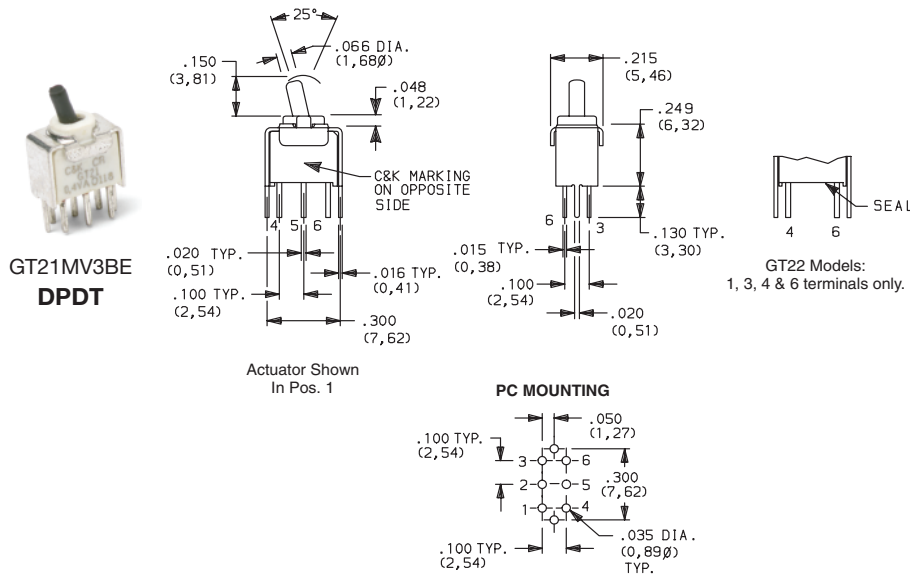
GT12 Models



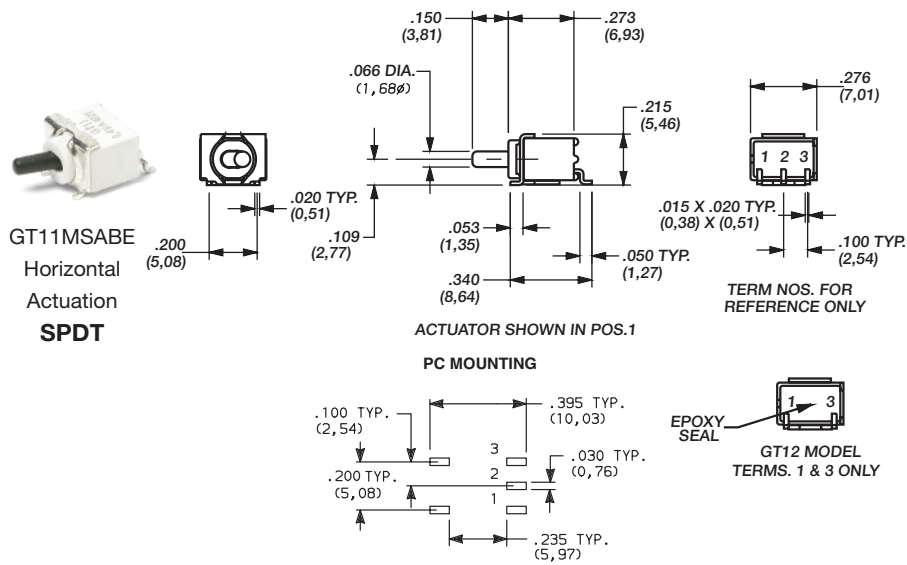
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



GT Series Sealed Ultraminiature Toggle Switches



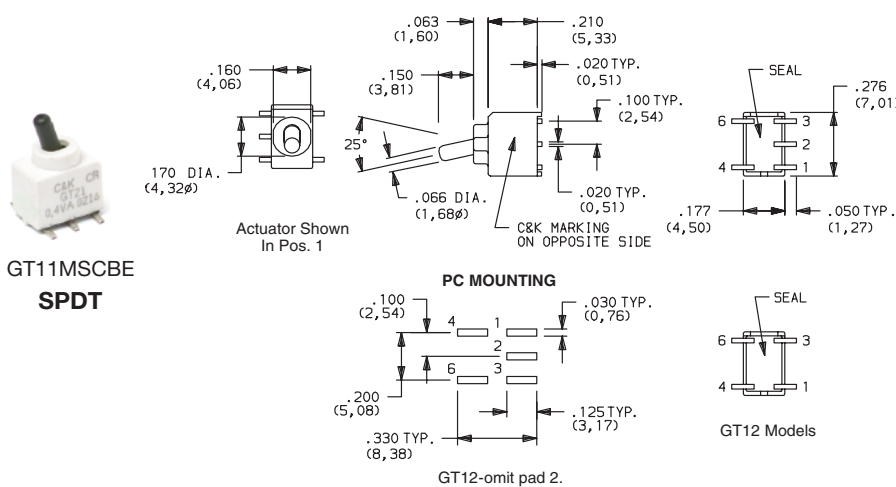
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT21MV3BE GT23MV3BE	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT11MSABETR GT13MSABETR	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12MSABETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			

Standard with tape & reel packaging, see page F-47.

GT12-omit pad 2.



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT11MSCBETR GT13MSCBETR	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		

Standard with tape & reel packaging, see page F-47.



Toggle

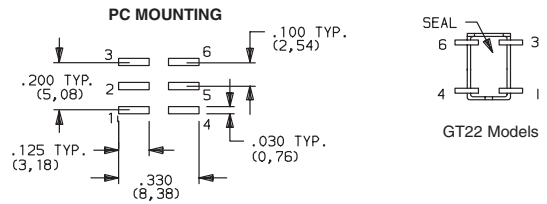
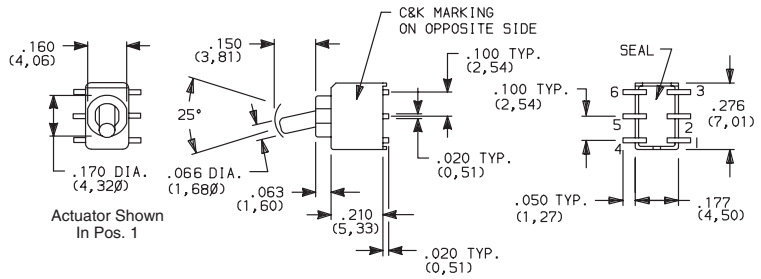


GT Series Sealed Ultraminiature Toggle Switches



GT21MSCBE
DPDT

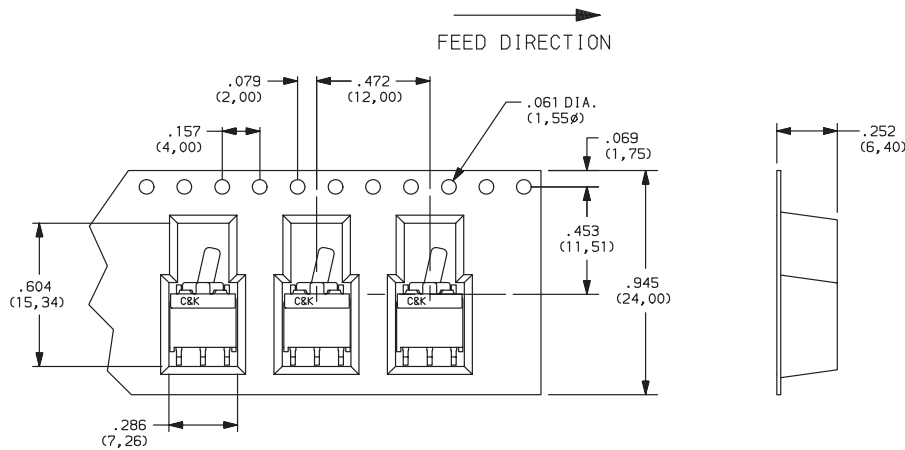
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MSCBETR	ON	NONE	ON
GT23MSCBETR	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



GT22-omit pads 2 & 5.
Standard with tape & reel packaging

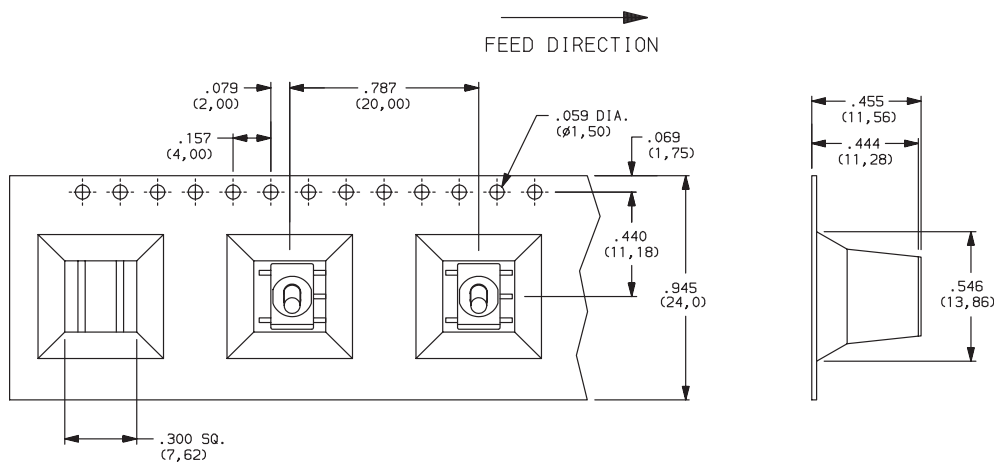
TAPE & REEL

For part numbers GT11MSABE, GT12MSABE, GT13MSABE

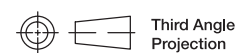


REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part numbers GT11MSCBE, GT12MSCBE, GT13MSCBE, GT21MSCBE, GT22MSCBE, GT23MSCBE,



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	200

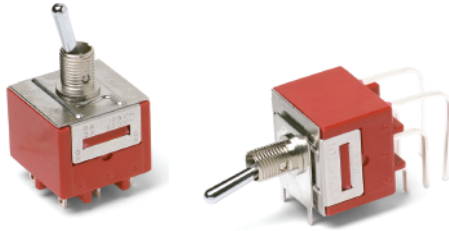


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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9000 Series Power Toggle Switches



Features/Benefits

- Power ratings up to 10 AMPS
- Double pole models
- Locking lever options available
- Wide variety of actuator styles
- RoHS compliant and compatible

Typical Applications

- Shut-off switch
- Small equipment



UL 61058-1

Specifications

CONTACT RATING:

9201 Model

- GP (general purpose)
6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3)
- 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
6 AMPS 30 VDC T85 10,000 cycles

9221 Model:

- GP (general purpose)
10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
- 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
10 AMPS 30 VDC T85 10,000 cycles

ELECTRICAL LIFE: 25,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 2,500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: 9201 Model: Coin silver, silver plated.
9221 Model: Silver cadmium oxide.

CENTER CONTACTS: Copper alloy, silver plated

ALL TERMINALS: 9201 Model: Copper alloy, silver plated.
9221 Model: Copper alloy, matte-tin plated.

TERMINAL SEAL: Epoxy.

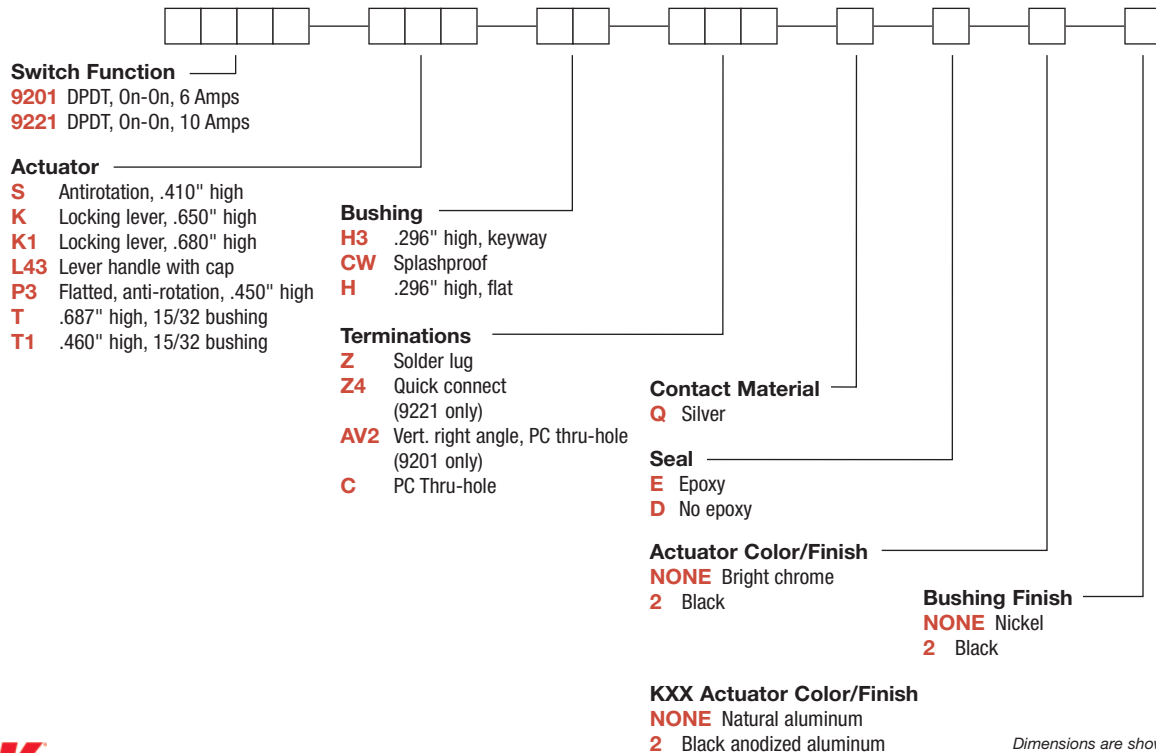
HARDWARE: Nut & Locking ring: Brass, nickel plated.
Lockwasher: Steel, nickel plated.

NOTE: Any models supplied with Q contact material are RoHS compliant and compatible.

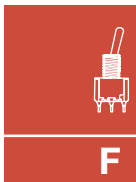
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-49 thru F-52. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Toggle



9000 Series Power Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING*	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1 	POS. 2 	POS. 1 	POS. 2 	
DP	9201	6 AMPS	ON	ON	2-3,5-6	2-1,5-4	
	9221	10 AMPS	ON	ON			

DPDT

Part number shown: 9201SH3ZQE

Terminal Nos. Molded On Side Of Case

* See CONTACT MATERIAL, page F-52, for complete ratings.

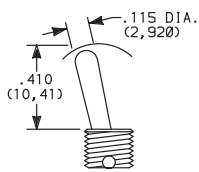
All 9000 Series models meet international dimensional and electrical requirements.



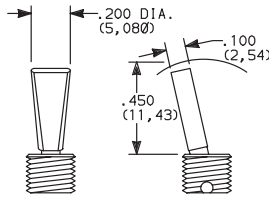
9221 model must be ordered with Z4 terminations and D seal option.

ACTUATOR

S ANTIROTATION, .410" HIGH



P3 FLATTED, ANTIROTATION, .450" HIGH



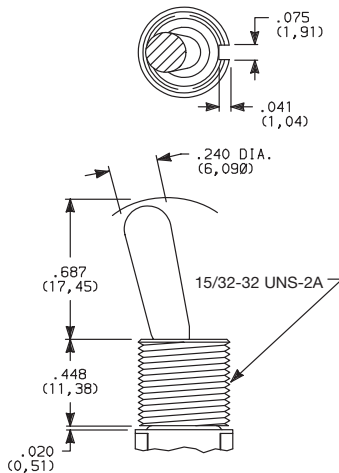
OPTION CODE	ACTUATOR FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK

NOTE: Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

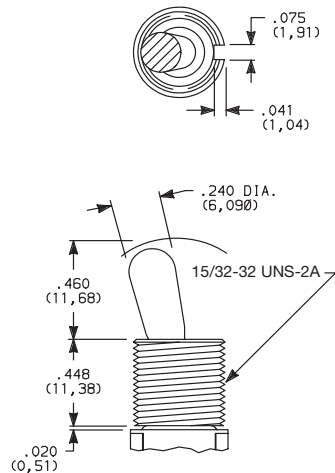
Antirotation is standard on all actuators, provides 'anti-push-in' feature on actuator.

Dress nut part number: 709901201 supplied standard with P3 actuator.

T .687" HIGH, 15/32 BUSHING



T1 .460" HIGH, 15/32 BUSHING

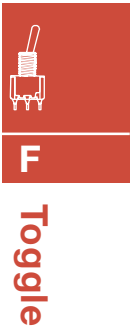
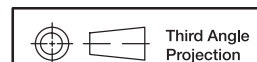


OPTION CODE	ACTUATOR FINISH
NONE	BRIGHT CHROME—With Nickel Plated Bushing
2	BLACK

NOTE: Bushing option code not required for T & T1 actuators unless CW splashproof bushing ordered.

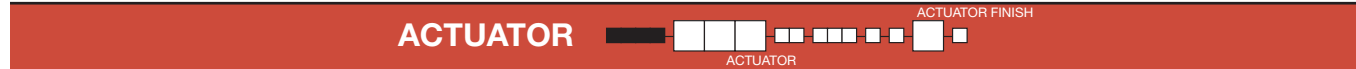
Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

Antirotation is standard on all actuators except T & T1, provides 'anti-push-in' feature on actuator.

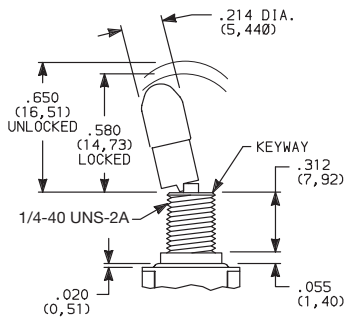


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

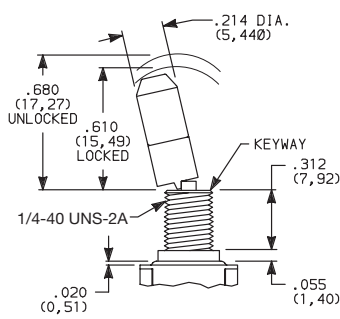
9000 Series Power Toggle Switches



K LOCKING LEVER, .650" HIGH, THREADED



K1 LOCKING LEVER, .680" HIGH, THREADED



Locking Positions

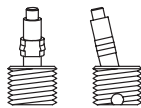


2 Position Lock

NOTE: To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Bushing option code not required. Overtightening mounting nut may cause actuator to bind.

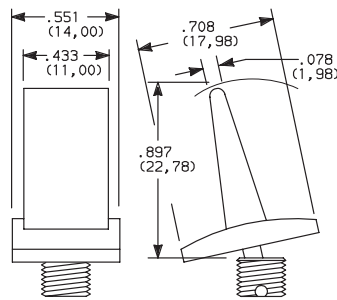
OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK ANODIZED ALUMINUM

L40 LEVER HANDLE WITHOUT CAP



No color choice required.

L43 PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4812



Finish: Matte

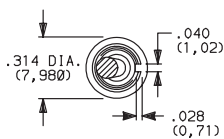
OPTION CODE	ACTUATOR CAP COLOR
2	BLACK
NONE	No Actuator Color (L40 option)

Other colors available, consult Customer Service Center.

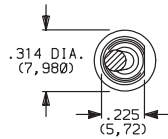
NOTE: Lever handle actuator L43 supplied, but not installed. For interchangeability, order L40 actuator option and order lever handles separately, see page F-52. Antirotation is standard on all actuators, provides 'anti-push-in' feature.



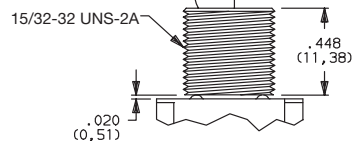
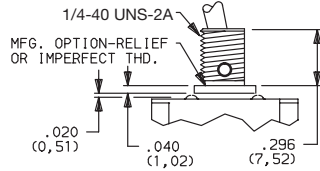
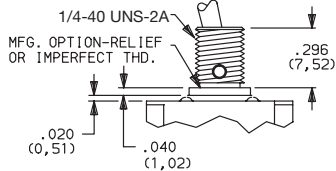
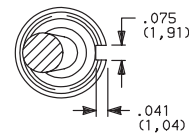
H3 .296" HIGH, THREADED, KEYWAY



H .296" HIGH, THREADED, FLAT



CW SPLASHPROOF, 15/32 BUSHING



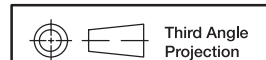
OPTION CODE	BUSHING FINISH
NONE	NICKEL
2	BLACK

Will withstand 12 in./lbs. of torque with no distortion.

For T & T1 actuators only.

NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

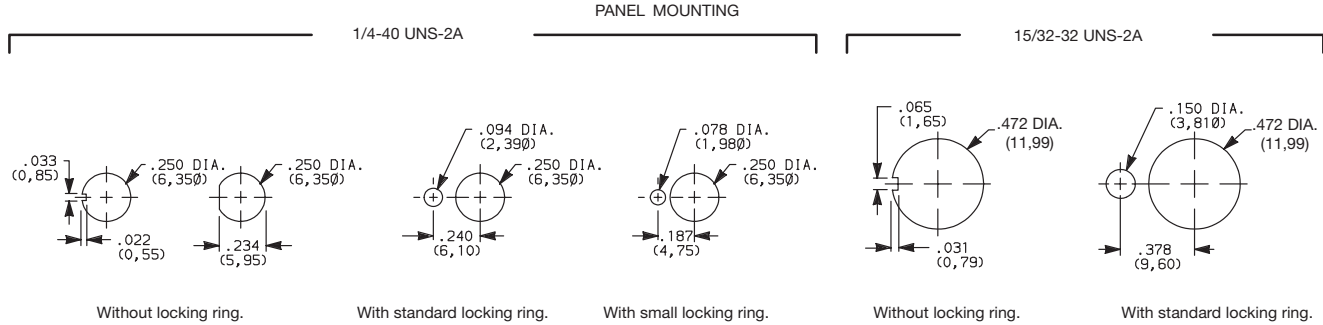
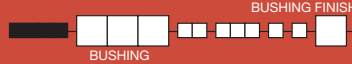


Toggle



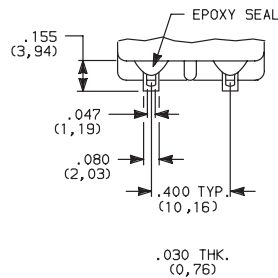
9000 Series Power Toggle Switches

BUSHING



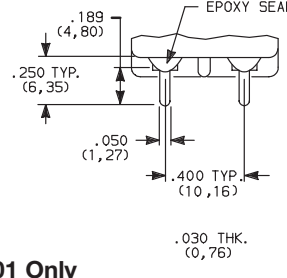
TERMINATIONS

Z SOLDER LUG



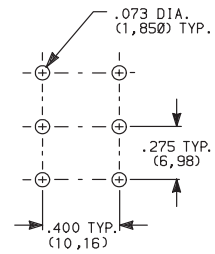
9201 Only

C PC THRU-HOLE



9201 Only

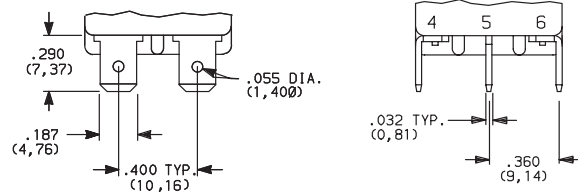
PC MOUNTING



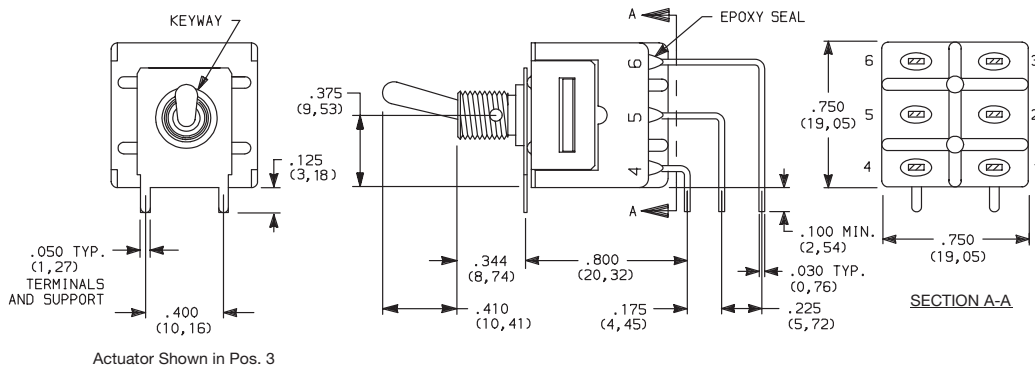
Z4 .187" QUICK CONNECT

9221 Only

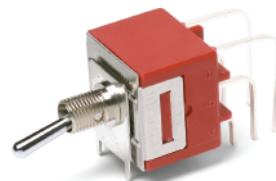
NOTE: Only termination available with 9221 model. Must be ordered with D seal option. Mates with standard .187 Nema female connector.



AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE



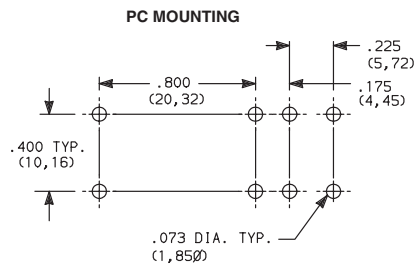
Actuator Shown in Pos. 3



9201SH3AV2QE
Vertical Actuation
DPDT

9201 Only

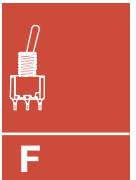
NOTE: Terminal bend radii and lead-in manufacturing option. Terminal spacing greater than 3mm at all points.



Terminal Nos.
For Reference Only



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Toggle

9000 Series Power Toggle Switches

CONTACT MATERIAL

OPTION CODE	MODEL	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	9201	SILVER 1,2	SILVER OR TIN 2,5	GP (general purpose) 6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3) 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 6 AMPS 30 VDC T85 10,000 cycles
	9221	SILVER CADMIUM OXIDE 3,4,6	TIN 5	GP (general purpose) 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 10 AMPS 30 VDC T85 10,000 cycles

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ END CONTACTS: Coin silver, silver plated.

² CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

³ END CONTACTS: Silver cadmium oxide.

⁴ CENTER CONTACTS: Copper alloy, silver plated.

⁵ Z4 TERMINALS ONLY: Copper alloy, matte-tin plated.

⁶ Cadmium in electrical switch contacts is exempt from RoHS.

NOTE: Any models supplied with Q contact material are RoHS compliant.

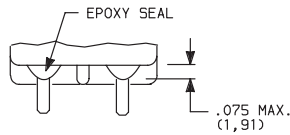
All 9000 Series models meet international dimensional and electrical requirements.

9221 model must be ordered with Z4 terminations and D seal option.



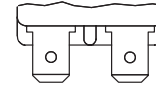
SEAL

E EPOXY SEAL



Not available with 9221 model or Z4 terminations.

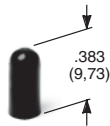
D NO EPOXY SEAL



Must be ordered with 9221 model and Z4 termination.

AVAILABLE HARDWARE

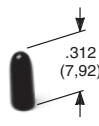
Cap
Compatible with S actuator



PART NO.
896801000 WHITE
896802000 BLACK
896803000 RED

Material: Polyethylene
Finish: Matte

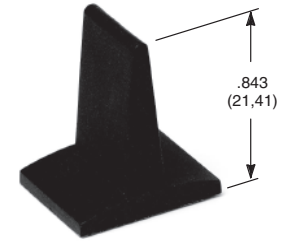
Cap
Compatible with S actuator



PART NO.
706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte

L43 Actuator



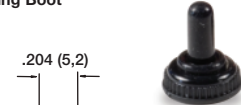
PART NO.
481202000 BLACK
481203000 RED

Material: Nylon
Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see Section N.

Other colors available, consult Customer Service Center.

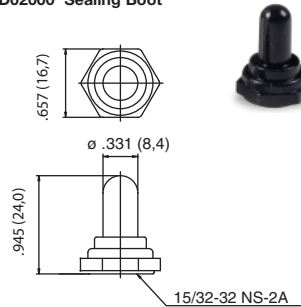
759D02000 Sealing Boot



1/4-40 uns-2A nut

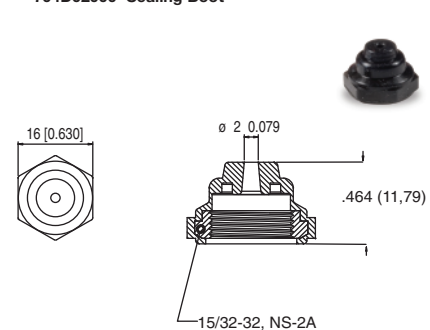
NOTE: For use with S actuator style when combined with H3 and H bushings

703D02000 Sealing Boot

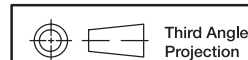


NOTE: For use with T style actuator

704D02000 Sealing Boot



NOTE: For use with T style actuator










Third Angle Projection





Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com

Rockers

Product Selection Guide

Rocker							
Series	7000	E	ET	T	9000	DA	D
Switch Type	Miniature	Miniature	Subminiature	Subminiature	Power Rocker & Lever Handle	Miniature Power	Miniature Power
Poles/Throws	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	DPDT	SPST, SPDT	SPST, SPDT, DPST, DPDT
Max. Current	5 Amps	7.5 Amps	3 Amps	3 Amps	10 Amps	16 Amps 10 Amps	4 Amps 10 Amps
Washable		•	•				
Illuminated						•	
Panel Mount Options							
Front Mount	•	•		•	•	Snap-in	Snap-in
Rear Mount	•	•		•	•		
PCB Mount Options							
Vertical	•	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•	•
Surface Mount			•				
Page No.	G-3	G-25	G-39	G-45	G-51	G-56	G-60

Rocker					
Series	DM	DM	DF	CR	SW
Switch Type	Miniature 2 Pole Power	Miniature Illuminated Power	Power	Round	Miniature Power
Poles/Throws	DPST, DPDT	SPST, DPST	SPST, SPDT, DPST	SPST, SPDT	SPST, SPDT, DPST
Max. Current	3 Amps, 10 Amps	3 Amps, 10 Amps	16 Amps	10 Amps, 6 Amps	3 A, 6 A, 6.5 A, 10 A, 16 A
Washable					
Illuminated		•		•	•
Panel Mount Options					
Front Mount	Snap-in	Snap-in	Snap-in	Snap-in	Snap-in
Rear Mount			•		
PCB Mount Options					
Vertical					
Right Angle			•		
Surface Mount					
Page No.	G-65	G-69	G-73	G-77	G-81

Rocker



G

C&K

*Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change*

7000 Series Miniature Rocker & Lever Handle Switches

Features/Benefits

- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS compliant

Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 5 AMPS @ 120 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page G-20 for additional ratings.

ELECTRICAL LIFE: 7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with S, P, R, Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Nylon, black.

FRAME (FRONT MOUNT): Nylon, black.

FRAME (REAR MOUNT): Spring steel, black.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page G-20 for additional contact materials.

CENTER CONTACTS & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page G-20 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to Soldering and Cleaning in Technical Data Section

HARDWARE: Mounting nuts & screws: Brass. Lockwasher: Stainless steel. Standoff: Nylon standard.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-4 through G-24. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

<p>Switch Function</p> <p>7101 SP On-None-On 7103 SP On-Off-On 7105 SP Mom.-Off-Mom. 7107 SP On-Off-Mom. 7108 SP On-None-Mom. 7109 SP None-On-Mom. 7201 DP On-None-On 7203 DP On-Off-On 7205 DP Mom.-Off-Mom. 7207 DP On-Off-Mom. 7208 DP On-None-Mom. 7211 DP On-On-On 7213 DP On-On-Mom. 7215 DP Mom.-On-Mom. 7301 3P On-None-On 7303 3P On-Off-On 7401 4P On-None-On 7405 4P Mom.-Off-Mom. 7411 4P On-On-On</p> <p>Note: UL models available, see pages G-5 and G-6.</p>	<p>Actuator</p> <p>J1 .531" long rocker J2 Lever J3 .906" long rocker J8 .699" long rocker J10 1.318" long rocker J11 Rocker with frame J15 Rocker, snap-in J16 Rocker with frame, snap-in J19 Rocker with frame J21 Lever with frame J25 Lever, snap-in J26 Lever with frame, snap-in J37 Rocker with frame J50 Rocker J51 Rocker with frame J52 Rocker with frame for LED, snap-in J60 Lever J61 Lever with frame, snap-in J62 Lever with frame for LED, snap-in J90 Lever J91 Lever with frame, snap-in</p>	<p>Terminations</p> <p>A Right angle, PC thru-hole AV2 Vertical right angle, PC thru-hole C PC Thru-hole Z Solder lug A3 Right angle, snap-in, PC thru-hole AV3 Vertical right angle, snap-in, PC thru-hole AW3 Right angle, extended, PC thru-hole V2 .555" high, V-bracket V3 .460" high, V-bracket V4 .630" high, V-bracket V5 Vertical right angle, PC thru-hole V6 .460" high, V-bracket V7 .630" high, V-bracket V8 .953" high, V-bracket V9 1.150" high, V-bracket V31 .460" high, V-bracket, snap-in V51 Vertical right angle, snap-in V61 .460" high, V-bracket, snap-in W .750" long, wire wrap W3 .425" long, wire wrap W5 1.305" long, wire wrap Z3 Quick connect</p>	<p>Contact Material</p> <p>B Gold P Gold, matte tin Q Silver S Silver, matte-tin G Gold over silver R Gold over silver, matte-tin</p> <p>Seal</p> <p>E Epoxy I Epoxy potted base</p> <p>Actuator Color</p> <p>2 Black 1 White 3 Red</p> <p>Frame Color</p> <p>2 Black NONE No frame color required 1 White</p> <p>Metal Frame Color (J11, J19, J21 & J37 Actuators) 2 Black 1 White</p>
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Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



7000 Series Miniature Rocker & Lever Handle Switches

SWITCH FUNCTION

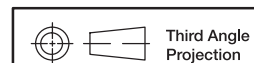
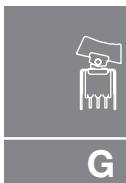
NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	7101	U11	ON	NONE	ON	2-3	N/A	2-1	
	7103	U13	ON	OFF	ON		N/A		
	7105	U15	MOM.	OFF	MOM.		OPEN		
	7107	U17	ON	OFF	MOM.		N/A		
	7108	U18	ON	NONE	MOM.		N/A		
	7109	U19	NONE	ON	MOM.		N/A		
SPDT 									
DP	7201	U21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	7203	U23	ON	OFF	ON		N/A		
	7205	U25	MOM.	OFF	MOM.		OPEN		
	7207	U27	ON	OFF	MOM.		N/A		
	7208	U28	ON	NONE	MOM.		N/A		
	7211*	U211*	ON	ON	ON		2-3,5-4		
	7213*	U213*	ON	ON	MOM.		2-3,5-4		
	7215*	U215*	MOM.	ON	MOM.		2-3,5-4		
DPDT 									

MOM. = Momentary

* Wiring for 3-way switch, see Section N.

** U11 through U413 model nos. with all options when ordered with G, Q, R or S contact material.

Rocker



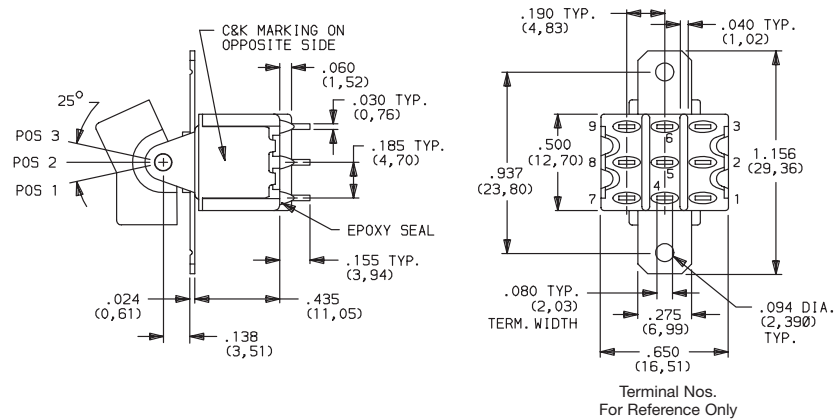
Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Rocker & Lever Handle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
3P	7301	U31	ON	NONE	ON	2-3-5-6,8-9	N/A	2-1,5-4,8-7	 3PDT
	7303	U33	ON	OFF	ON	2-3-5-6,8-9	OPEN	2-1,5-4,8-7	

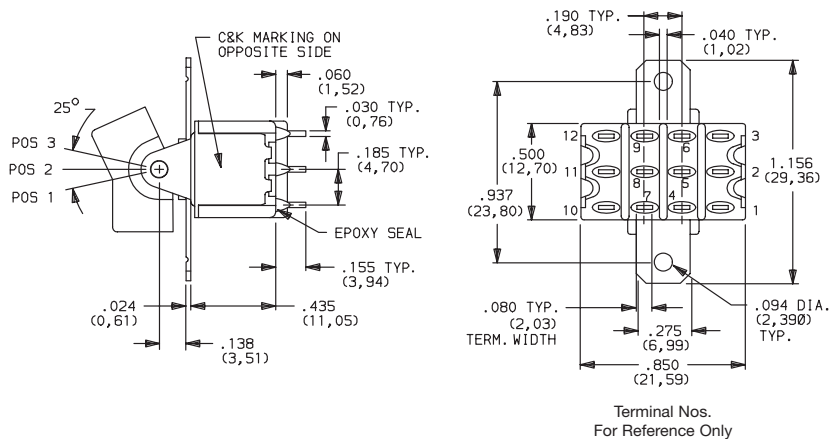
3PDT



Part number shown: 7301J1ZQE2

4P	7401	U41	ON	NONE	ON	2-3-5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	 4PDT
	7405	U45	MOM.	OFF	MOM.		OPEN		
	7411*	U411*	ON	ON	ON		2-3-5-4,8-9,11-10		

4PDT

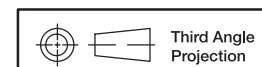


Part number shown: 7401J1ZQE2

MOM. = Momentary

** U11 through U411 model nos. with all options when ordered with G, Q, R or S contact material.

* Wiring for 3-way switch: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



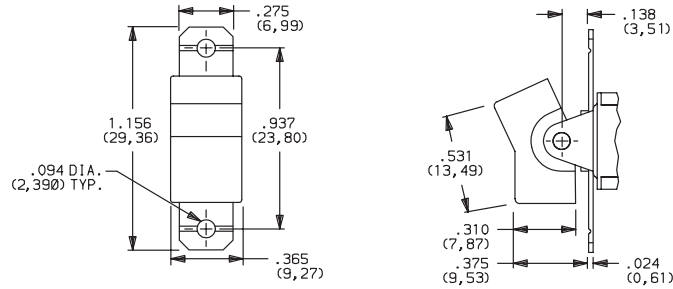
7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-PANEL REAR MOUNT

ACTUATOR COLOR

ACTUATOR

J1 ROCKER



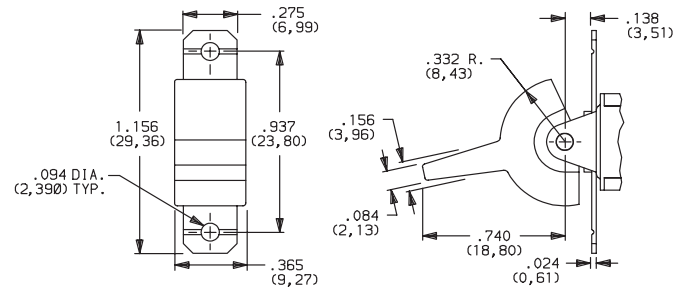
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on all switches with panel mounting brackets. Actuators available separately, see page G-21 through G-22. Hardware is available see Technical Data section of this catalog.

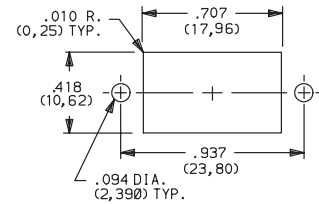
J1, J2, J3, J8 & J10 Actuators available with C, W-W5, Z or Z3 terminations.

J2 LEVER

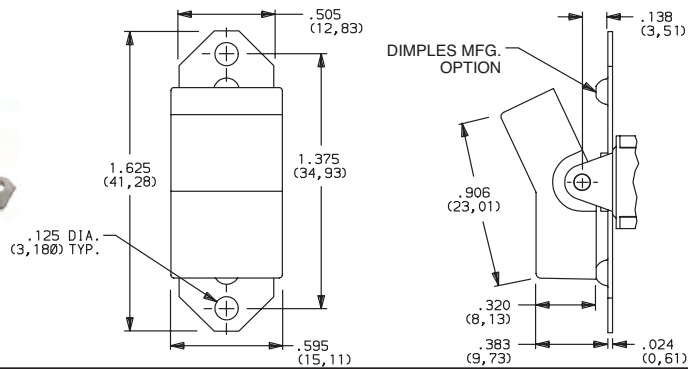


PANEL MOUNTING

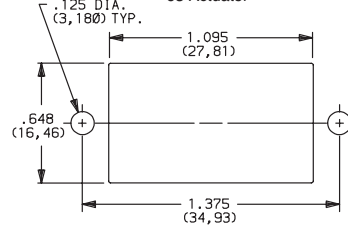
J1 & J2 Actuators



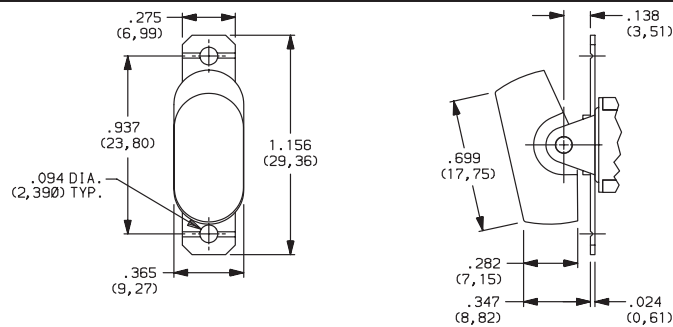
J3 ROCKER



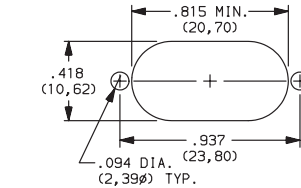
J3 Actuator



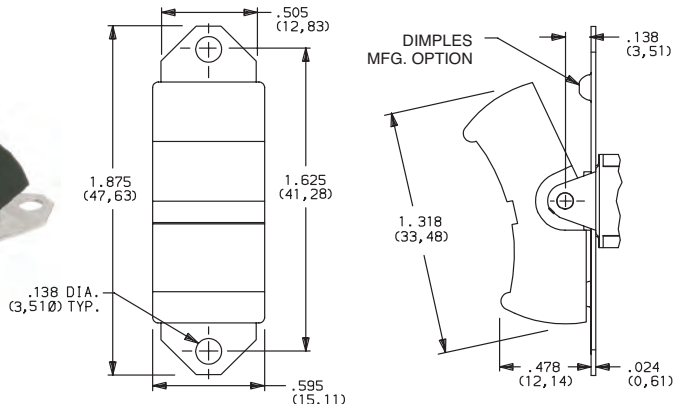
J8 ROCKER



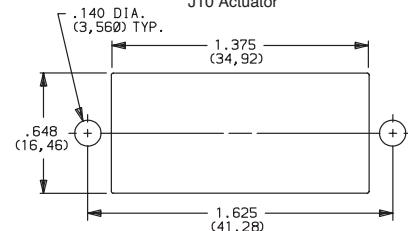
J8 Actuator



J10 ROCKER



J10 Actuator



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Rocker

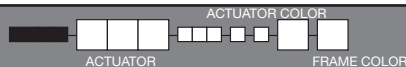


G

C&K

7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-SNAP-IN FRONT MOUNT



OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

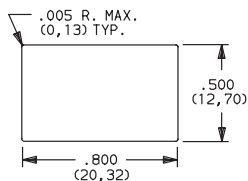
OPTION CODE	FRAME COLOR
2	BLACK
NONE	No Frame Color (J15 or J25 options)
1	WHITE

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

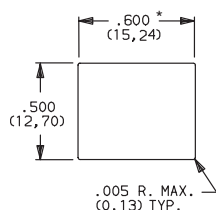
NOTE: Actuators & frames available separately, see pages G-21 through G-22. J15, J16, J25, J26, J50 & J51 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

PANEL MOUNTING

J15, J16, J25 & J26 Actuators

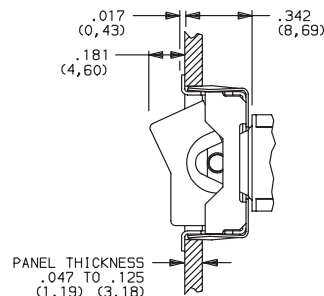
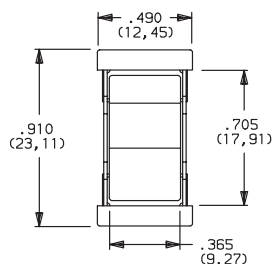


J50 Actuator



* For J50: Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

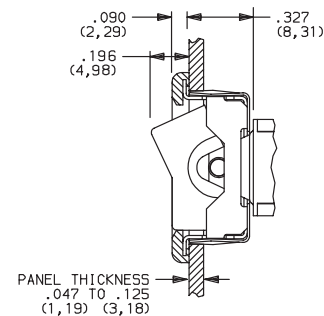
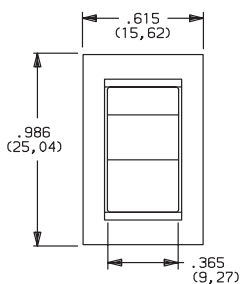
J15 ROCKER, SNAP-IN



No frame color choice required

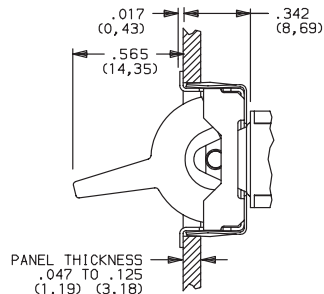
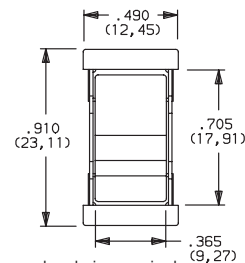
PANEL THICKNESS
.047 TO .125
(1, 19) (3, 18)

J16 ROCKER WITH FRAME, SNAP-IN



PANEL THICKNESS
.047 TO .125
(1, 19) (3, 18)

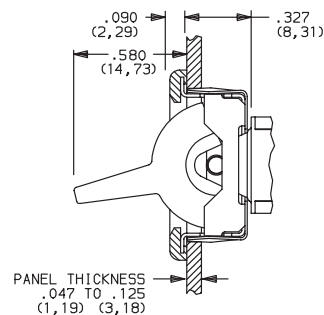
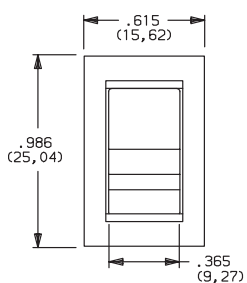
J25 LEVER, SNAP-IN



No frame color choice required

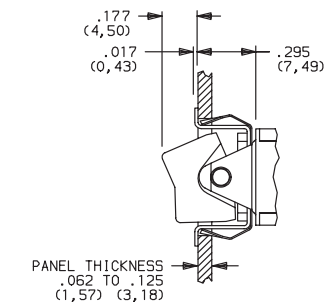
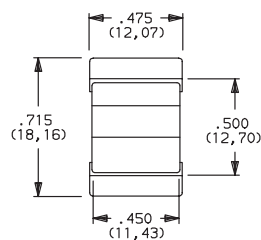
PANEL THICKNESS
.047 TO .125
(1, 19) (3, 18)

J26 LEVER WITH FRAME, SNAP-IN



PANEL THICKNESS
.047 TO .125
(1, 19) (3, 18)

J50 ROCKER, SNAP-IN



No frame color choice required

PANEL THICKNESS
.062 TO .125
(1, 57) (3, 18)



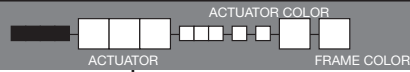
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

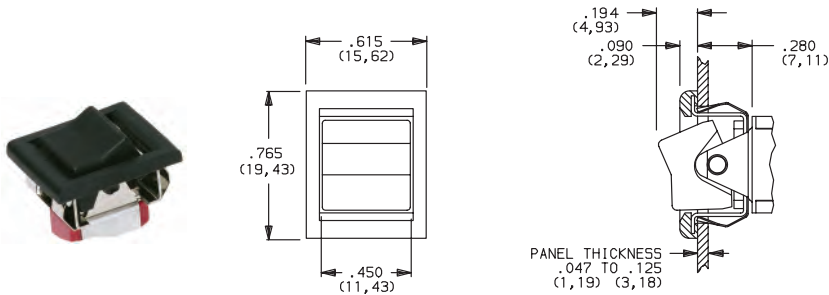


7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-SNAP-IN FRONT MOUNT

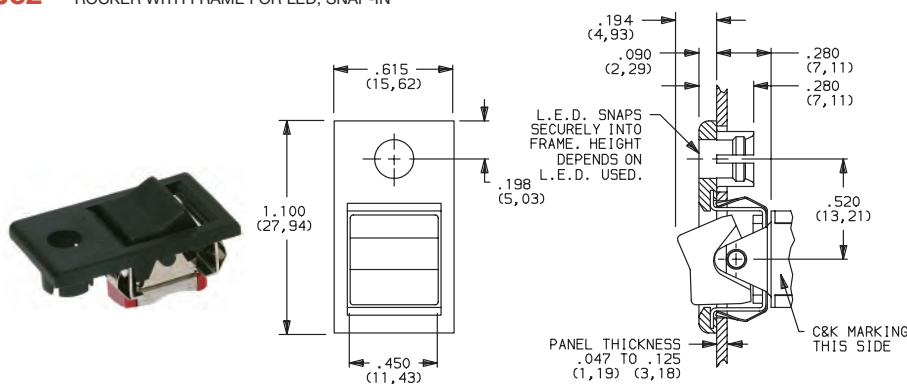


J51 ROCKER WITH FRAME, SNAP-IN



OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

J52 ROCKER WITH FRAME FOR LED, SNAP-IN



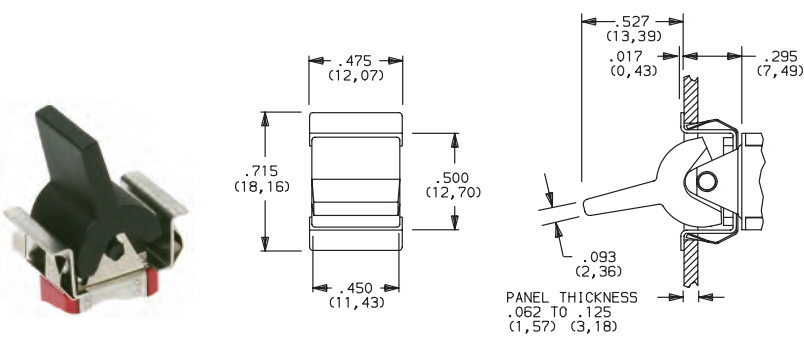
OPTION CODE	FRAME COLOR
2	BLACK
NONE	No Frame Color (J15 or J25 options)
1	WHITE

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Actuators & frames available separately, see pages G-21 through G-22. J51, J52, J60 & J61 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

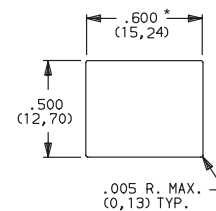
LED not included.
For LED information, see page G-24.

J60 LEVER, SNAP-IN

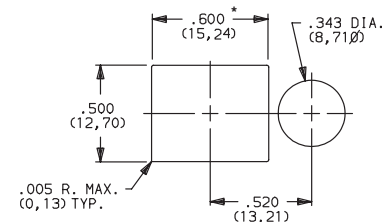


PANEL MOUNTING

J51, J60 & J61 Actuators



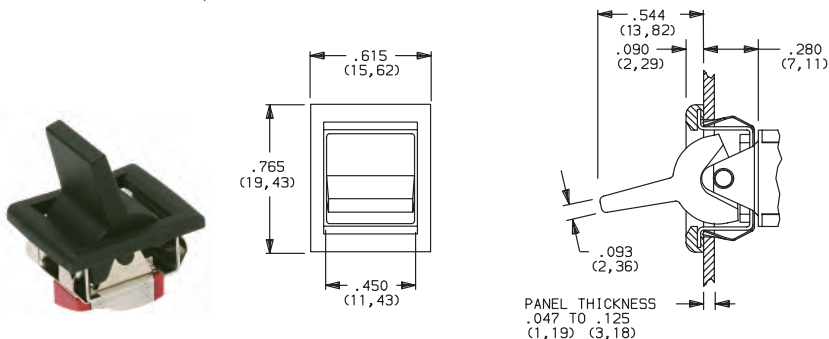
J52 Actuator



For J51, J52: Increase this dimension to .620/.625 (15,75/15,88) for .060/.125(1,52/3,18) thk. panels.

No frame color choice required

J61 LEVER WITH FRAME, SNAP-IN



Rocker



G

C&K



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

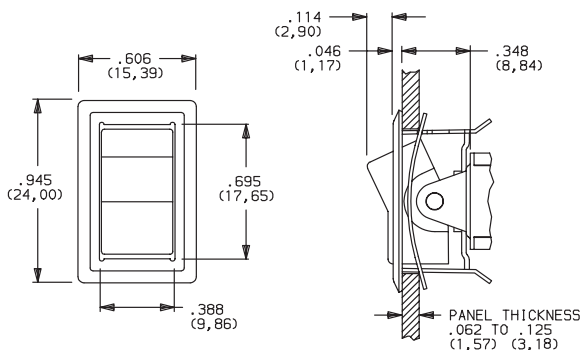
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7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-REAR MOUNT



J11 ROCKER WITH FRAME



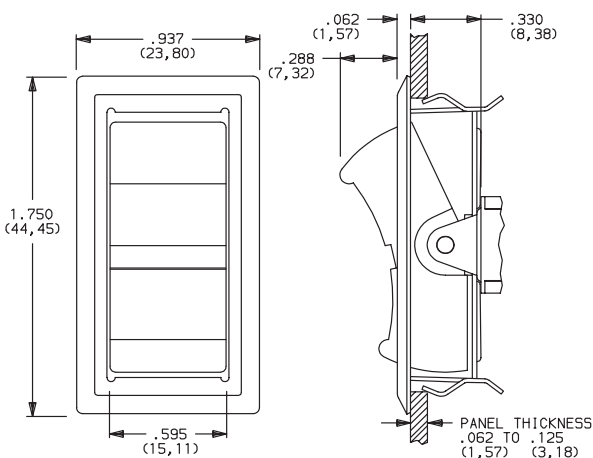
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

OPTION CODE	FRAME COLOR
2	BLACK
1	WHITE

Actuator finish: Matte. Frame finish: Gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

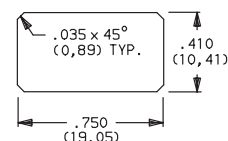
NOTE: Actuators & frames available separately, see pages G-21 through G-22. J11, J19, J21 & J37 Actuators available with C, W-W5, Z & Z3 terminations.

J19 ROCKER WITH FRAME

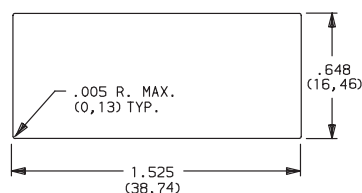


PANEL MOUNTING

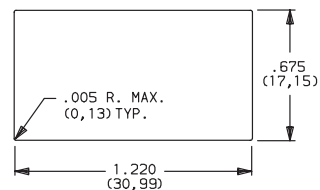
J11 & J21 Actuators



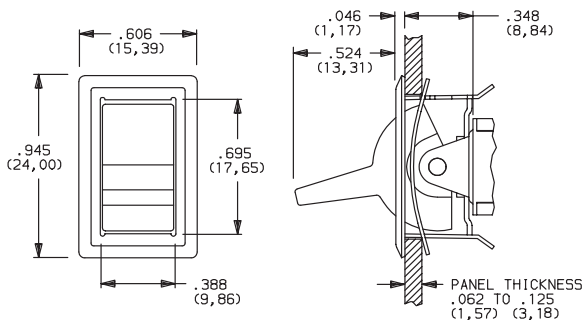
J19 Actuator



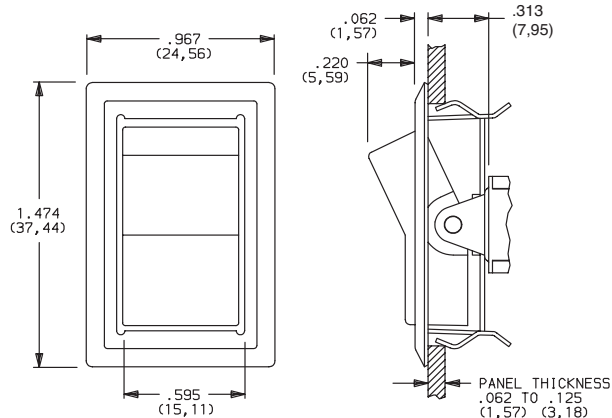
J37 Actuator



J21 LEVER WITH FRAME



J37 ROCKER WITH FRAME



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

www.ck-components.com

Rocker

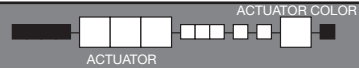


G

C&K

7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-PC MOUNT



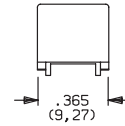
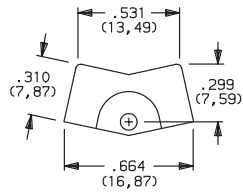
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

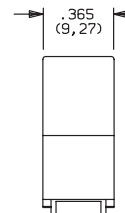
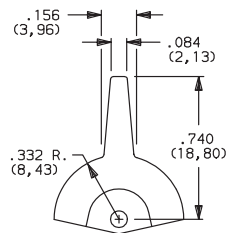
NOTE: Some permissible actuator/termination combinations may lack clearance between actuator and PC board, and care must be exercised to accommodate this condition.

Actuators available separately, see page G-21 through G-22. J1, J2 & J8 actuators available with A, A3, AV2, AV3, AW3 & V2 terminations. J3 actuators available with AV2, AV3 & V2-V61 terminations. J50 actuators available with A (DP, 3P models only), A3 (DP, 3P models only), AV2, AV3, AW3 (DP, 3P models only) & V2-V61 terminations.

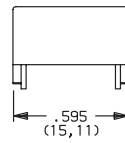
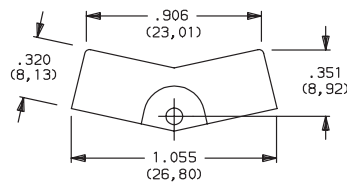
J1 ROCKER



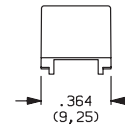
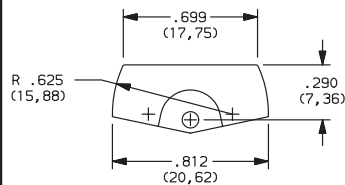
J2 LEVER



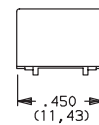
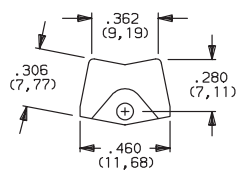
J3 ROCKER



J8 ROCKER



J50 ROCKER



Rocker

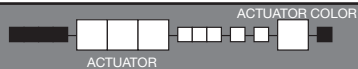


Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

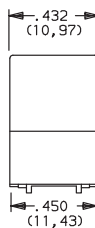
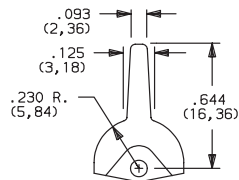


7000 Series Miniature Rocker & Lever Handle Switches

ACTUATOR-PC MOUNT



J60 LEVER

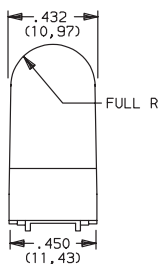
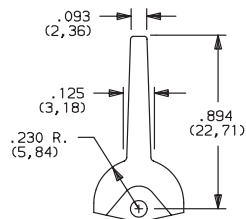


OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Some permissible actuator/termination combinations may lack clearance between actuator and PC board, and care must be exercised to accommodate this condition.

J90 LEVER

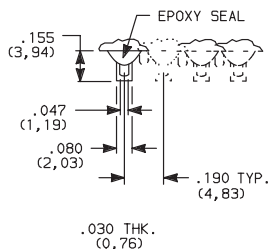


Actuators available separately, see page G-21 through G-22. J60 & J90 actuators available with A (DP, 3P models only), A3 (DP, 3P models only), AV2, AV3, AW3 (DP, 3P models only) & V2-V61 terminations.

TERMINATIONS



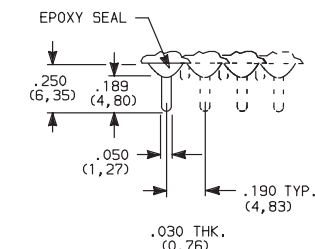
Z SOLDER LUG



SPDT thru 4PDT

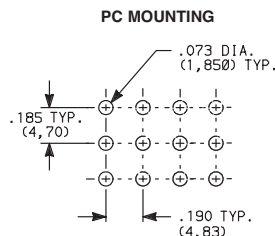
Not available with P, R or S contact materials. Available actuators, see pages G-7 through G-13.

C PC THRU-HOLE

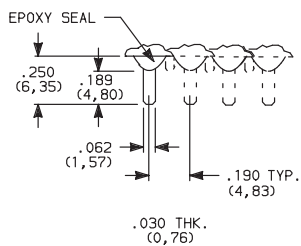


SPDT thru 4PDT

NOTE: Available actuators, see pages G-7 through G-13.



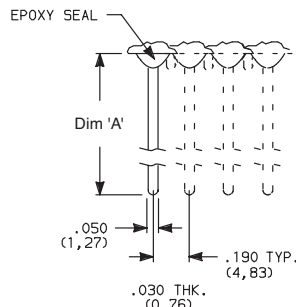
Z3 QUICK CONNECT



SPDT thru 4PDT

Not available with P, R or S contact materials. Available actuators, see pages G-7 through G-13. Mating quick connector available; order part number 530100000, page G-22.

W, W3, W5 WIRE WRAP



OPTION CODE	DIM 'A'
W	.750 (19,05)
W3	.425 (10,80)
W5	1.305 (33,15)

SPDT thru 4PDT

NOTE: Available actuators, see pages G-7 through G-13.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Rocker



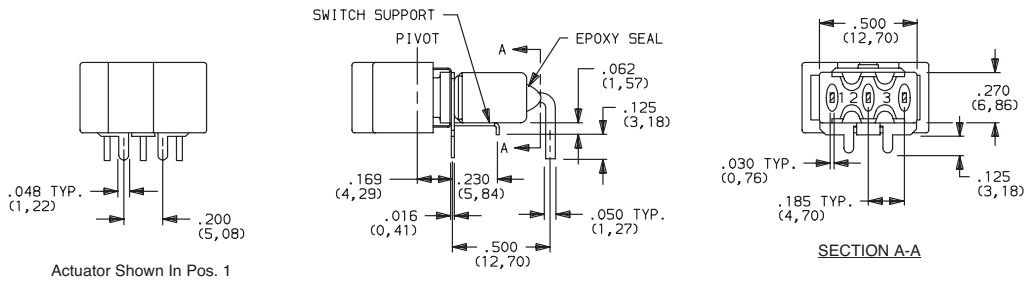
G

C&K

7000 Series Miniature Rocker & Lever Handle Switches

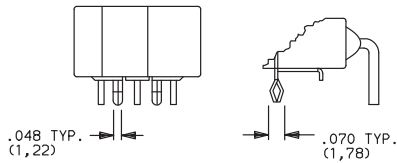
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

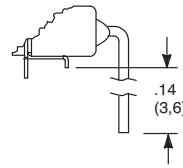


7101J1ABE2
Horizontal Actuation
SPDT

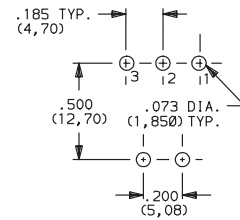
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



AW3 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



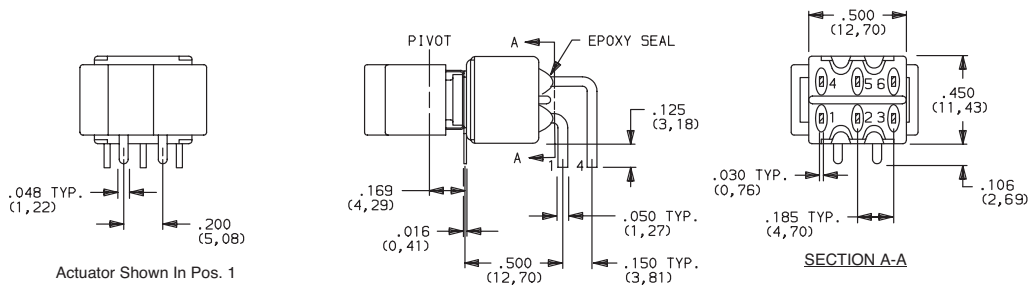
PC MOUNTING



Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.

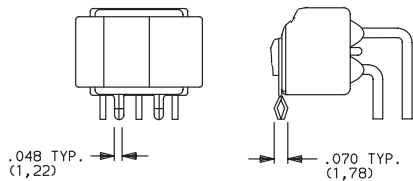
NOTE: PC pattern must clear switch support leg.

A RIGHT ANGLE, PC THRU-HOLE

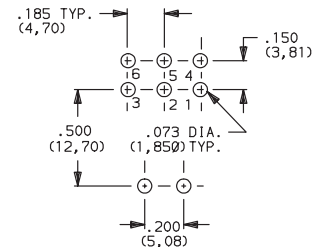


7201J1ABE2
Horizontal Actuation
DPDT

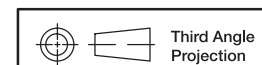
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING



Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



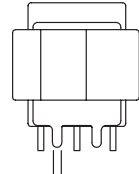
7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

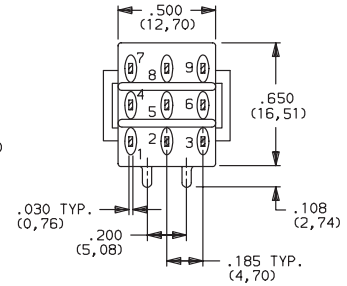
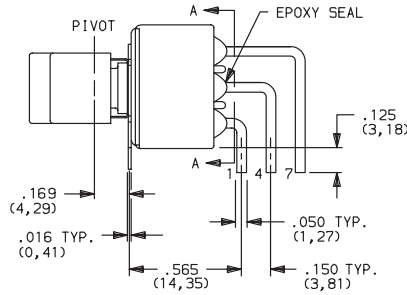
A RIGHT ANGLE, PC THRU-HOLE



7301J1ABE2
Horizontal Actuation
3PDT



Actuator Shown In Pos. 1



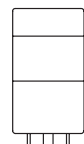
SECTION A-A

Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.

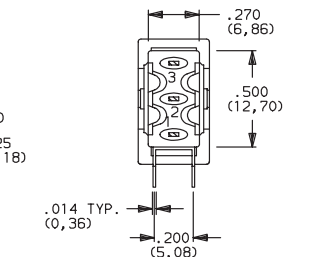
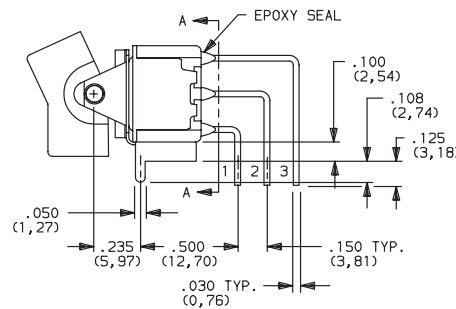
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



7101J1AV2BE2
Vertical Actuation
SPDT

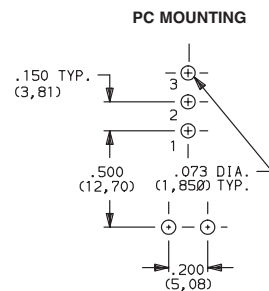
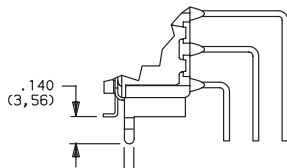
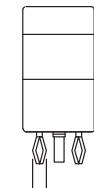


Actuator Shown In Pos. 1



SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH



PC MOUNTING

Rocker

Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.



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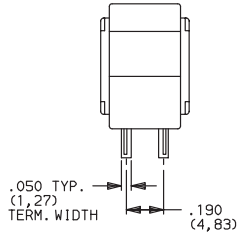
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

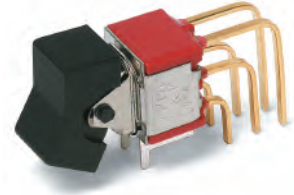
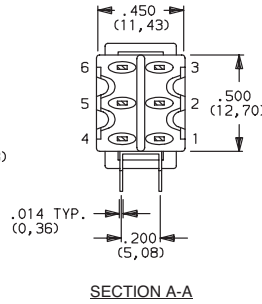
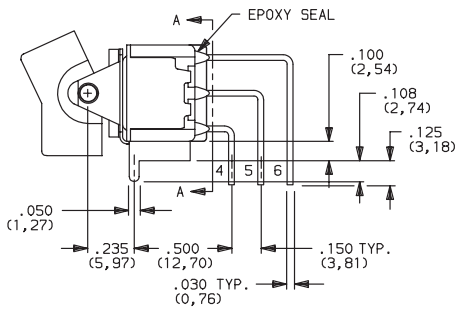
7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH

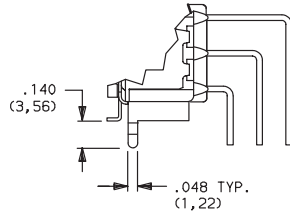
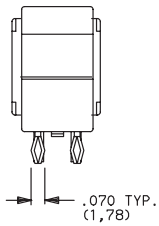


Actuator Shown In Pos. 1

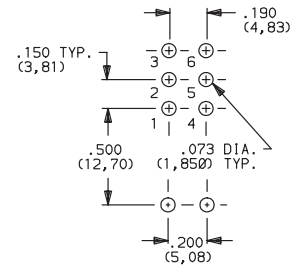


7201J1AV2BE2
Vertical Actuation
DPDT

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH

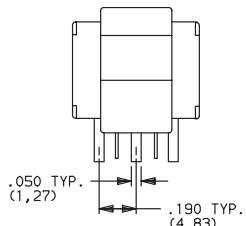


PC MOUNTING

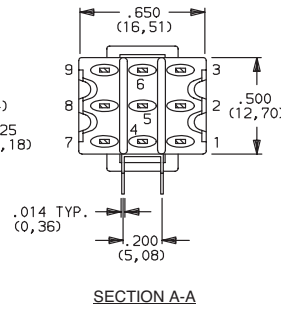
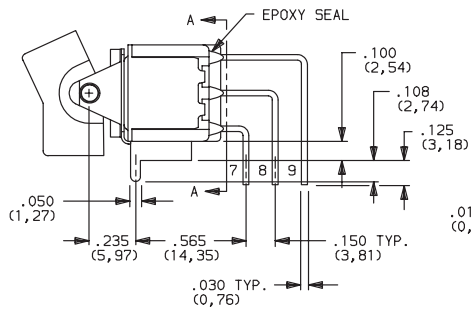


Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH

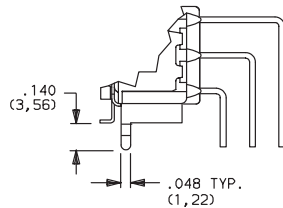
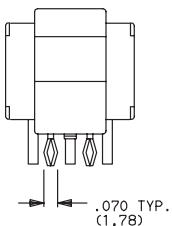


Actuator Shown In Pos. 1

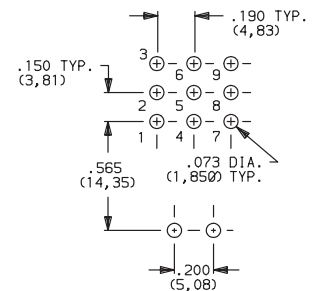


7301J1AV2BE2
Vertical Actuation
3PDT

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH



PC MOUNTING



Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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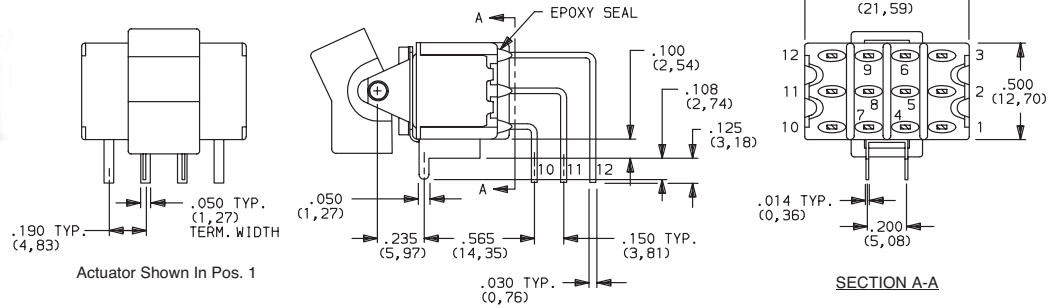
7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

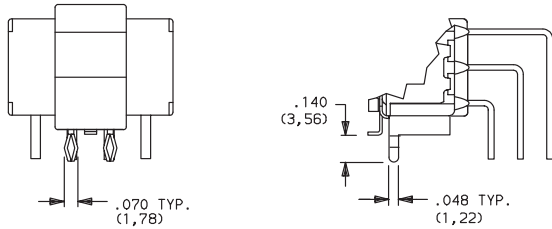
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



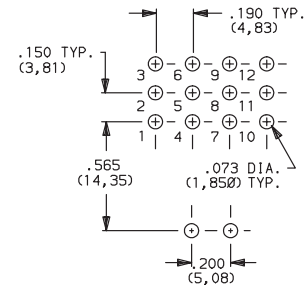
7401J1AV2BE2
Vertical Actuation
4PDT



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH



PC MOUNTING

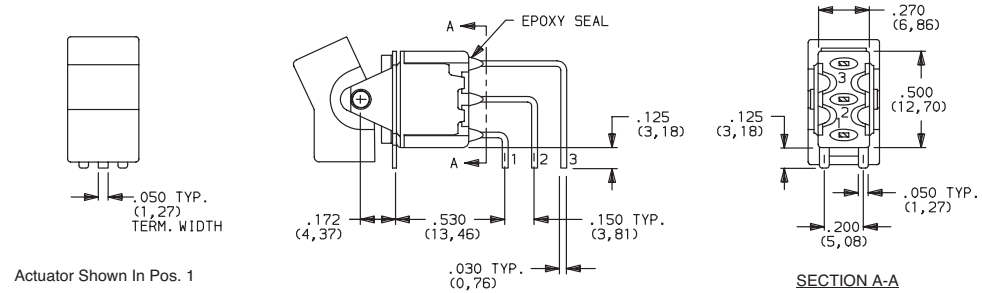


Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.

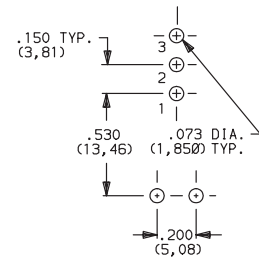
V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



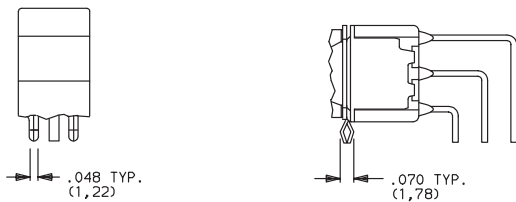
7101J1V5BE2
Vertical Actuation
SPDT



PC MOUNTING



V51 VERTICAL RIGHT ANGLE, SNAP-IN,
PC THRU-HOLE, .150" PITCH



Rocker

Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH

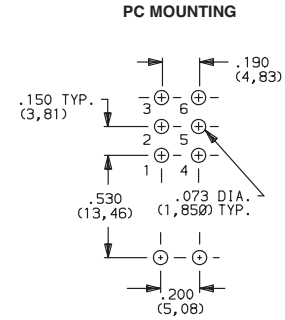
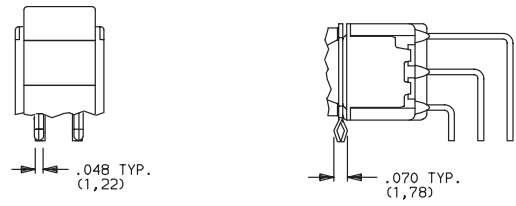


Actuator Shown In Pos. 1



7201J1V5BE2
Vertical Actuation
DPDT

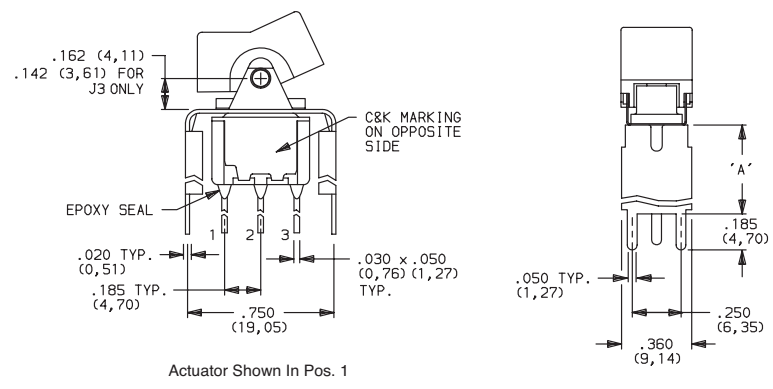
V51 VERTICAL RIGHT ANGLE, SNAP-IN,
PC THRU-HOLE, .150" PITCH



Not available with I seal option. Available actuators, see pages G-6 and G-12.
Terminal bend radii and lead-in manufacturing option.

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



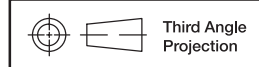
Actuator Shown In Pos. 1



7101J1_BE2
SPDT

OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11,68)
V7	.630 (16,00)
V8	.953 (24,21)

Not available with I seal option.
Available actuators, see pages G-6 and G-12.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Rocker



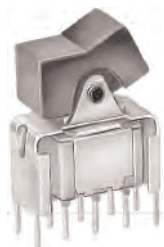
G

7000 Series Miniature Rocker & Lever Handle Switches

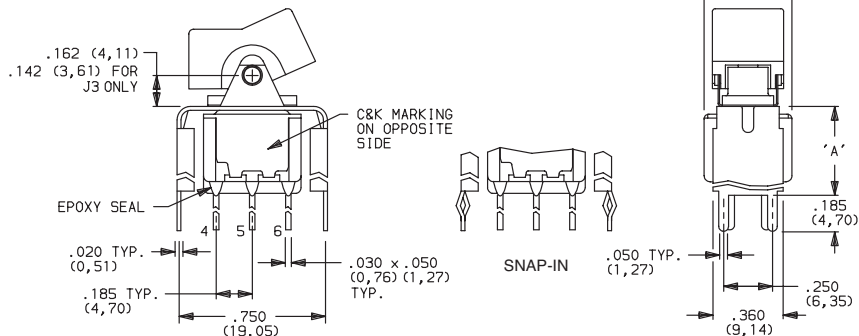
TERMINATIONS

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

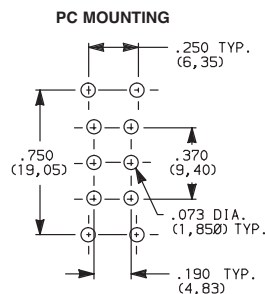
V21, V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



7201J1_BE2
DPDT



Actuator Shown In Pos. 1



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11,68)
V7	.630 (16,00)
V8	.953 (24,21)

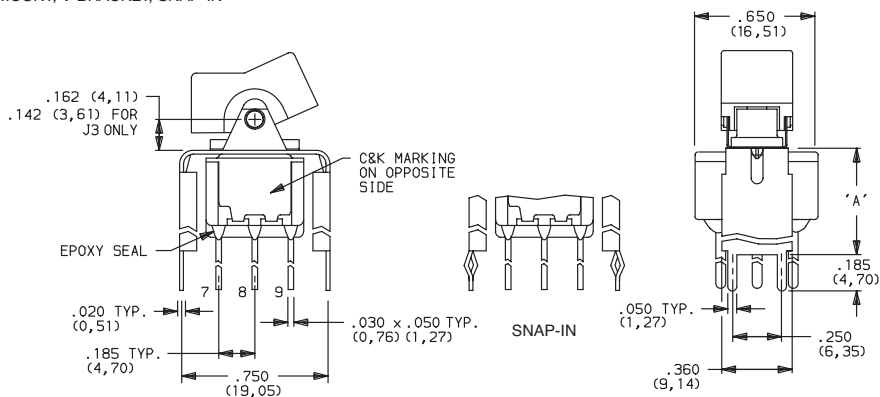
Not available with I seal option.
Available actuators, see pages G-6 and G-12.

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

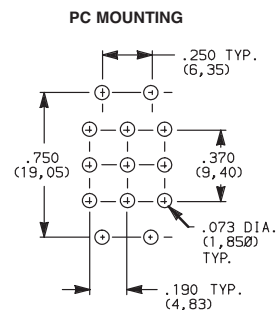
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



7301J1_BE2
3PDT



Actuator Shown In Pos. 1



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7	.630 (16,00)
V8	.953 (24,21)

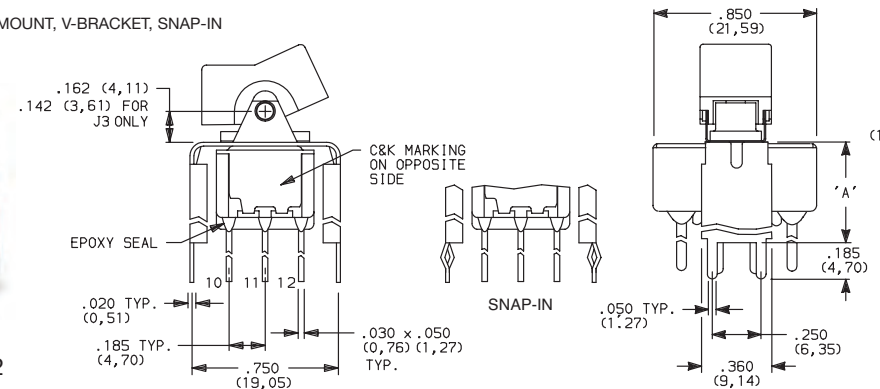
Not available with I seal option.
Available actuators, see pages G-6 and G-12.

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

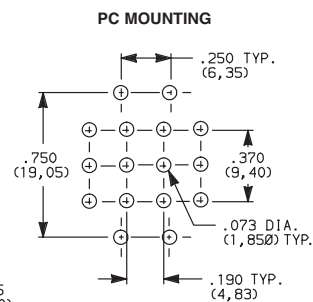
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



7401J1_BE2
4PDT



Actuator Shown In Pos. 1



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7	.630 (16,00)
V8	.953 (24,21)

Not available with I seal option.
Available actuators, see pages G-6 and G-12.

Rocker



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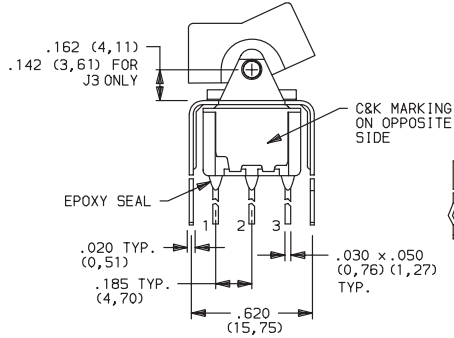
Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

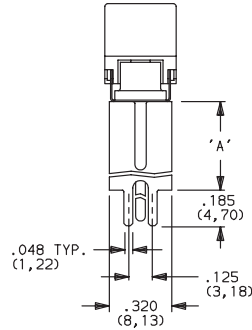
V3, V4, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

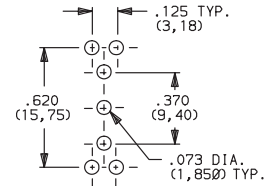


Actuator Shown In Pos. 1

Not available with I seal option.
Available actuators, see pages G-6 and G-12.



PC MOUNTING

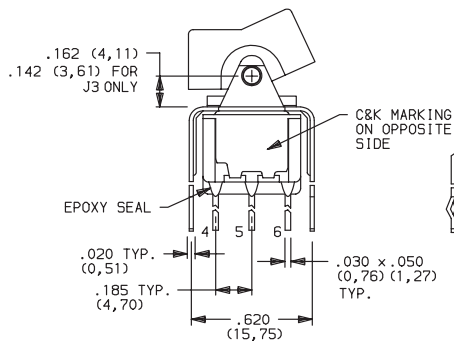


7101J1_BE2
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

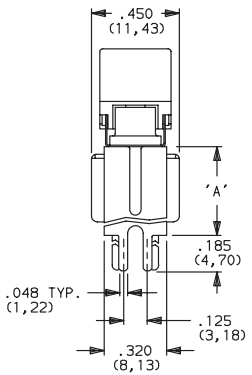
V3, V4, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

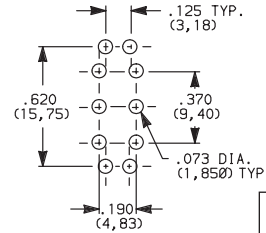


Actuator Shown In Pos. 1

Not available with I seal option.
Available actuators, see pages G-6 and G-12.



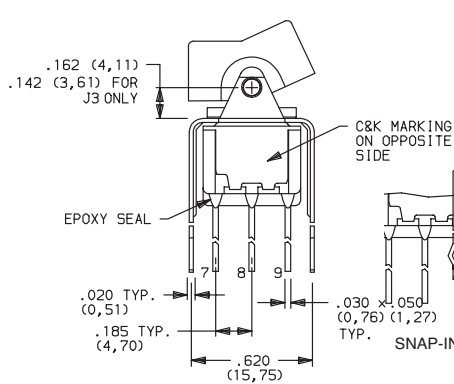
PC MOUNTING



7201J1_BE2
DPDT

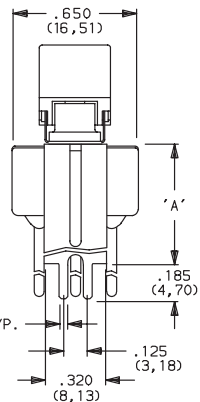
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

V4, V9 VERTICAL MOUNT, V-BRACKET

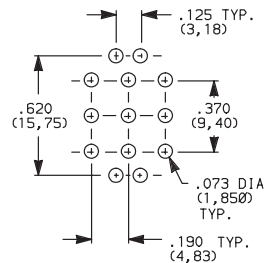


Actuator Shown In Pos. 1

Not available with I seal option.
Available actuators, see pages G-6 and G-12.



PC MOUNTING



7301J1_BE2
3PDT

OPTION CODE	DIM 'A'
V4	.630 (16,00)
V9	1.150 (29,21)



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



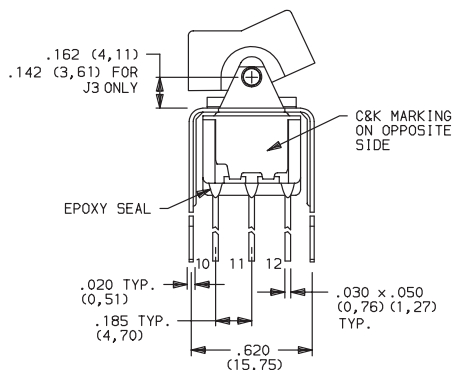
7000 Series Miniature Rocker & Lever Handle Switches

TERMINATIONS

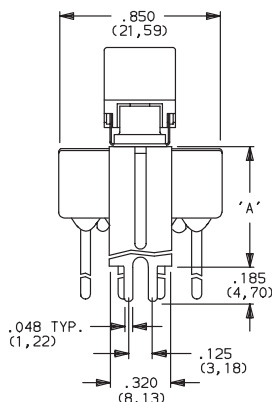
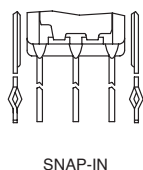
V4, V9 VERTICAL MOUNT, V-BRACKET



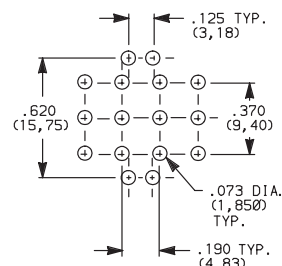
7401J1_BE2
4PDT



Actuator Shown In Pos. 1



PC MOUNTING



OPTION CODE	DIM 'A'
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.
Available actuators, see pages G-6 and G-12.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX OR 5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, with gold plate over nickel plate.
- CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, silver plated.
- CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
- TERMINALS: Copper alloy, with matte-tin over nickel plate.

U11-U415 model numbers with all options when ordered with G, Q, S & R contact material.

B contact material standard with all terminations except C, Z & Z3.

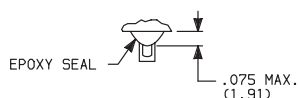
Q contact material standard with C, Z & Z3 terminations.

P, S & R, contact materials not available with Z & Z3 terminations.

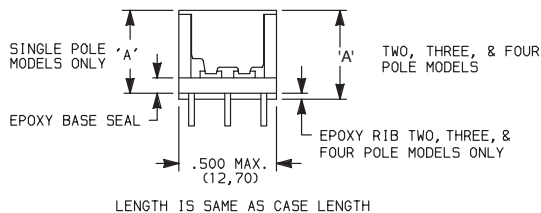
NOTE: Any models supplied with Q, B, G S, P & R contact material are RoHS compliant.

SEAL

E EPOXY SEAL



I EPOXY POTTED BASE



Available with C, W through W5, Z & Z3 terminations.

NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Rocker



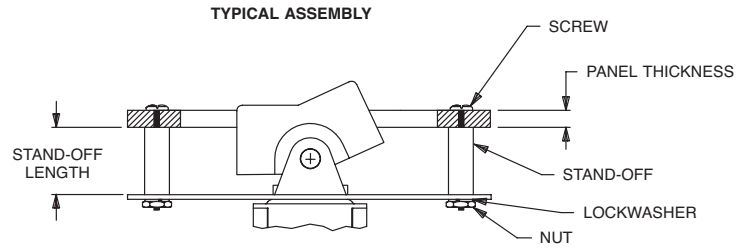
G

C&K

7000 Series Miniature Rocker & Lever Handle Switches

AVAILABLE HARDWARE

Panel mounting hardware for rocker and lever handle switches is available separately. Mounting hardware consists of two screws, two nuts, two standoffs and two lockwashers per switch, and is available for panel thicknesses of 1/16, 3/32 and 1/8 inch. See part numbers below.



Qty	Part Number	Description
2	761103000	Standoffs
2	764100000	Mounting screws
2	764200000	Lock washers
2	764300000	Hex nuts

J1 & J2 actuators

PART NO.	PANEL THK.	STANDOFF LENGTH
761103000	1/8 IN. (3,18)	.233 (5,92)

J3 actuators

PART NO.	PANEL THK.	STANDOFF LENGTH
770603000	1/8 IN. (3,18)	.233 (5,92)

J10 actuators

PART NO.	PANEL THK.	STANDOFF LENGTH
770703000	1/8 IN. (3,18)	.233 (5,92)

MATERIAL

Screws, nuts, lockwashers: Stainless steel. Standoffs: Nylon, standard.

J1, J11, J15 & J16 Actuators



PART NO.
776A01000 WHITE
776A02263 BLACK
776A03000 RED

Material: Nylon
 Finish: Matte

J2, J21, J25 & J26 Actuators



PART NO.
426D01000 WHITE
426D02263 BLACK
426D03000 RED

Material: Nylon
 Finish: Matte

J3 & J37 Actuators



PART NO.
431D01000 WHITE
431D02263 BLACK
431D03000 RED

Material: Nylon
 Finish: Matte

J50, J51 & J52 Actuators



PART NO.
775A01000 WHITE
775A02263 BLACK
775A03000 RED

Material: Nylon
 Finish: Matte

J60, J61 & J62 Actuators



PART NO.
598101000 WHITE
613802263 BLACK
598103000 RED

Material: Nylon
 Finish: Matte

J8 Actuator



PART NO.
488701000 WHITE
488702263 BLACK
488703000 RED

Material: Nylon
 Finish: Matte



*Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change*



7000 Series Miniature Rocker & Lever Handle Switches

AVAILABLE HARDWARE

J90 & J91 Actuators



PART NO.
598001000 WHITE
598002263 BLACK
598003000 RED
 Material: Nylon
 Finish: Matte

J10 & J19 Actuators



PART NO.
769501000 WHITE
769502263 BLACK
769503000 RED
 Material: Nylon
 Finish: Matte

Fits Z3 Termination female connector



PART NO.
530100000
 Available in loose pieces.

Frame for J11 & J21 Actuators



PART NO.
764500746 BLACK ENAMEL
764500747 WHITE ENAMEL
764601106 RETAINING SPRING
 Material: Spring Steel

Frame for J16 & J26 Actuators



PART NO.
459101000 WHITE
459102000 BLACK
459103000 RED
 Material: Nylon
 Finish: Matte

Frame for J51, J61 & J91 Actuators



PART NO.
615601000 WHITE
615602263 BLACK
615603000 RED
 Material: Nylon
 Finish: Matte

Frame for J19 Actuator



PART NO.
781000746 BLACK ENAMEL
781000747 WHITE ENAMEL
 Material: Spring Steel

Frame for J37 Actuator



PART NO.
445400746 BLACK ENAMEL
445400747 WHITE ENAMEL
 Material: Spring Steel

Frame for J52 & J62 Actuators



PART NO.
613301000 WHITE
613302263 BLACK
613303000 RED
 Material: Nylon
 Finish: Matte

Rocker



G



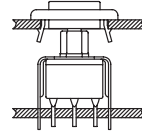
Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

7000 Series Miniature Rocker & Lever Handle Switches

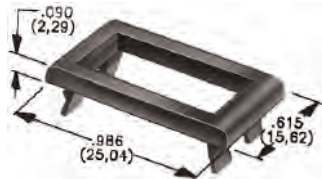
AVAILABLE HARDWARE

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



J1 & J2 Actuators



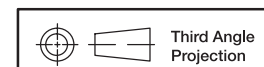
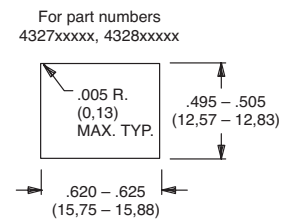
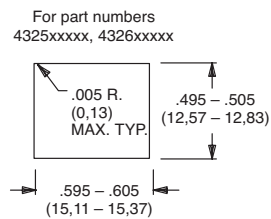
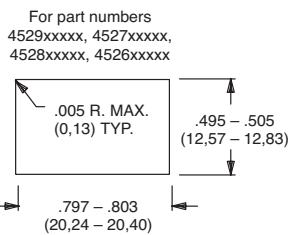
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. 452902263	PART NO. 452702263	PART NO. 452802263	PART NO. 452602263 BLACK

J50, J60 & J90 Actuators



.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. 432502263	PART NO. 432602263	PART NO. 432702263	PART NO. 432802263 BLACK

PANEL MOUNTING



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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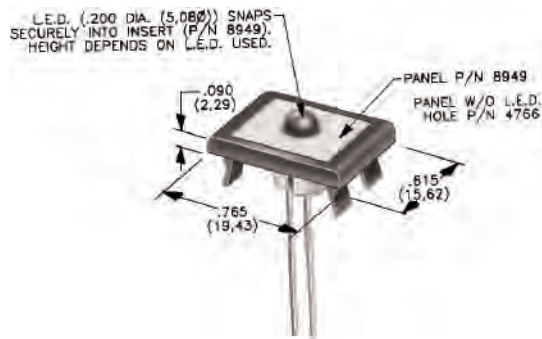
7000 Series Miniature Rocker & Lever Handle Switches

AVAILABLE HARDWARE

Panel Inserts

Will fit Separate Snap-in frames for J50, J60 & J90 actuators

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

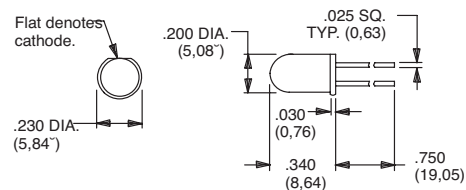
PART NO.
476602000 BLACK

NOTE: Special colors, custom markings available, consult Customer Service Center.

LED INFORMATION

Process Information: Soldering to LED leads must be completed within 5 seconds at 500° F (260°C) maximum.

LEDs are not supplied with J52, J62 options. LED snaps into switch frame surrounding actuator and is wired externally.



Suggested LED for J52 & J62 options.
Dimensions for reference only.

Rocker



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series

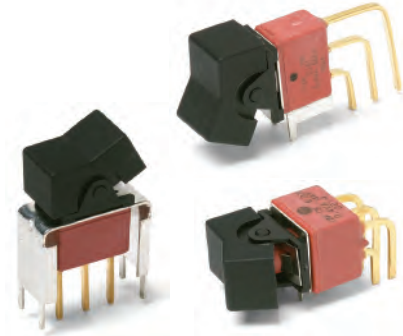
Sealed Miniature Rocker and Lever Handle Switches

Features/Benefits

- Sealed against solder and cleaning process contaminants
- ESD Resistance—all actuator options
- Rocker, case & bushing UL 94V-0
- RoHS compliant

Typical Applications

- Telecommunications
- Instrumentation
- Computers & peripherals



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material (E1XX & E2XX Models): 7.5 AMPS @125 V AC or 28 V DC; 3 AMPS @ 250 V AC. (E3XX Models): 5 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page G-36 for additional ratings.

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

ELECTROSTATIC DISCHARGE (ESD) OPTION: All actuator options: 15,000 V DC max. @ sea level, actuator to terminals.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0).

ACTUATOR: Nylon, black standard, internal o-ring seal standard with all actuators.

FRAME: Spring steel, black standard.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

ACTUATOR PIVOT & MOUNTING BRACKET: Nylon.

ACTUATOR PIVOT RETAINER: Stainless steel.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page G-36 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut, Screw & Lockwasher: Stainless steel.
Standoff: Nylon standard, aluminum available, consult Customer Service Center.

NOTE: Any models supplied with Q, B, G, S, P & R contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-26 through G-38. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

<p>Switch Function</p> <p>E101 SP On-None-On E103 SP On-Off-On E105 SP Mom.-Off-Mom. E107 SP On-Off-Mom. E108 SP On-None-Mom. E201 DP On-None-On E203 DP On-Off-On E205 DP Mom.-Off-Mom. E207 DP On-Off-Mom. E208 DP On-None-Mom. E211 DP On-On-On E213 DP On-On-Mom. E215 DP Mom.-On-Mom. E301 3P On-None-On</p>	<p>Actuator</p> <p>J1 .531 long rocker J2 Lever J3 .906" long rocker J11 Rocker with frame J21 Lever with frame J50 .362" long rocker J60 Lever J90 Lever</p>	<p>Terminations</p> <p>A Right angle, PC thru-hole AV2 Vertical right angle, PC thru-hole C PC Thru-hole Z Solder lug A3 Right angle, snap-in, PC thru-hole AV3 Vertical right angle, snap-in, PC thru-hole V3 .460" high, V-bracket V4 .630" high, V-bracket V5 Vertical right angle, PC thru-hole V6 .460" high, V-bracket V7 .630" high, V-bracket V8 .953" high, V-bracket V21 .555" high, V-bracket, snap-in V31 .460" high, V-bracket, snap-in</p>	<p>Contact Material</p> <p>B Gold P Gold, matte tin Q Silver S Silver, matte-tin G Gold over silver R Gold over silver, matte-tin</p> <p>Seal</p> <p>E Epoxy</p> <p>Actuator Color</p> <p>2 Black 3 Red</p> <p>Frame Color</p> <p>2 Black NONE No frame color required</p> <p>Metal Frame Color (J11, J21 Actuators) 2 Black</p>
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Rocker



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



E Series Sealed Miniature Rocker and Lever Handle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC		
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3			
		C&K marking on opposite side			C&K marking on opposite side					
SP	E101	ON	NONE	ON	2-3	N/A	2-1			
	E103	ON	OFF	ON		OPEN				
	E105	MOM.	OFF	MOM.						
	E107	ON	OFF	MOM.						
	E108	ON	NONE	MOM.		N/A				
SPDT										
								Terminal Nos. For Reference Only		
Part number shown: E101J1ZBE2										
DP	E201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4			
	E203	ON	OFF	ON		OPEN				
	E205	MOM.	OFF	MOM.						
	E207	ON	OFF	MOM.						
	E208	ON	NONE	MOM.						
	E211**	ON	ON	ON						
	E213**	ON	ON	MOM.		2-3,5-4				
	E215**	MOM.	ON	MOM.						
DPDT										
								Terminal Nos. For Reference Only		
Part number shown: E201J1ZBE2										

MOM. = Momentary

** Wiring for 3-way switch, Hardware available seperately, see Technical Data section of this catalog.

All models with all options when ordered with G, Q, R or S contact material.

Rocker

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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G

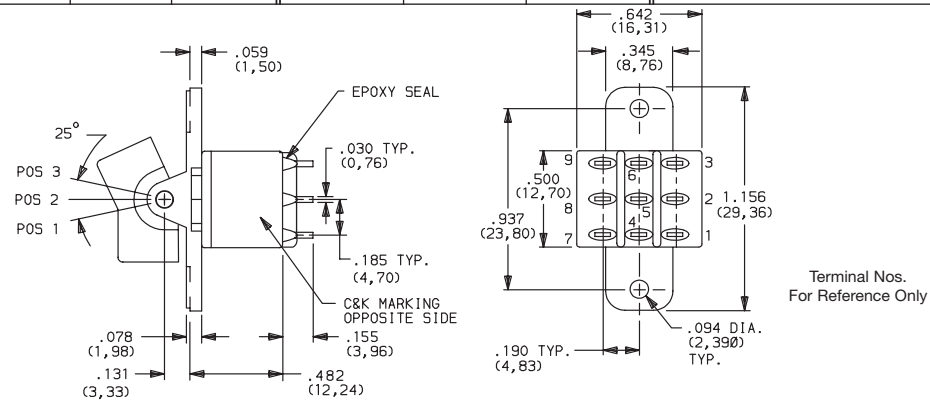
C&K

E Series Sealed Miniature Rocker and Lever Handle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
3P	E301	ON	NONE	ON	2-3-5-6,8-9	N/A	2-1,5-4,8-7	<p>3PDT</p>

3PDT



Part number shown: E301J1ZBE2

MOM. = Momentary

** Wiring for 3-way switch, see Technical Data section of this catalog.

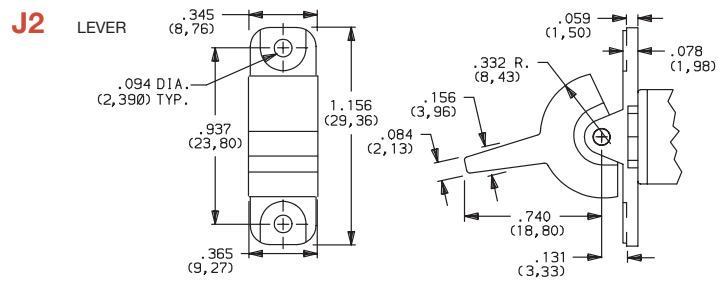
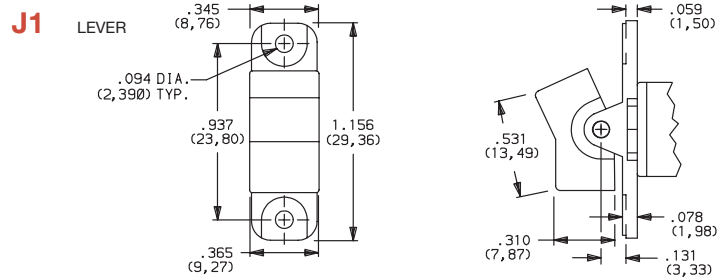
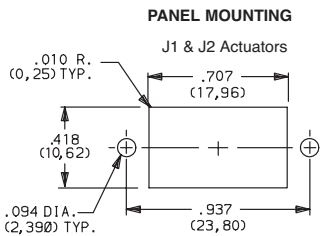
All models with all options when ordered with G, Q, R and S contact material.

ACTUATOR-PANEL REAR MOUNT

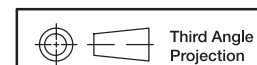
OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page G-36. Hardware available separately, see Technical Data section of this catalog. J1, J2 actuators available with C, Z or Z3 terminations.



Rocker

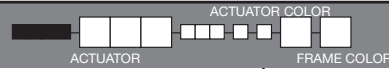


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

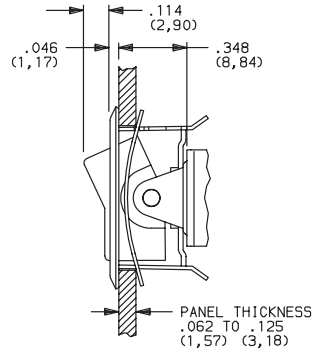
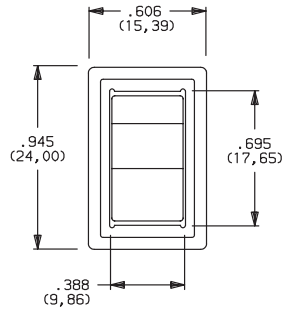


E Series Sealed Miniature Rocker and Lever Handle Switches

ACTUATOR-REAR MOUNT



J11 ROCKER WITH FRAME

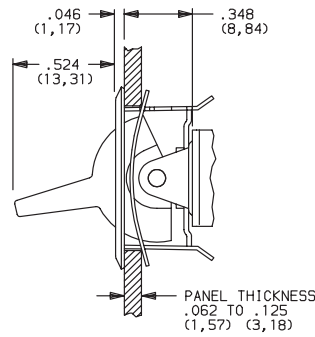
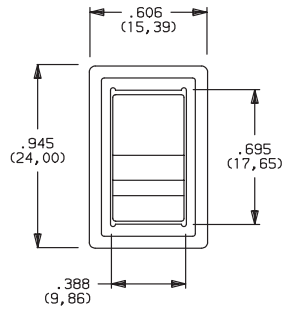


NOTE: This option has reduced anti-static capability.

OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

OPTION CODE	FRAME COLOR
2	BLACK

J21 LEVER WITH FRAME

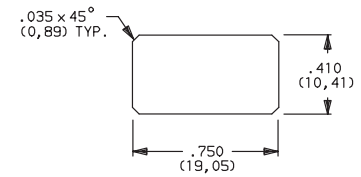


NOTE: This option has reduced anti-static capability.

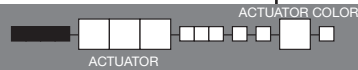
Actuator finish: Matte, frame finish: gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Internal o-ring actuator seal standard. Actuators & frames available separately, see page G-36. Hardware available separately, see Technical Data section of this catalog. N, J11 & J21 actuators available with C, Z & Z3 terminations.

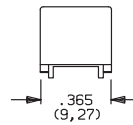
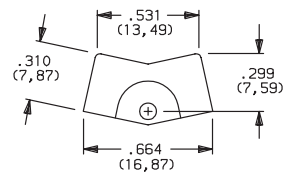
PANEL MOUNTING



ACTUATOR-PC MOUNT

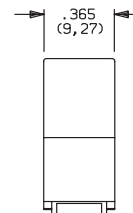
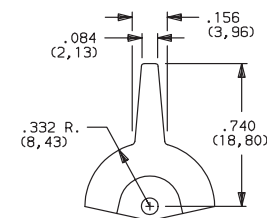


J1 ROCKER



OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

J2 LEVER



Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page G-36. Hardware available separately, see Technical Data section of this catalog. J1, J2 actuators available with A, A3, AV2, AV3, V2-V61 terminations.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

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Rocker

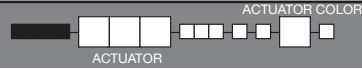


G

C&K

E Series Sealed Miniature Rocker and Lever Handle Switches

ACTUATOR-PC MOUNT



OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

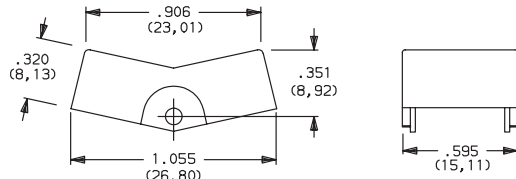
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page G-36. Hardware available separately, see Technical Data section of this catalog.

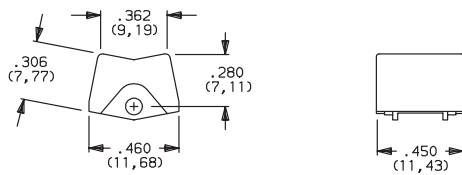
J3 actuators available with AV2, AV3 & V2-V61 terminations. Some permissible actuator/termination combinations may lack clearance between actuator and PC board, and care must be exercised to accommodate this condition.

J50, J60 & J90 actuators available with A, AV2, AV3, V2 - V61 terminations.

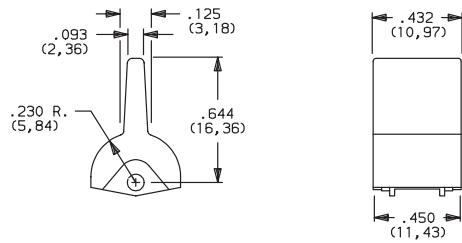
J3 ROCKER



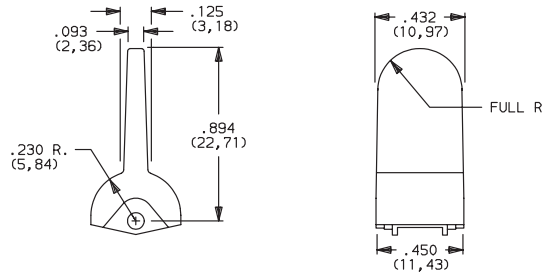
J50 ROCKER



J60 LEVER



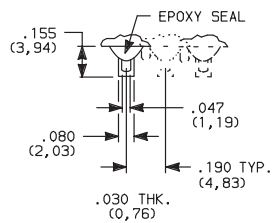
J90 LEVER



TERMINATIONS



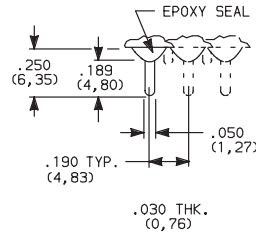
Z SOLDER LUG



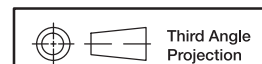
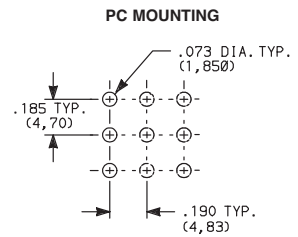
SPDT thru 3PDT

Not available with P, S, & R contact materials. Available actuators, see page G-27-28.

C PC THRU-HOLE



SPDT thru 3PDT



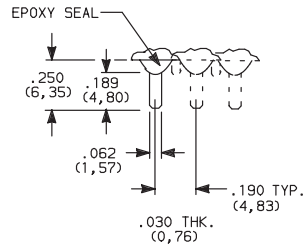
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E Series Sealed Miniature Rocker and Lever Handle Switches

TERMINATIONS

Z3 QUICK CONNECT



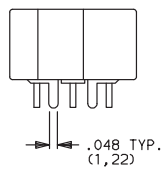
Not available with P, S, & R contact materials. Available actuators, see pages G-27 thru G-28. Mating quick connector available; order part number 530100000, page G-37.

SPDT thru 3PDT

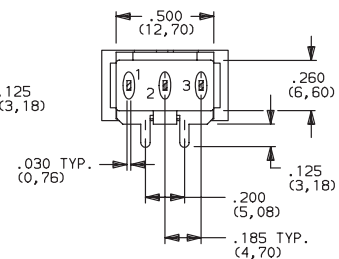
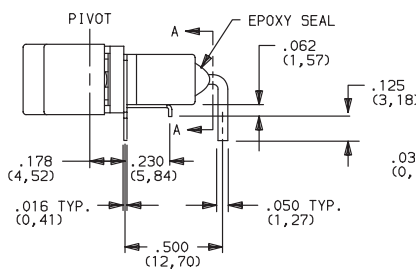
A RIGHT ANGLE, PC THRU-HOLE



E101J1ABE2
Horizontal Actuation
SPDT

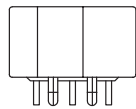


Actuator Shown In Pos. 1

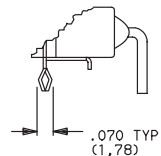


SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

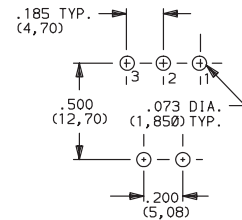


.050 TYP. (1,27)



.070 TYP. (1,78)

PC MOUNTING



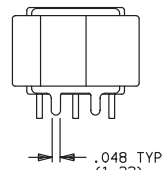
NOTE: PC mounting pattern must clear switch support leg.

NOTE: Not available with J3, J50, J60 and J90 actuators. Available actuators, see pages G-27 thru G-29. Terminal bend radii and lead-in manufacturing option.

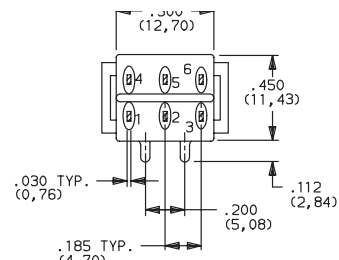
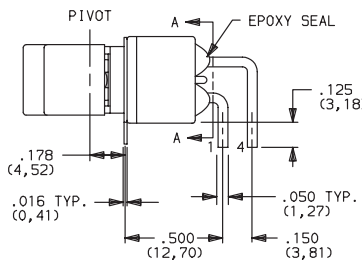
A RIGHT ANGLE, PC THRU-HOLE



E201J1ABE2
Horizontal Actuation
DPDT

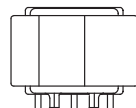


Actuator Shown In Pos. 1

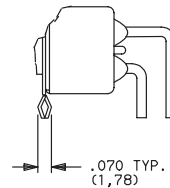


SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

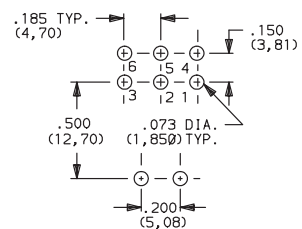


.048 TYP. (1,22)



.070 TYP. (1,78)

PC MOUNTING



Rocker

NOTE: Not available with J3 actuator. Available actuators, see pages G-27 thru G-29. Terminal bend radii and lead-in manufacturing option.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

www.ck-components.com



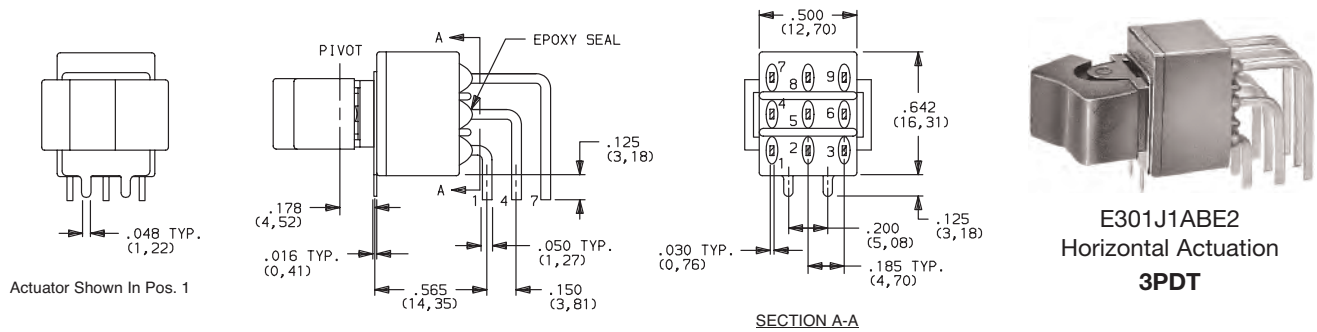
G

C&K

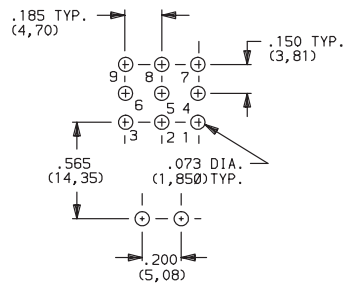
E Series Sealed Miniature Rocker and Lever Handle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

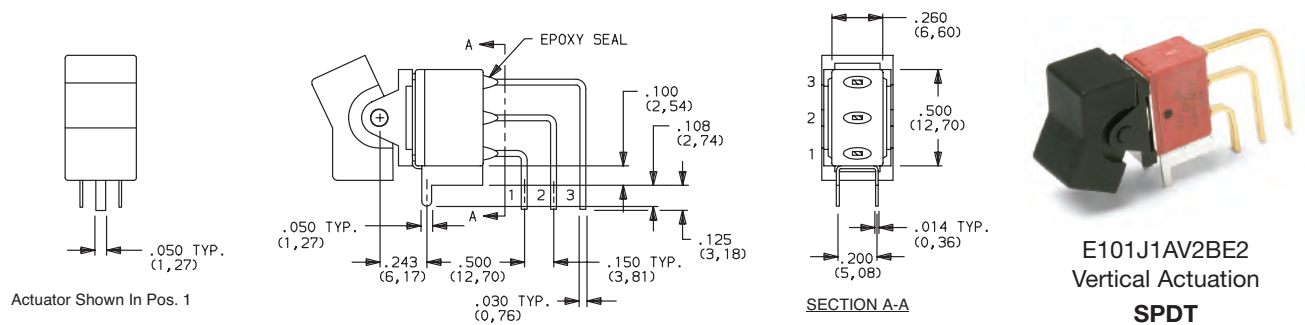


PC MOUNTING

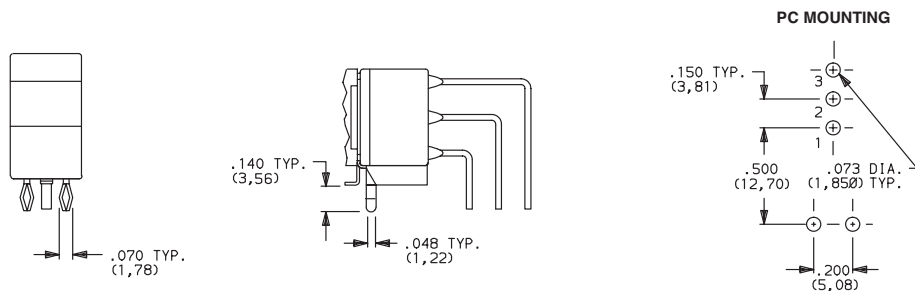


NOTE: Terminal bend radii and lead-in manufacturing option. Available actuators, see pages G-27 thru G-29.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



NOTE: Terminal bend radii and lead-in manufacturing option. Available actuators, see pages G-27 thru G-29.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



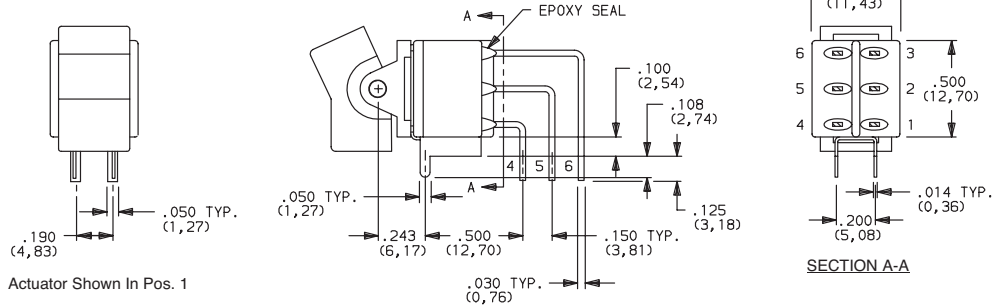
E Series Sealed Miniature Rocker and Lever Handle Switches

TERMINATIONS

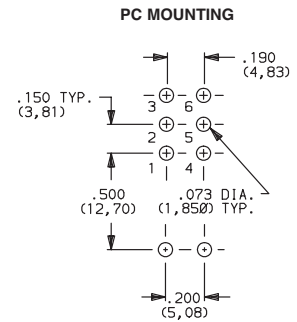
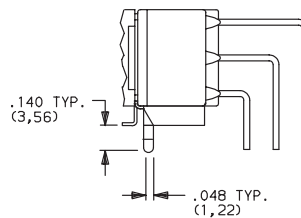
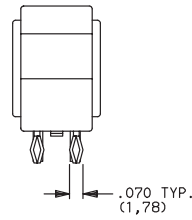
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



E201J1AV2BE2
Vertical Actuation
DPDT

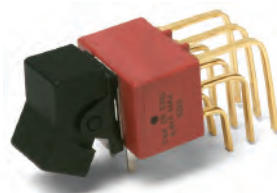


AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH

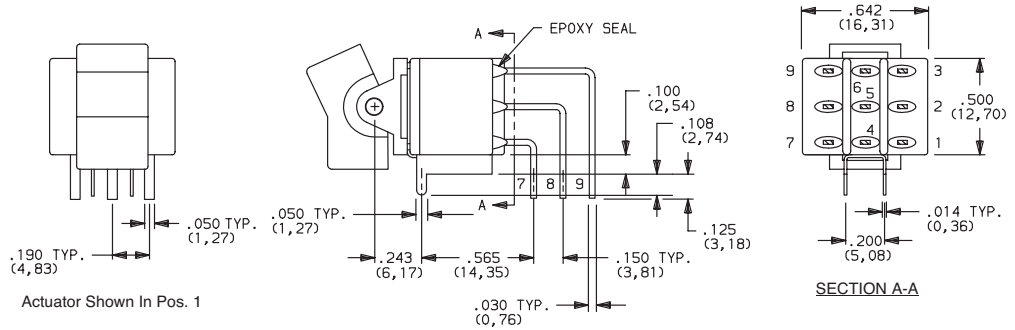


NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

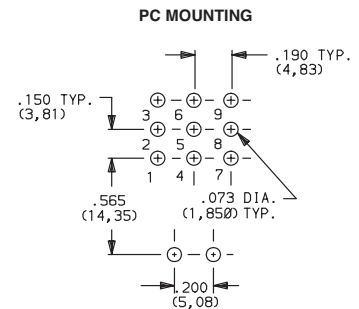
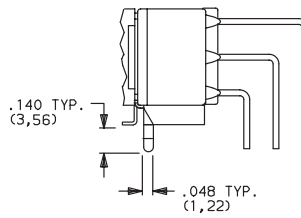
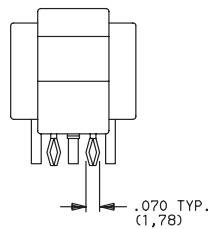
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



E301J1AV2BE2
Vertical Actuation
3PDT



AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE,
.150" PITCH



Rocker

NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

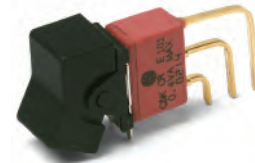
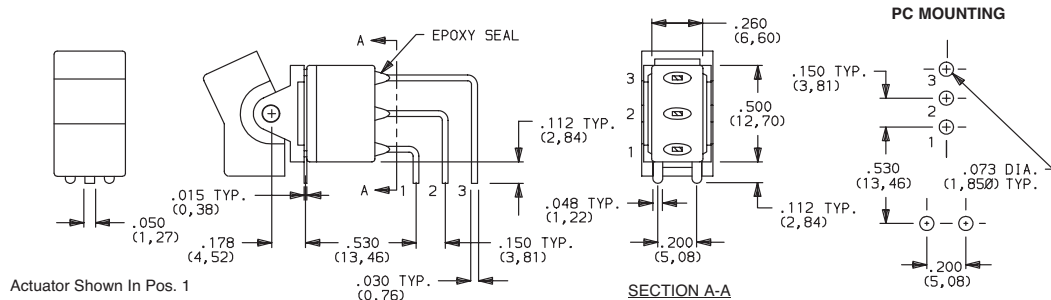
www.ck-components.com



E Series Sealed Miniature Rocker and Lever Handle Switches

TERMINATIONS

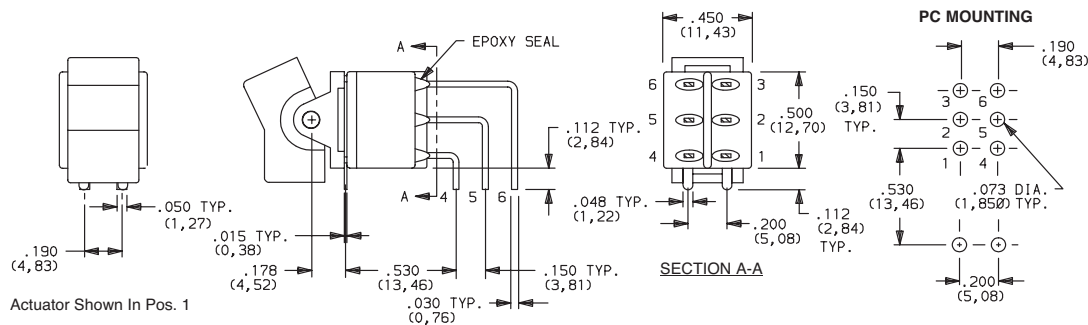
V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



E101J1V5BE2
Vertical Actuation
SPDT

NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



E201J1V5BE2
Vertical Actuation
DPDT

NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

E Series Sealed Miniature Rocker and Lever Handle Switches

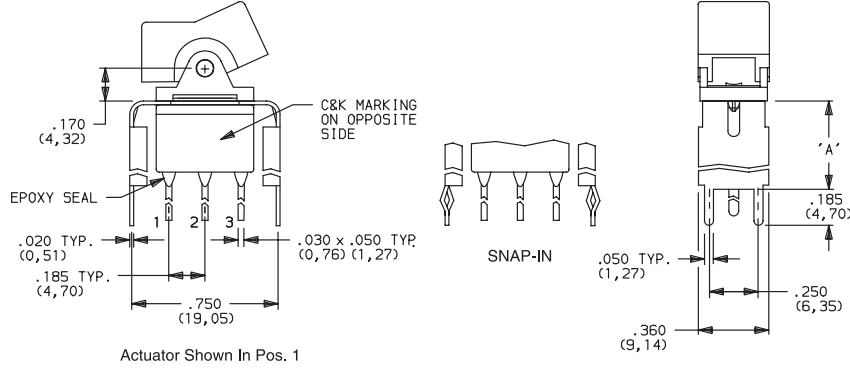
TERMINATIONS

V6, V7, V8 VERTICAL MOUNT, V-BRACKET

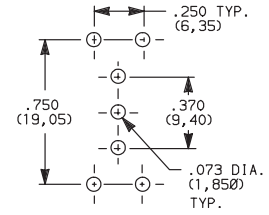
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E101J1__BE2
SPDT



PC MOUNTING



OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V6	.460 (11, 68)
V7	.630 (16, 00)
V8	.953 (24, 21)

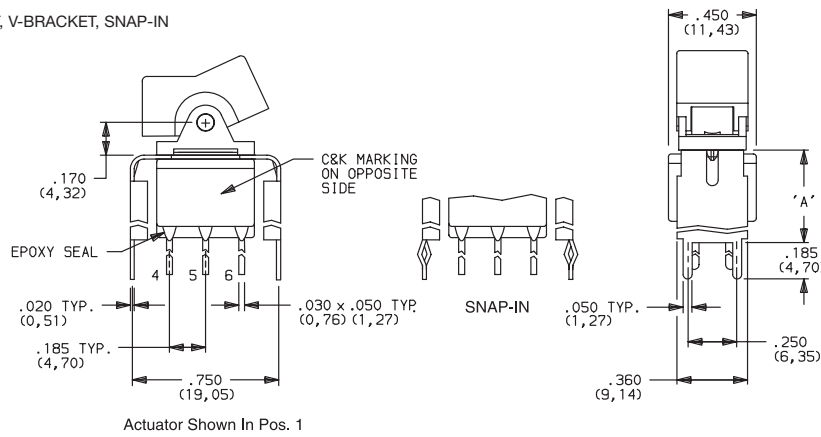
NOTE: Available actuators, see pages G-27 thru G-29.

V6, V7, V8 VERTICAL MOUNT, V-BRACKET

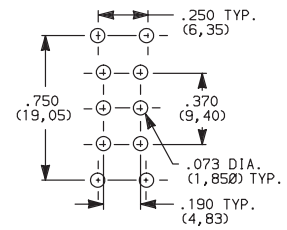
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E201J1__BE2
DPDT



PC MOUNTING



OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V6	.460 (11, 68)
V7	.630 (16, 00)
V8	.953 (24, 21)

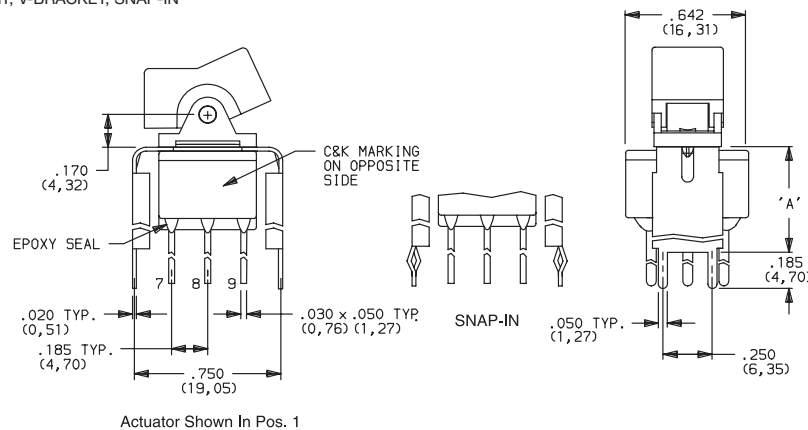
NOTE: Available actuators, see pages G-27 thru G-29.

V7, V8 VERTICAL MOUNT, V-BRACKET

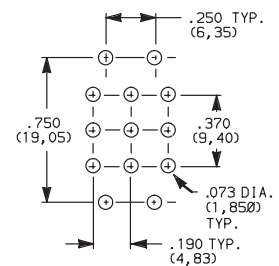
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E301J1__BE2
3PDT



PC MOUNTING



OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V7	.630 (16, 00)
V8	.953 (24, 21)

Rocker

NOTE: Available actuators, see pages G-27 thru G-29.



G

C&K

Third Angle Projection

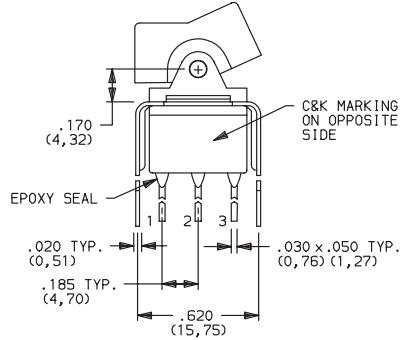
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series Sealed Miniature Rocker and Lever Handle Switches

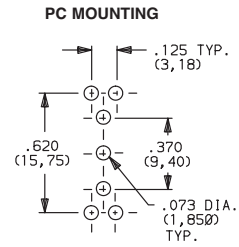
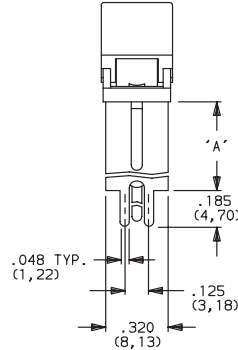
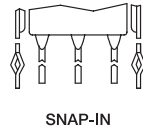
TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1



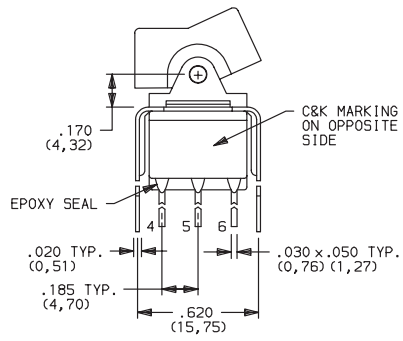
E101J1_BE2
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

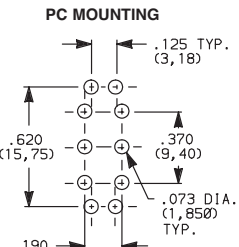
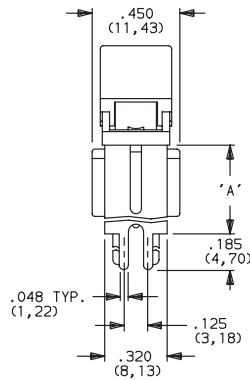
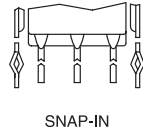
NOTE: Available actuators, see pages G-27 thru G-29.

V3, V4 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1



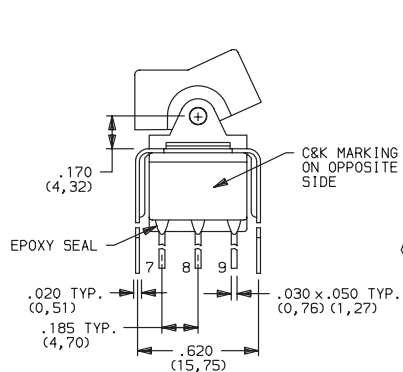
E201J1_BE2
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

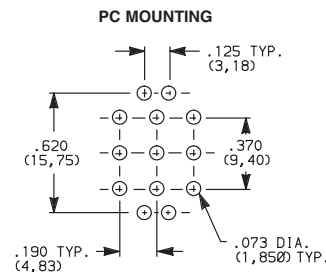
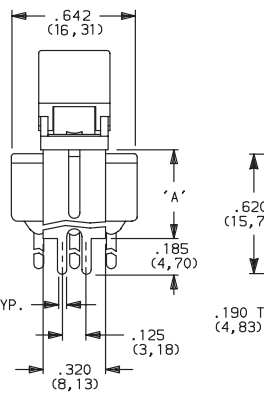
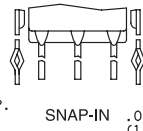
NOTE: Available actuators, see pages G-27 thru G-29.

V4 VERTICAL MOUNT, V-BRACKET

VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1



E301J1_BE2
3PDT

OPTION CODE	DIM 'A'
V41	.630 (16,00)

NOTE: Available actuators, see pages G-27 thru G-29.



E Series Sealed Miniature Rocker and Lever Handle Switches

AVAILABLE HARDWARE

Fits Z3 Termination female connector



PART NO.
530100000

Available in loose pieces.

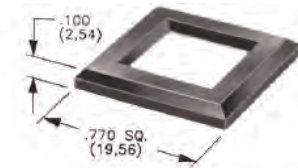
Frame for J11, J21 Actuators



PART NO.
764500746 BLACK ENAMEL
764601106 RETAINING SPRING
Material: Spring Steel



J50, J60 & J90 Actuators

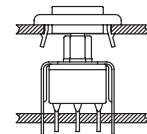


MATTE	GLOSS
PART NO.	PART NO.
486702000	486802000 BLACK
Material: Nylon	
Finish: Matte or Gloss	

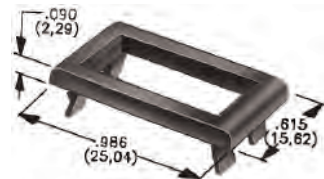
NOTE: Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog. Other colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



J1 & J2 Actuators



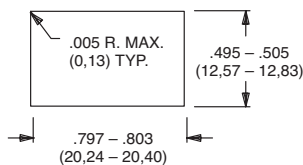
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO.	PART NO.	PART NO.	PART NO.
452902263	452702263	452802263	452602263 BLACK
452903000	452703000	452803000	452603000 RED

J50, J60 & J90 Actuators



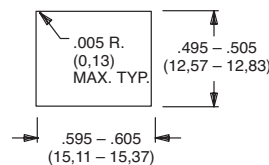
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO.	PART NO.	PART NO.	PART NO.
432502263	432602263	432702263	432802263 BLACK
432503000	432603000	432703000	432803000 RED

For part numbers
4529xxxxx, 4527xxxxx,
4528xxxxx, 4526xxxxx

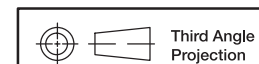
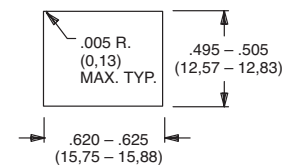


PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx



For part numbers
4327xxxxx, 4328xxxxx



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



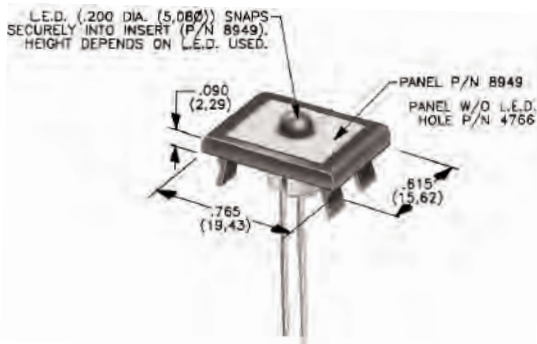
E Series Sealed Miniature Rocker and Lever Handle Switches

AVAILABLE HARDWARE

Panel Inserts

Will fit separate snap-in frames for J50, J60, J90 actuators.

Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**



PANEL INSERT WITH HOLE FOR LED

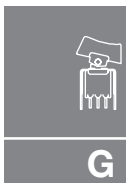
PART NO.
894902000
894903000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK
476603000 RED

NOTE: Special colors, custom markings available, consult Customer Service Center.

Rocker



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

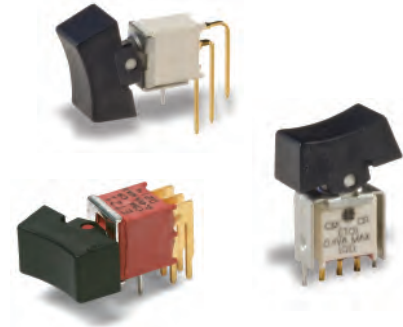
ET Series Sealed Subminiature Rocker Switches

Features/Benefits

- Sealed against solder and cleaning process contaminants
- Rocker, bushing & case—UL 94V-0
- Small footprint—saves space
- RoHS compliant

Typical Applications

- Telecommunications
- Instrumentation
- Computers & peripherals



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: Copper alloy, silver plated. See page G-43 for additional ratings.

ELECTRICAL LIFE: ETX1 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: Surface mount switches standard in tape and reel packaging, see page G-45 for drawings and reel information.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) or glass filled 4/6 nylon, flame retardant, heat stabilized (UL 94V-0).

ACTUATOR: Nylon, black standard. Internal o-ring seal standard with all actuators. SA surface mount: High temperature material, glass filled 46 nylon, flame retardant, heat stabilized (UL 94V-0).

SWITCH SUPPORT: Brass, matte-tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page G-43 for additional contact materials.

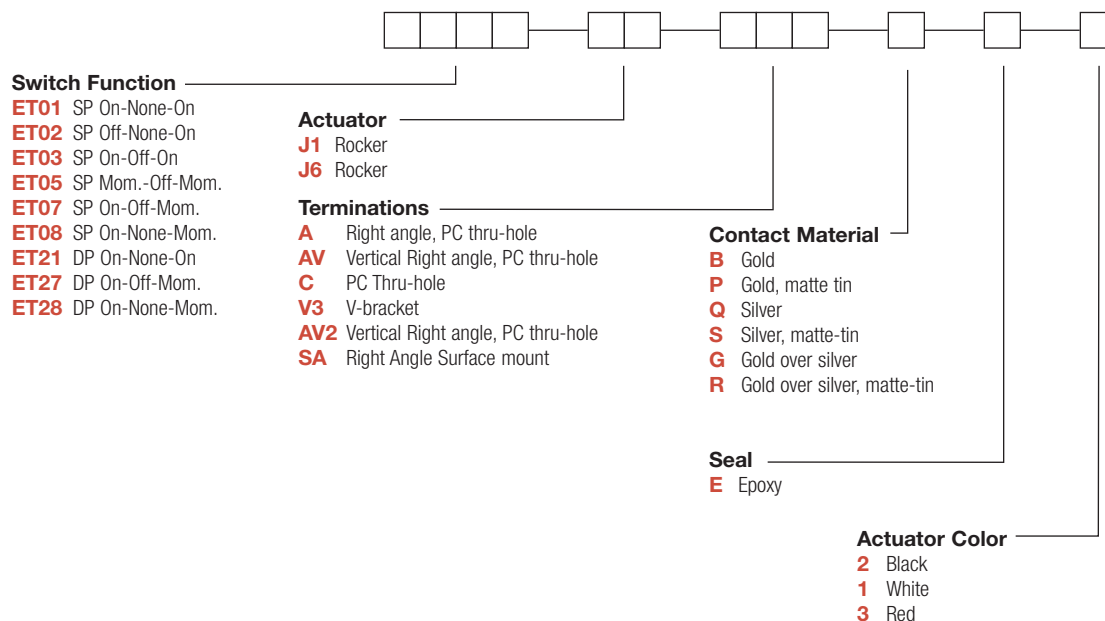
TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, G, S, P & R contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-40 thru G-44. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



ET Series Sealed Subminiature Rocker Switches

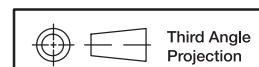
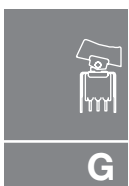
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	ET01	ON	NONE	ON	2-3	N/A	2-1	
	ET03	ON	OFF	ON		OPEN		
	ET05	MOM.	OFF	MOM.				
	ET07	ON	OFF	MOM.	N/A			
	ET08	ON	NONE	MOM.				
	ET02	OFF	NONE	ON	OPEN	N/A	3-1	
<p>SPDT</p> <p>Part number shown: ET01J6CBE2</p> <p>ET02 Models: Omit terminal 2</p> <p>Terminal Nos. For Reference Only</p>								
DP	ET21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	ET27	ON	OFF	MOM.		OPEN		
	ET28	ON	NONE	MOM.				
<p>DPDT</p> <p>Part number shown: ET21J6CBE2</p> <p>Terminal Nos. For Reference Only</p>								

MOM. = Momentary

All models with all options when ordered with G, S, R or Q contact material.

Rocker



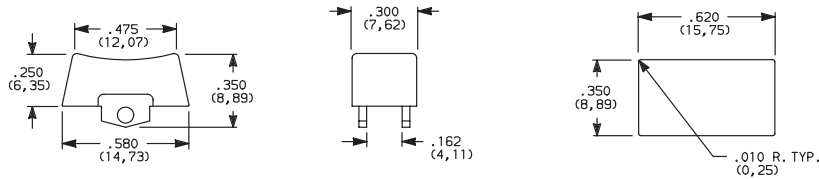
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com

ET Series Sealed Subminiature Rocker Switches

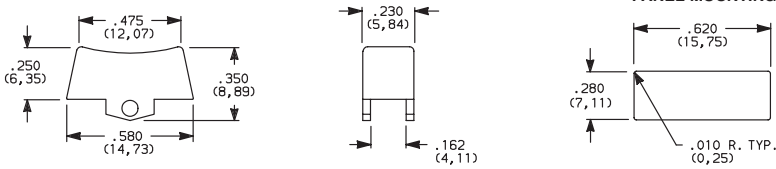
ACTUATOR

J1 ROCKER



Available with all models except ETOX with A & SA & SA1 terminations.

J6 ROCKER



Standard with ETOX model with A & SA & SA1 terminations.

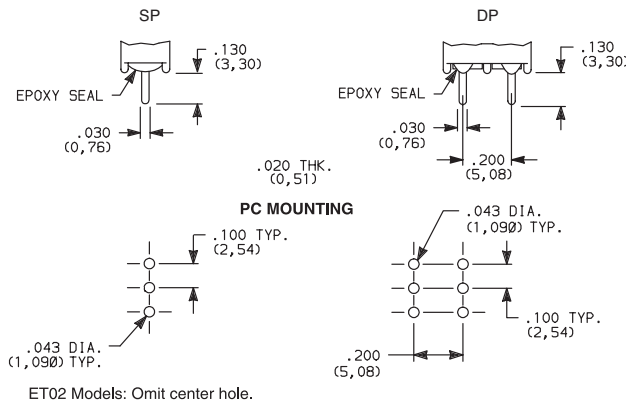
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

Actuators available separately, see page G-45. Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Internal o-ring actuator seal standard.

TERMINATIONS

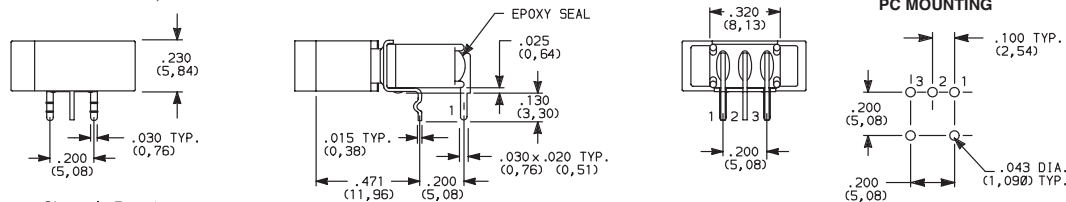
C PC THRU-HOLE



ET02 Models: Omit center hole.

SP & DP

A RIGHT ANGLE, PC THRU-HOLE



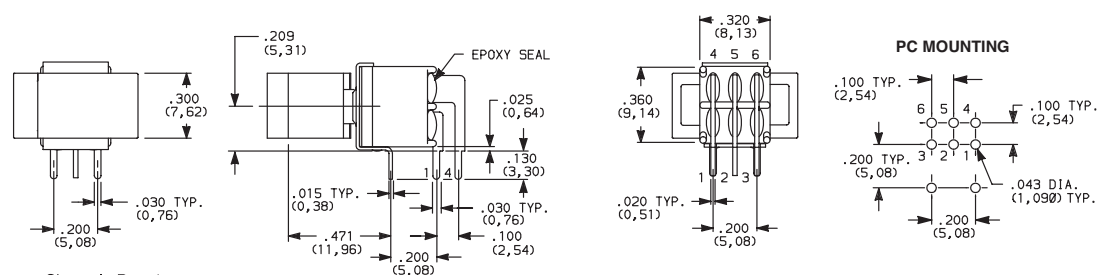
Actuator Shown In Pos. 1

Not available with ET02 model.
J6 actuator std. only on ETOX models with A terminations.



ET01J6ABE2
Horizontal Actuation
SPDT

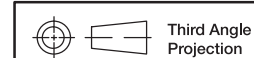
A RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1



ET21J1ABE2
Horizontal Actuation
DPDT



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



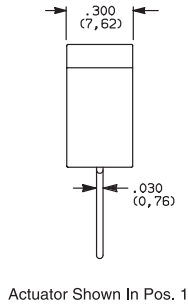
ET Series Sealed Subminiature Rocker Switches

TERMINATIONS

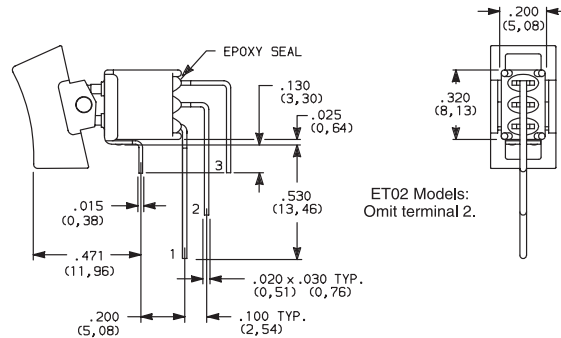
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



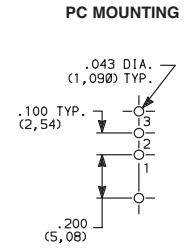
ET01J1AVBE2
Vertical Actuation
SPDT



Actuator Shown In Pos. 1

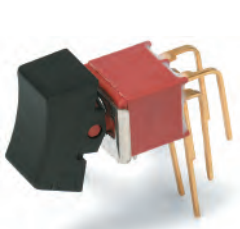


ET02 Models:
Omit terminal 2.

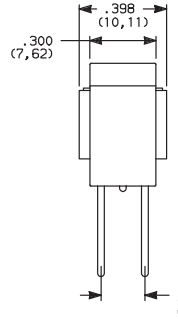


NOTE: Terminal bend radii and lead-in manufacturing option.

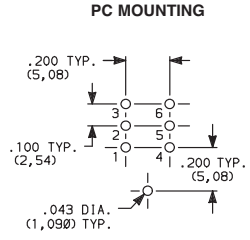
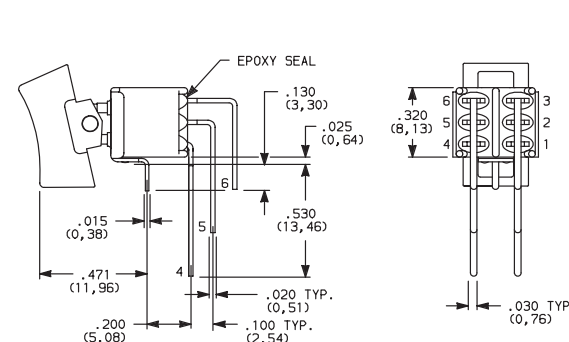
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



ET21J1AVBE2
Vertical Actuation
DPDT



Actuator Shown In Pos. 1

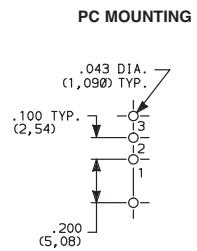
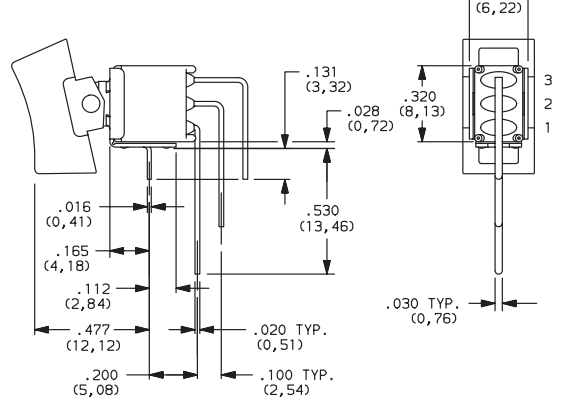
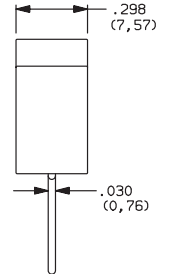


NOTE: Terminal bend radii and lead-in manufacturing option.

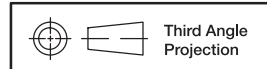
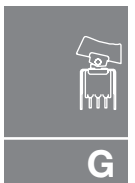
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE



ET01J1AV2BE2
Vertical Actuation
SPDT



Rocker

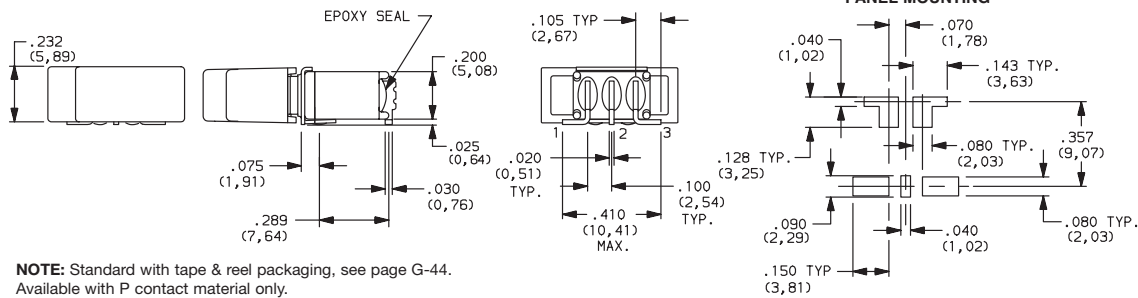


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series Sealed Subminiature Rocker Switches

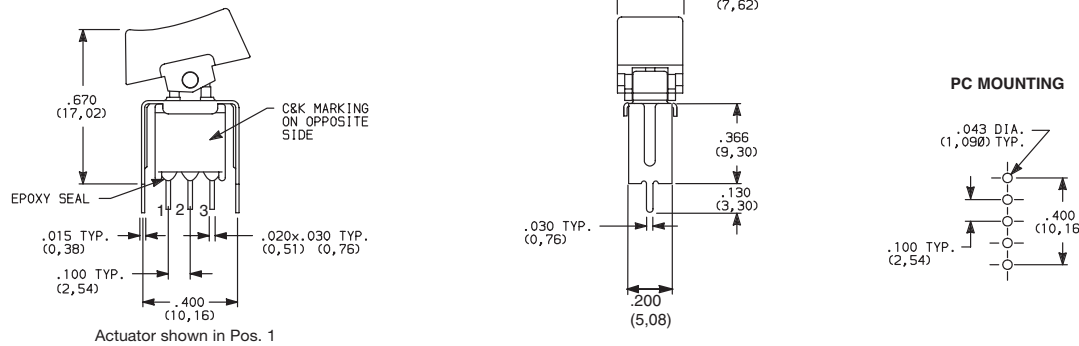
TERMINATIONS

SA RIGHT ANGLE, SURFACE MOUNT



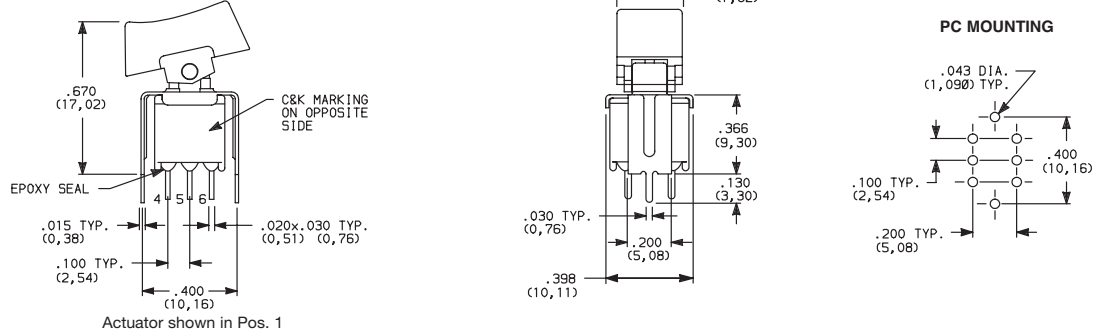
ET01J6SAPE2
Horizontal Actuation
SPDT

V3 VERTICAL MOUNT, V-BRACKET



ET01J1V3BE2
SPDT

V3 VERTICAL MOUNT, V-BRACKET



ET21J1V3BE2
DPDT

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	ETX1 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	ETX1 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.


³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

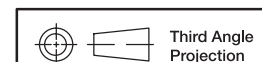
⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with Q, B, G, S, P & R contact material are RoHS compliant.

All models  with all options when ordered with G, Q, S & R contact material.



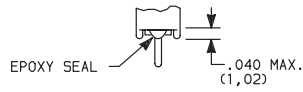
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



ET Series Sealed Subminiature Rocker Switches



E EPOXY SEAL



AVAILABLE HARDWARE

J1 Actuator



PART NO.
261A01000 WHITE
261A02263 BLACK
261A03000 RED

Material: Nylon
 Finish: Matte
 NOT AVAILABLE WITH A, SA, SA1

J6 Actuator



PART NO.
621C01000 WHITE
621C02263 BLACK
621C03000 RED

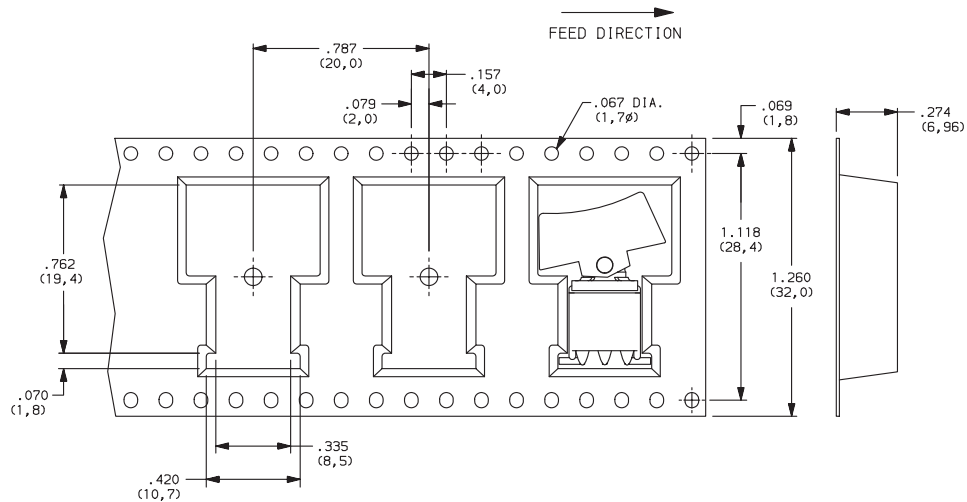
Material: Nylon
 Finish: Matte
 For Hi Temp, Consult Factory

NOTE: Other colors available, consult Customer Service Center.

TAPE & REEL SA TERMINATION

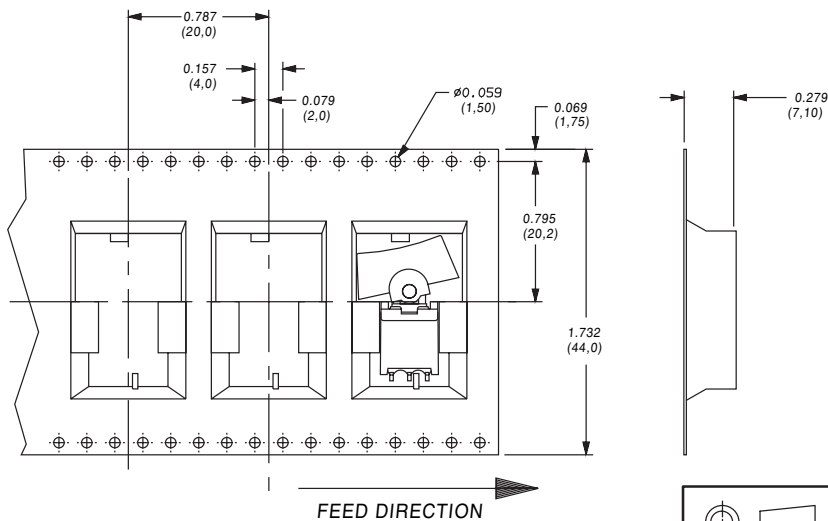
ET01J6SABE (SHOWN)

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	500



ET01J6SA1BE (SHOWN)

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.795 (20,2)
QUANTITY PER REEL	450



Rocker



G



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

T Series Subminiature Rocker Switches

Features/Benefits

- Compact size—small footprint
- Single and double pole models
- PC and panel mounting options available
- RoHS compliant

Typical Applications

- Telecommunications
- Instrumentation
- Medical Equipment



Models Available

Specifications

CONTACT RATING: Q contact material (TX01 models): 3 AMPS @ 120 V AC or 28 V DC. All other models: 2 AMPS @ 120 V AC or 28 V DC. See page G-49 for additional ratings.

ELECTRICAL LIFE: TX01 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2–4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with B, G, P, Q or R contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0) or glass filled nylon 4/6, flame retardant, heat stabilized.

ACTUATOR: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

MOUNTING BRACKET: Stainless steel.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page G-49 for additional contact materials.

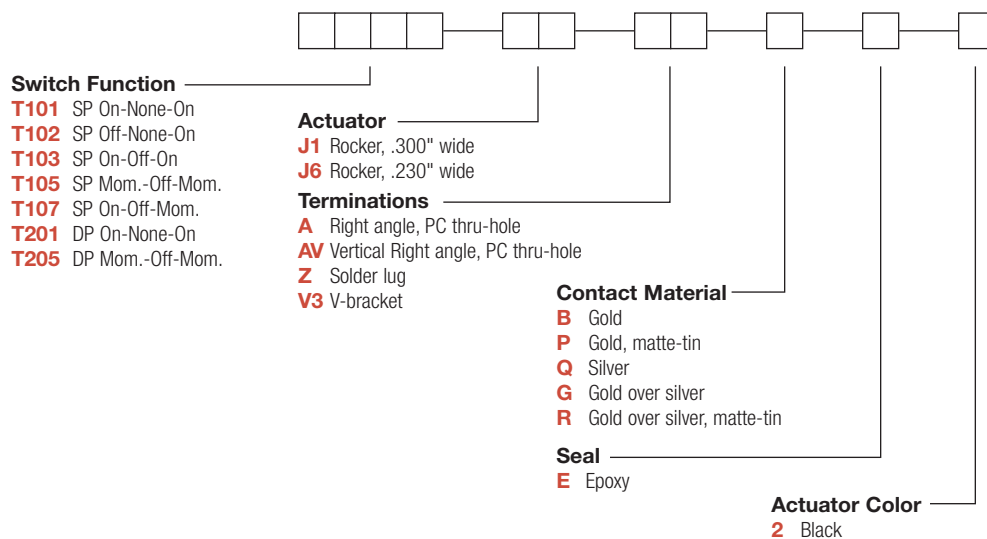
CENTER CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page G-49 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut, Screws & Lockwasher: Stainless steel.
Standoff: Nylon standard.

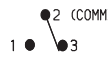

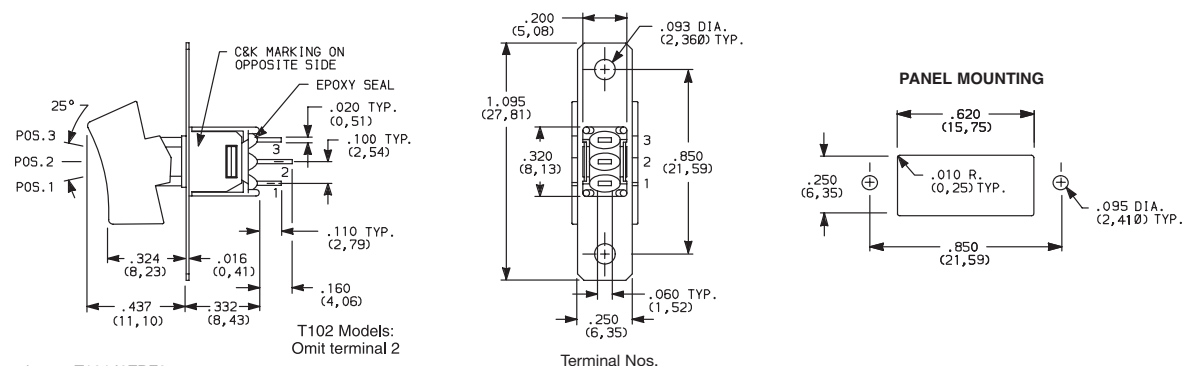
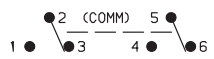
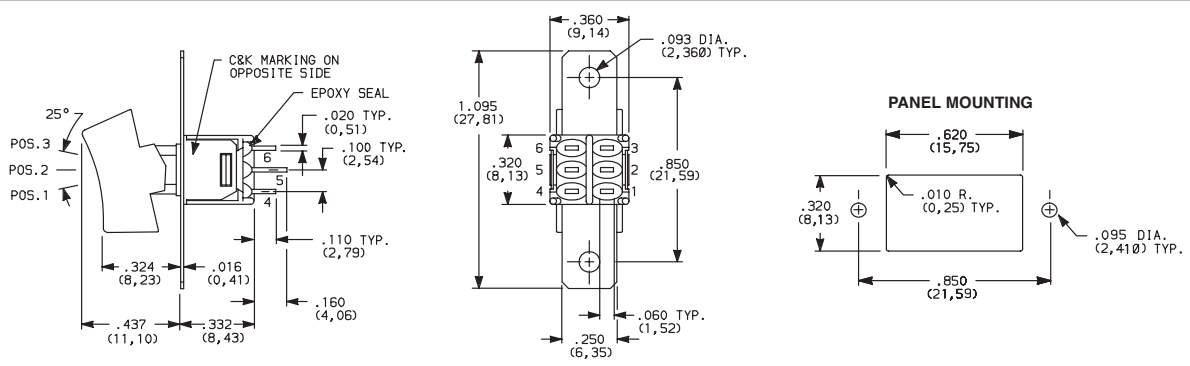
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-46 through G-50. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.




T Series Subminiature Rocker Switches

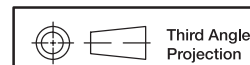
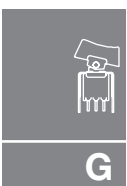
SWITCH FUNCTION 

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
		C&K marking on opposite side			C&K marking on opposite side			
SP	T101	ON	NONE	ON	2-3	N/A	2-1	 SPDT
	T103	ON	OFF	ON		OPEN		
	T105	MOM.	OFF	MOM.				
	T107	ON	OFF	MOM.				
	T102	OFF	NONE	ON	OPEN	N/A	3-1	 SPST
SPDT  Part number shown: T101J6ZBE2 Terminal Nos. For Reference Only								
DP	T201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	 DPDT
	T205	MOM.	OFF	MOM.				
DPDT  Part number shown: T201J1ZBE2 Terminal Nos. For Reference Only								

MOM. = Momentary

All models  with all options when ordered with G, Q or R contact material.

Rocker

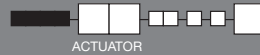


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

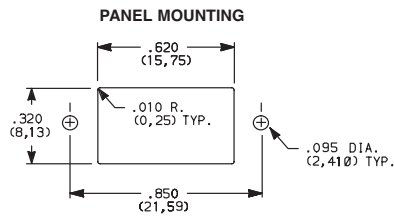
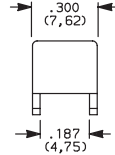
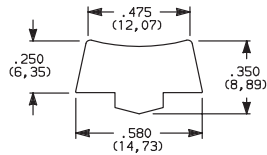
www.ck-components.com

T Series Subminiature Rocker Switches

ACTUATOR



J1 ROCKER, .300 WIDE

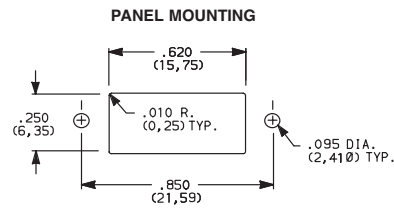
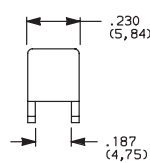
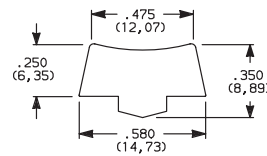


OPTION CODE	ACTUATOR COLOR
2	BLACK

Standard with all models except T10X with A terminations.

Actuators available separately, see page G 50. Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

J6 ROCKER, .230 WIDE

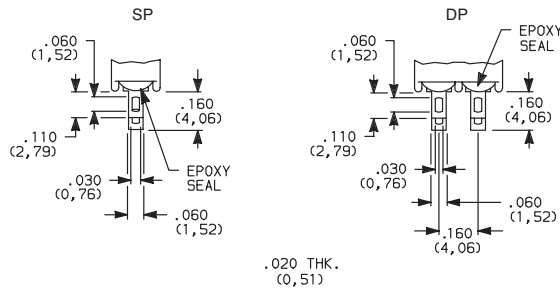


Standard with T10X model with A terminations.

TERMINATIONS



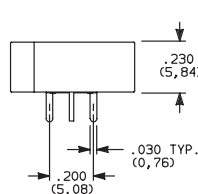
Z SOLDER LUG



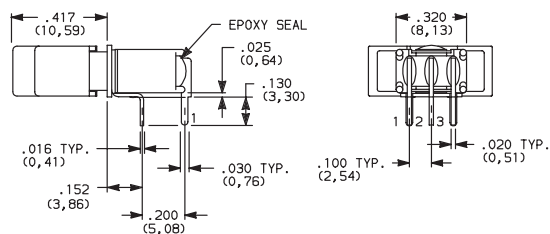
SP and DP

Not available with P or R contact material.

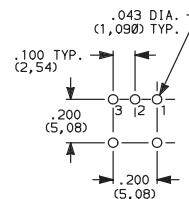
A RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1



PC MOUNTING



T101J6ABE2
Horizontal Actuation
SPDT

Rocker



T Series Subminiature Rocker Switches

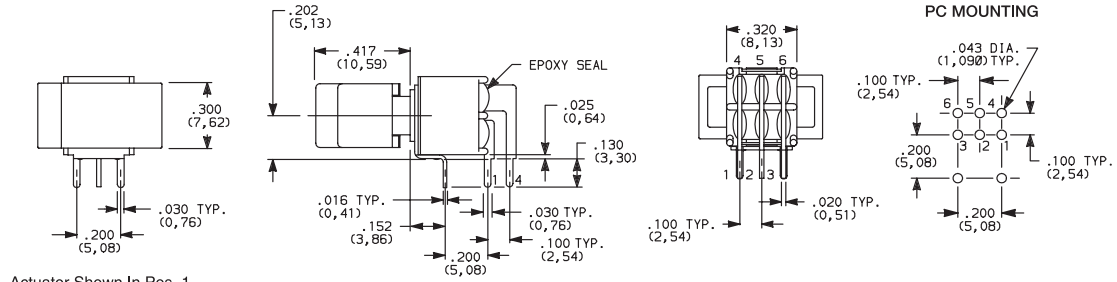
TERMINATIONS



A RIGHT ANGLE, PC THRU-HOLE



T201J1ABE2
Horizontal Actuation
DPDT

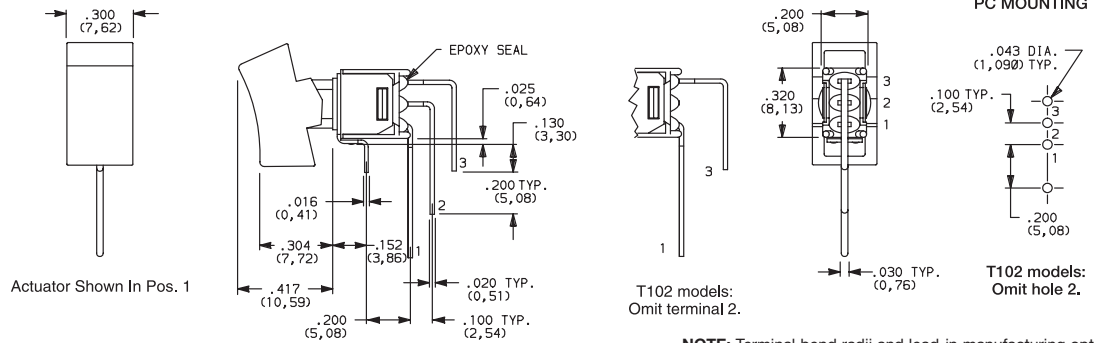


Actuator Shown In Pos. 1

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



T101J1AVBE2
Vertical Actuation
SPDT



Actuator Shown In Pos. 1

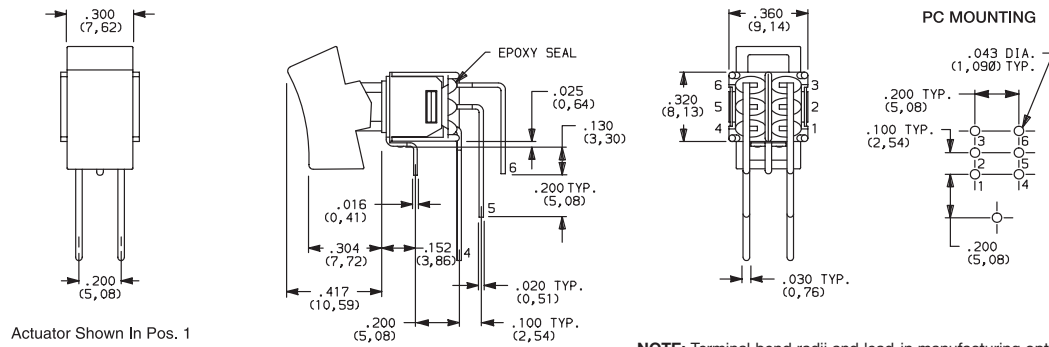
T102 models:
Omit terminal 2.

NOTE: Terminal bend radii and lead-in manufacturing option.

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



T201J1AVBE2
Vertical Actuation
DPDT



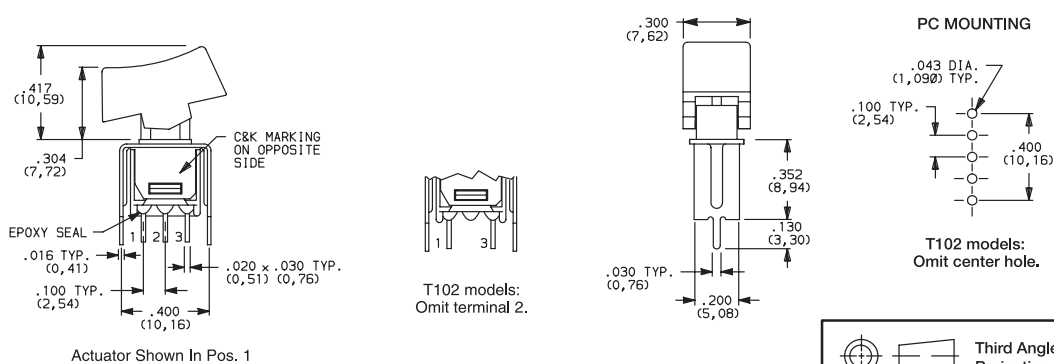
Actuator Shown In Pos. 1

NOTE: Terminal bend radii and lead-in manufacturing option.

V3 VERTICAL MOUNT, V-BRACKET



T101J1V3BE2
SPDT



Actuator Shown In Pos. 1

T102 models:
Omit terminal 2.

T102 models:
Omit center hole.



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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Rocker



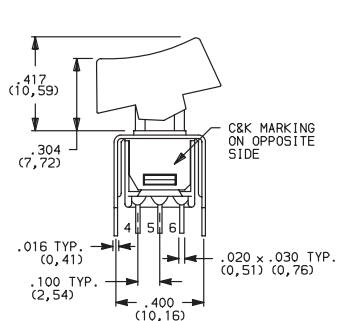
G



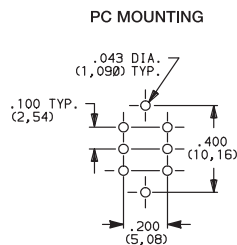
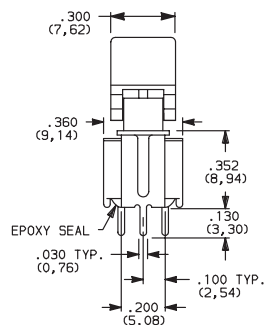
T Series Subminiature Rocker Switches

TERMINATIONS

V3 VERTICAL MOUNT, V-BRACKET



Actuator Shown In Pos. 1



T201J1V3BE2
DPDT


CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ³	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	TX01 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC.
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	TX01 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- ¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² END CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- ⁴ END CONTACTS: Coin silver, silver plated.
- ⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

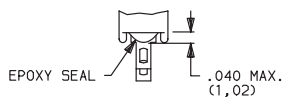
NOTE: Any models supplied with B, G, P, Q & R contact material are RoHS compliant.

All models  with all options when ordered with G, Q, or R contact material.
B contact material standard with A, AV, V3 terminations.
Q contact material standard with C & Z terminations.

P & R contact materials not available with Z terminations.

SEAL

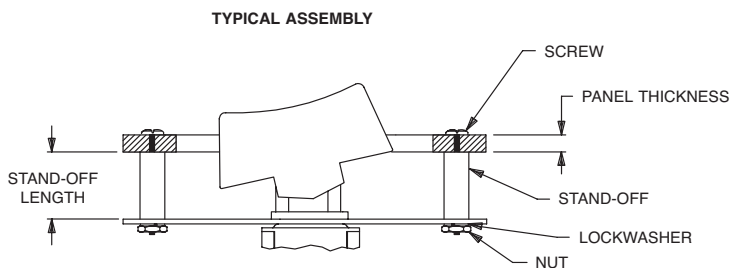
E EPOXY SEAL



T Series Subminiature Rocker Switches

AVAILABLE HARDWARE

Panel mounting hardware for rocker and lever handle switches is available separately. Mounting hardware consists of two screws, two nuts, two standoffs and two lockwashers per switch, and is available for panel thicknesses of 1/16, 3/32 and 1/8 inch. See part numbers below.



PART NO.	PANEL THK.	STANDOFF LENGTH
761101000	1/16 IN. (1,59)	.295 (7,49)
761102000	3/32 IN. (2,38)	.264 (6,71)
761103000	1/8 IN. (3,18)	.233 (5,92)

NOTE: Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog.

J1 Actuator



PART NO.
468002263 BLACK

Material: Nylon
Finish: Matte

J6 Actuator



PART NO.
468102263 BLACK

Material: Nylon
Finish: Matte

NOTE: Other colors, custom actuator markings and legends available, consult Customer Service Center.

Rocker



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

9000 Series Power Rocker and Lever Handle Switches



Features/Benefits

- **Thermoset UL 94V-0 housing**
- **Rugged construction**
- **Variety of actuator and termination options**
- **RoHS compliant**

Typical Applications

- **Small equipment**
- **Shut-off switch**

UL 61058-1



Specifications

CONTACT RATING:

9201 Model:

- GP (general purpose)
- 6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3)
- 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
- 6 AMPS 30 VDC T85 10,000 cycles

9221 Model:

- GP (general purpose)
- 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
- 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
- 10 AMPS 30 VDC T85 10,000 cycles

ELECTRICAL LIFE: 25,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 2,500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Nylon, black standard.

FRAME-REAR MOUNT OPTIONS: Spring steel, black.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

MOUNTING BRACKET: Stainless steel.

END CONTACTS: 9201 Model: Coin silver, silver plated.

9221 Model: Silver cadmium oxide.

CENTER CONTACTS: Copper alloy, silver plated

ALL TERMINALS: 9201 Model: Copper alloy, silver plated.

9221 Model: Copper alloy, matte-tin plated.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut, Screw & Lockwasher: Stainless steel. Standoff: Nylon standard, aluminum available, consult Customer Service Center.

*Cadmium used in electrical contacts is acceptable for RoHS.

NOTE: Any models supplied with Q contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-52 through G-55. For additional options not shown in catalog, consult Customer Service Center.



Switch Function

- 9201** DP On-On, 6 Amps
- 9221** DP On-On, 10 Amps

Actuator

- J1** Rocker
- J2** Lever
- J3** Rocker
- J37** Rocker with metal frame

Terminations

- Z** Solder lug (9201 only)
- AV2** Vertical right angle, PC thru-hole (9201 only)
- C** PC Thru-hole (9201 only)
- Z4** Quick connect

Contact Material

- Q** Silver

Seal

- E** Epoxy
- D** No Seal

Actuator Color

- 2** Black
- 1** White
- 3** Red

Frame Color

- 2** Black
- NONE** No frame color required



9000 Series Power Rocker and Lever Handle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING*	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
DP	9201	6 AMPS	ON	ON	2-3,5-6	2-1,5-4	 DPDT
	9221	10 AMPS	ON	ON			

DPDT

Part number shown: 9201J1ZQE2

Terminal Nos.
Molded On Side Of Case

All 9000 Series models meet international dimensional and electrical requirements.

* See CONTACT MATERIAL, page G-54, for complete ratings.

9221 model must be ordered with Z4 terminations and D seal option.

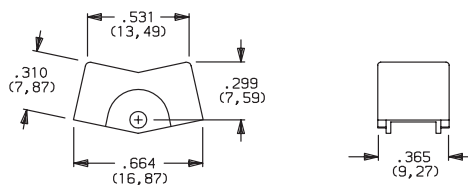
ACTUATOR-PANEL MOUNT

OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

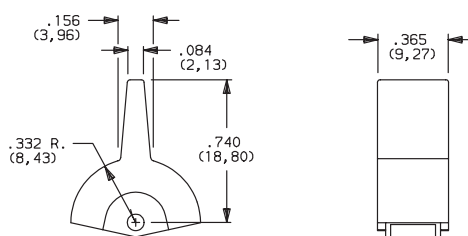
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on all switches with panel mounting brackets. Actuators available separately, see page G-55. Hardware available separately, see Technical Data section of this catalog.

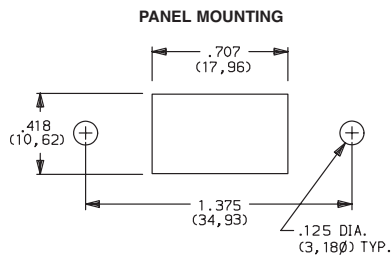
J1 ROCKER



J2 LEVER



Rocker



G

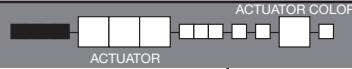
C&K

Third Angle Projection

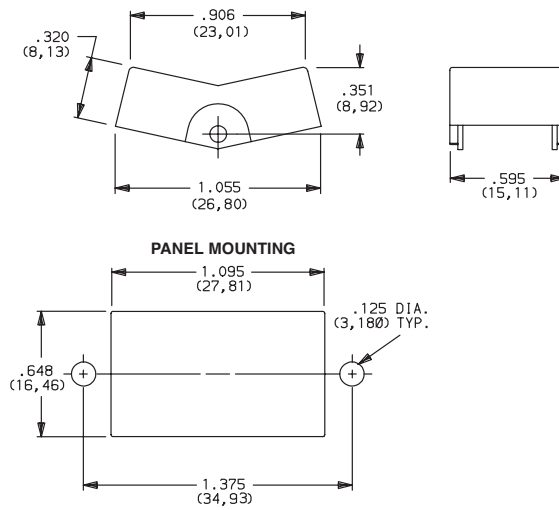
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

9000 Series Power Rocker and Lever Handle Switches

ACTUATOR-PANEL MOUNT



J3 ROCKER

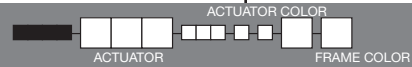


OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

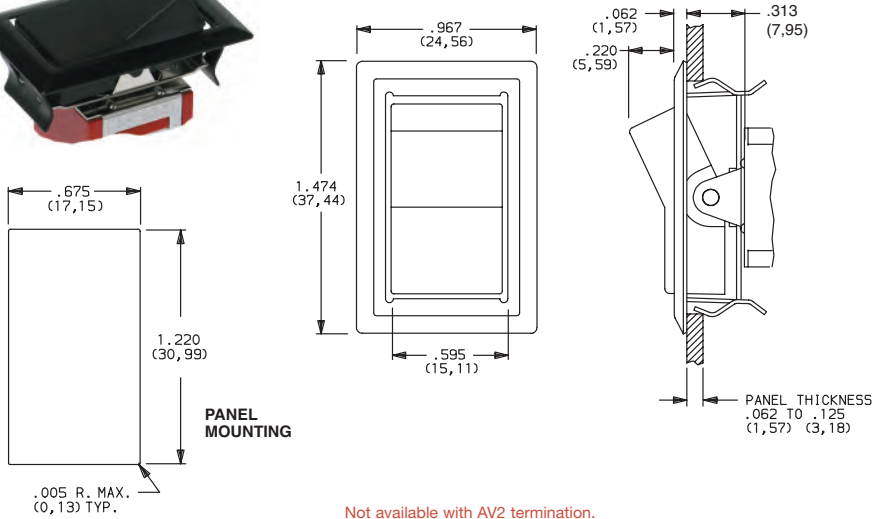
Actuator finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Actuators available separately, see page G-55. Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on all switches with panel mounting brackets. Hardware available separately, see Technical Data section of this catalog.

ACTUATOR-REAR MOUNT



J37 ROCKER WITH METAL FRAME



OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

OPTION CODE	FRAME COLOR
2	BLACK

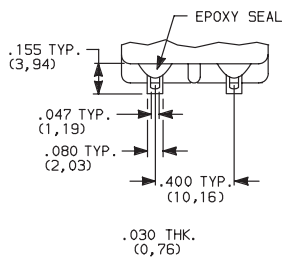
Actuator finish: Matte. Frame finish: Gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Actuators & frames available separately, see page G-55. Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on all switches with panel mounting brackets. Hardware available separately, see Technical Data section of this catalog.

TERMINATIONS

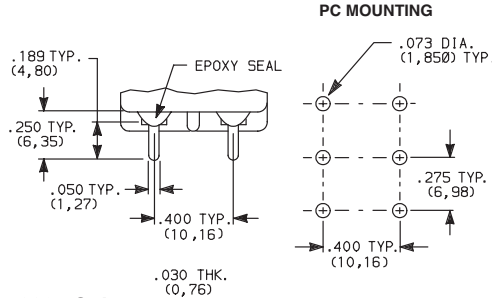


Z SOLDER LUG



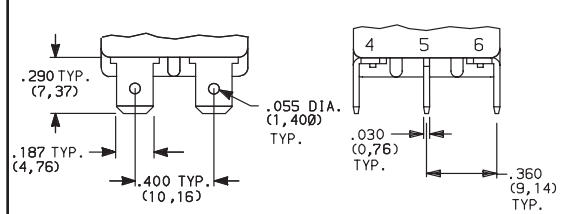
9201 Only

C PC THRU-HOLE



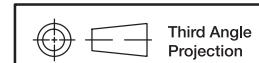
9201 Only

Z4 QUICK CONNECT



9201 and 9221

NOTE: Only termination available with 9221 model. Must be ordered with D seal option. Mating terminal standard Nema .187" quick connect.



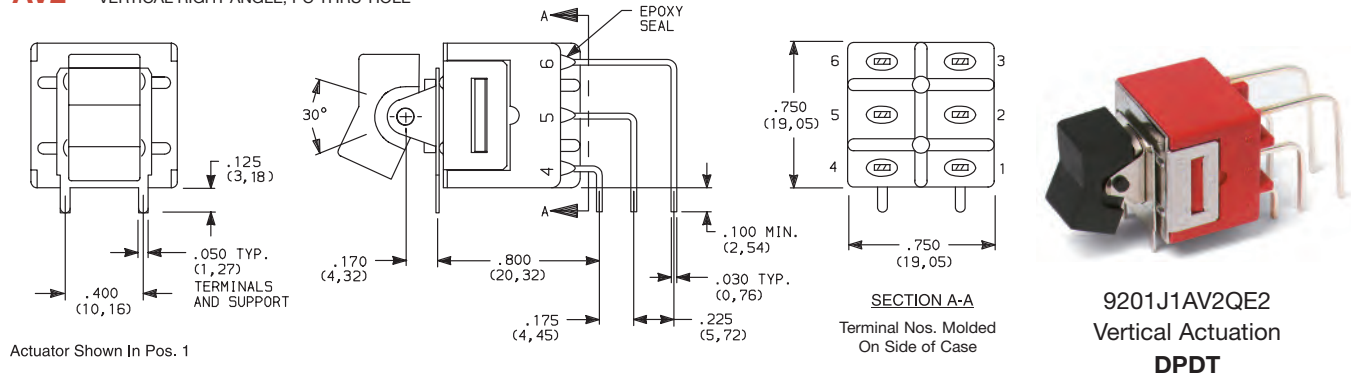
Third Angle Projection



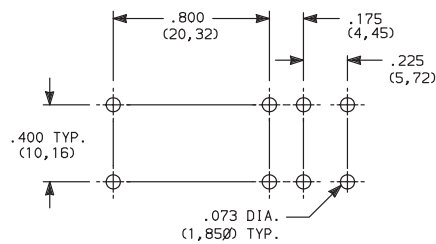
9000 Series Power Rocker and Lever Handle Switches

TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE



PC MOUNTING



9201 Only

NOTE: Terminal bend radii and lead-in manufacturing option. Terminal spacing greater than 3mm at all points.

CONTACT MATERIAL

OPTION CODE	MODEL	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	9201	SILVER 1,2	SILVER OR TIN 2,5	GP (general purpose) 6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3) 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 6 AMPS 30 VDC T85 10,000 cycles
	9221	SILVER CADMIUM OXIDE 3,4,6	TIN 5	GP (general purpose) 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 10 AMPS 30 VDC T85 10,000 cycles

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- 1 END CONTACTS: Coin silver, silver plated.
- 2 CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.
- 3 END CONTACTS: Silver cadmium oxide.
- 4 CENTER CONTACTS: Copper alloy, silver plated.
- 5 Z4 TERMINALS ONLY: Copper alloy, tin plated.
- 6 Cadmium used for electrical contacts is acceptable for RoHS.

NOTE: Any models supplied with Q contact material is RoHS compliant.

9221 model must be ordered with Z4 terminations and D seal option.

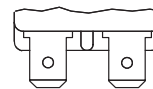
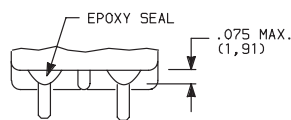
All 9000 Series models meet international dimensional and electrical requirements.



SEAL

E EPOXY SEAL

D NO EPOXY SEAL



Not available with 9221 model or Z4 terminations.

Must be ordered with 9221 model and Z4 termination.

Rocker



G

C&K

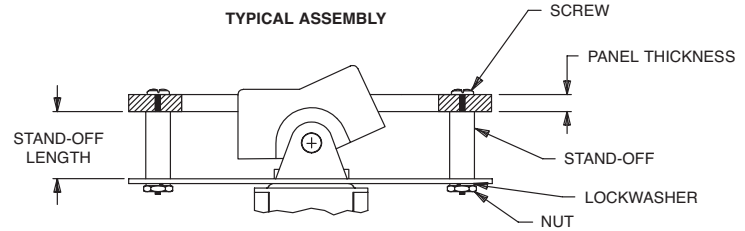


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

9000 Series Power Rocker and Lever Handle Switches

AVAILABLE HARDWARE

Panel mounting hardware for rocker and lever handle switches is available separately. Mounting hardware consists of two screws, two nuts, two standoffs and two lockwashers per switch, and is available for panel thicknesses of 1/16, 3/32 and 1/8 inch. See part numbers below.



J1 & J2 actuators

PART NO.	PANEL THK.	STANDOFF LENGTH
761101000	1/16 IN. (1,59)	.295 (7,49)
761102000	3/32 IN. (2,38)	.264 (6,71)
761103000	1/8 IN. (3,18)	.233 (5,92)

J1 Actuator



PART NO.
776A01000 WHITE
776A02263 BLACK
776A03000 RED

Material: Nylon
 Finish: Matte

J2 Actuator



PART NO.
760501000 WHITE
760502263 BLACK
760503000 RED

Material: Nylon
 Finish: Matte

J3, J37 Actuators



PART NO.
766601000 WHITE
766602263 BLACK
766603000 RED

Material: Nylon
 Finish: Matte

Frame for J37 Actuators

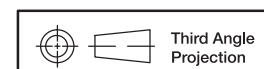


PART NO.
445400746 BLACK ENAMEL
445400747 WHITE ENAMEL

Material: Spring Steel

NOTE: Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog.

Other colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



DA Series Miniature Single Pole Rocker Switches

Features/Benefits

- Nice actuator styling with multiple options
- Guards to prevent accidental actuation
- Momentary and maintained functions
- IP65 splash proof rubber boot option
- RoHS compliant

Typical Applications

- Small appliances
- Computers and peripherals
- Medical instrumentation



 UL 61058-1

Specifications

CONTACT RATING:
 16 AMPS @ 125 VAC, 1/3 HP;
 10 AMPS @ 250 VAC, 1/2 HP.
 10 AMPS @ 125 VAC, 6 AMPS @ 250 VAC.
ELECTRICAL LIFE: 10,000 make and break cycles at full load.
INSULATION RESISTANCE: 10⁸ Ω min.
DIELECTRIC STRENGTH: 1,500 VRMS @ sea level.
OPERATING TEMPERATURE: -20°C to +85°C

Materials

HOUSING AND ACTUATOR: 6/6 nylon (UL94V-2), black, matte finish.
ILLUMINATED ACTUATOR: Polycarbonate, matte finish.
CENTER CONTACTS: Silver plated, copper alloy.
END CONTACTS: Silver plated.
ALL TERMINALS: Silver plated, copper alloy.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-57 through G-59. For additional options not shown in catalog, consult Customer Service Center.

Switch Function

DA101 SPDT On-None-On
DA102 SPST On-None-Off
DA103 SPDT On-Off-On

Actuator

J1 Rocker
J2 Two-tone rocker
***J3** Illuminated rocker
J4 Circle, illuminated rocker
J5 Oval, illuminated rocker

Actuator Color

1-5 See Chart on Page G-59
***R** Red, illuminated
***A** Amber, illuminated
***G** Green, illuminated

Mounting Style/Color

S2 Snap-in, black
S1 Snap-in, white
B2 Recessed snap-in bracket, black
G2 Guard, black

Termination

15 .187" quick connect
17 Solder lug
02 Thru-hole
A Right angle

Actuator Marking

(NONE) No marking
D ON-OFF
H "O I" - international ON-OFF
N Large dot
P "O -" international ON-OFF

Contact Rating

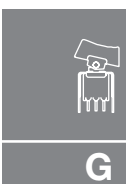
QF Silver

Lamp Rating

(NONE) No lamp
6 LED
7 125 VAC neon
8 250 VAC neon

* "J3" illuminated switches are not available with actuator markings

Rocker



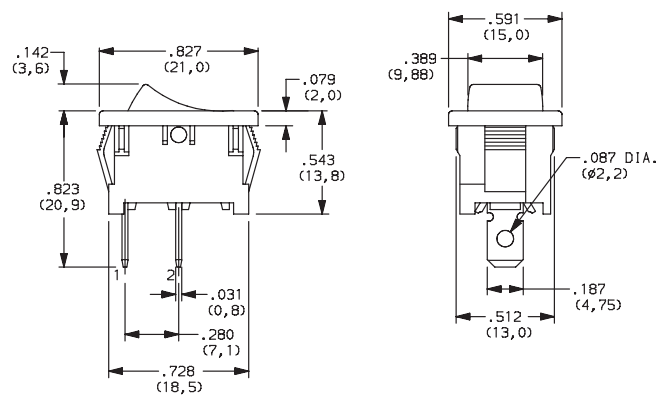
Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

DA Series Miniature Single Pole Rocker Switches

SWITCH FUNCTION

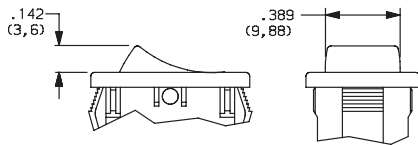
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
SP	DA101	ON	NONE	ON	2-3	N/A	2-1	
	DA102	ON	NONE	OFF				 OR For 7 & 8 Illuminated Versions Only
	DA103	ON	OFF	ON				 For 6 Illuminated Versions Only

Shown in Pos. 1



ACTUATOR

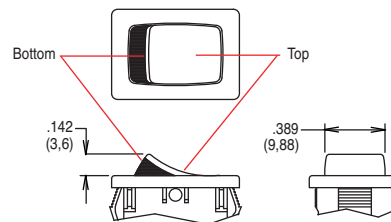
- J1** ROCKER
- *J3** ILLUMINATED ROCKER



NOTE: J3 actuator available with DA102 switch functions, 7&8 lamp ratings and not available with O2 and A termination options.

* J3 actuator not available with markings

- J2** TWO-TONE ROCKER



NOTE:

1. Available with DA102 switch function only.
2. Available with None or P actuator marking options only.



Third Angle Projection

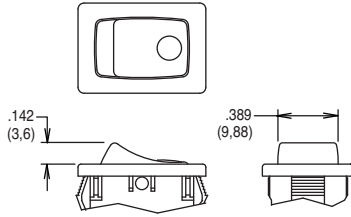
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



DA Series Miniature Single Pole Rocker Switches

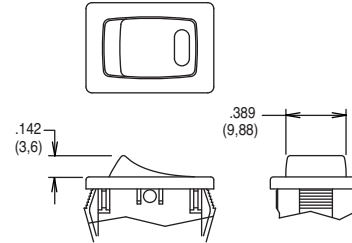
ACTUATOR

J4 CIRCLE, ILLUMINATED ROCKER



NOTE: Available with DA102 switch function and 7 & 8 lamp ratings combinations only. Not available with O2 and A termination options.

J5 OVAL, ILLUMINATED ROCKER

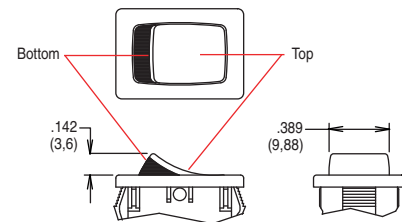


NOTE: Available with DA102 switch function and 6 lamp rating combinations only. Not available with O2 and A termination options.

ACTUATOR COLOR

	OPTION CODE	ACTUATOR COLOR
J1 only	2	BLACK
	1	WHITE
	3	RED
J3, J4, J5 only	R	RED, ILLUMINATED
	A	AMBER, ILLUMINATED
	G	GREEN, ILLUMINATED

	OPTION CODE	ACTUATOR COLOR	
		TOP	BOTTOM
J2 only	1	WHITE	RED
	2	WHITE	BLACK
	3	RED	WHITE
	4	BLACK	WHITE
	5	BLACK	RED

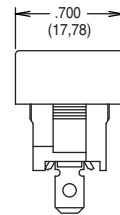
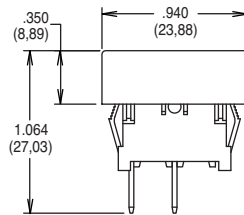
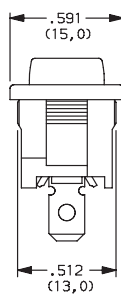
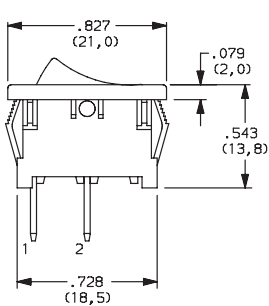


MOUNTING STYLE/COLOR

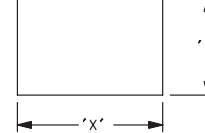
S2 SNAP-IN, BLACK

S1 SNAP-IN, WHITE

G2 GUARD, BLACK



S2, S1 & G2 PANEL MOUNTING



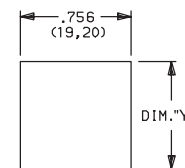
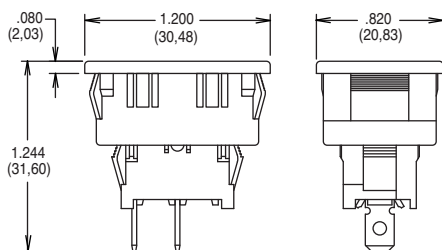
PANEL THICKNESS	"X"	"Y"
0.030-0.049 (0,75-1,25)	0.756-.004 (19,2-0,1)	0.512+.004 (13,0+0,1)
0.049-0.079 (1,25-2,0)	0.764-.004 (19,4-0,1)	0.512+.004 (13,0+0,1)
0.079-0.118 (2,0-3,0)	0.779-.004 (19,8-0,1)	0.512+.004 (13,0+0,1)

NOTE: Available with DA10X switch functions only.

Actuator shown in Pos. 1

B2 RECESSED SNAP-IN BRACKET, BLACK

B2 PANEL MOUNTING



PANEL THICKNESS	"Y"
0.030-0.049 (0,75-0,25)	1.068 (27,13)
0.049-0.079 (1,25-2,0)	1.076 (27,33)
0.079-0.118 (2,0-3,0)	1.092 (27,74)

NOTE: Available with DA10X switch functions only.

Rocker



G

C&K



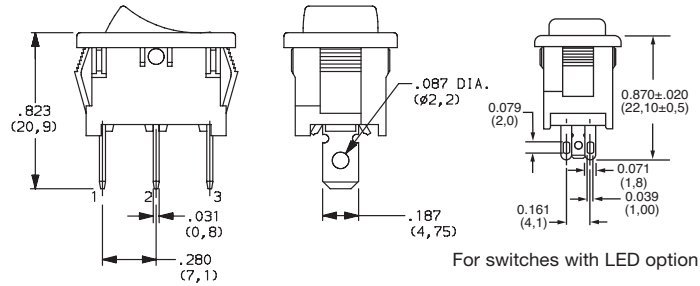
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

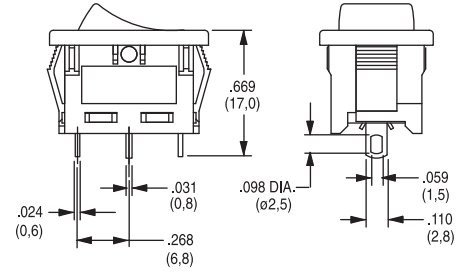
DA Series Miniature Single Pole Rocker Switches

TERMINATION

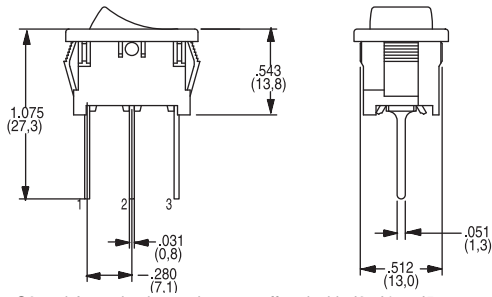
15 .187" QUICK CONNECT



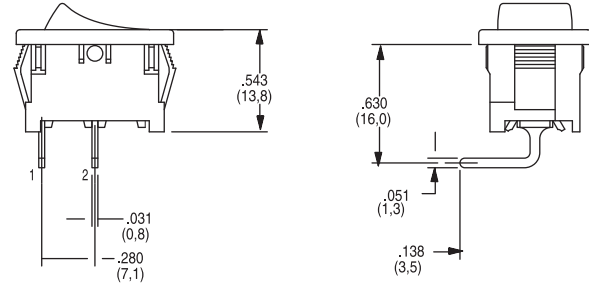
17 SOLDER LUG



02* THRU-HOLE



A* RIGHT ANGLE



* NOTE - O2 and A termination options not offered with J3, J4 or J5 actuator options.

ACTUATOR MARKING

NONE NO MARKING



D ON-OFF



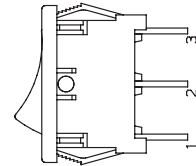
H O I



N LARGE DOT



P O -



All models shown in Pos. 1
Markings not available with J3 actuator

NOTE: Orientation of actuator marking and terminals.

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS	
QF	SILVER	POWER	16 AMPS @ 125 VAC; 1/3 HP; 10 AMPS @ 250 VAC; 1/2 10 AMPS @ 125 VAC, 6 AMPS @ 250 VAC

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

LAMP RATING

(NONE) NO LAMP

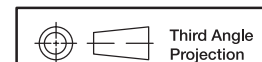
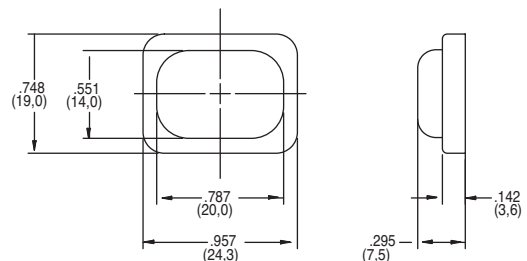
6 LED RATING @ 10 mA $V_f=1.85V$

7 125 VAC 33kΩ NEON

8 250 VAC 150kΩ NEON

ACCESSORIES

216C0000 IP65 SPLASH PROOF RUBBER BOOT



Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



D Series Miniature Snap-in Power Rocker Switches

Features/Benefits

- Momentary and maintained models
- PC and quick connect terminals
- Recessed bracket available — prevents accidental actuation
- RoHS compliant
- Gold plated options available

Typical Applications

- Small appliances
- Computers and peripherals
- Medical instrumentation



UL 61058-1



Specifications

CONTACT RATING:

D101, D102, D103, D105, D108, D201, D202, D203

GP (general purpose)

4 AMPS 125 VAC 50/60 Hz T85 10,000 cycles

2 AMPS 250 VAC 50/60 Hz T85 10,000 cycles

R (resistive)

4 AMPS 30 VDC T85 10,000 cycles

D501, D502, D503, D508, D601, D602, D608

GP (general purpose)

10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles

5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles

R (resistive)

10 AMPS 30 VDC T85 10,000 cycles

0.4VA @ 20V AC/DC (gold plating) available upon request

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

Materials

ACTUATOR & HOUSING: 6/6 nylon (UL 94V-2), color black, finish: matte.

MOVABLE CONTACTS: D10X and D20X Models: Copper, silver plated. D50X and D60X Models: Coin silver, silver plated.

STATIONARY CONTACTS AND TERMINALS: Copper or brass, silver plated. Gold plating available.

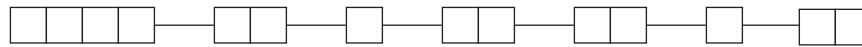
CONTACT SPRING: Music wire or stainless steel.

OPERATING TEMPERATURE: -30°C to +65°C

NOTE: Specifications and materials listed above are for standard switches. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-61 through G-64. For additional options not shown in catalog, consult Customer Service Center.



Switch Function

- D101** SPDT, On-None-On
- D102** SPST, On-None-Off
- D103** SPDT, On-Off-On
- D105** SPDT, Mom.-Off-Mom.
- D108** SPDT, Mom.-None-On
- D201** DPDT, On-None-On
- D202** DPST, On-None-Off
- D203** DPDT, On-Off-On
- D501** SPDT, On-None-On
- D502** SPST, On-None-Off
- D503** SPDT, On-Off-On
- D508** SPDT, Mom.-None-On
- D601** DPDT, On-None-On
- D602** DPST, On-None-Off
- D608** DPDT, Mom.-None-On

Actuator

- J1** Rocker
- J5** Lever

Actuator Color

- 2** Black
- 1** White
- 3** Red

Mounting Style/Color

- S2** Snap-in, black
- B2** Recessed snap-in actuator guard, black
- G2** Actuator guard, black
- S1** Snap-in, white

Terminations

- 15** Quick connect
- A** Right angle, PC thru-hole
- 02** PC Thru-hole
- 05** Twisted quick connect
- 06** Extended PC thru-hole
- 17** Wirable quick connect

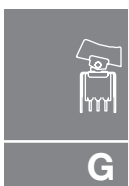
Actuator Markings

- NONE** No marking
- D** ON-OFF
- H** 0 I
- N** Large dot
- P** 0 -
- R** Red rectangle on end
- U** Large dot on end

Contact Material

- QA** Silver
- Gold plating options available contact Customer Service

Rocker


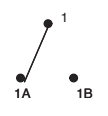
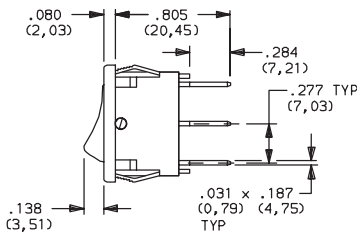
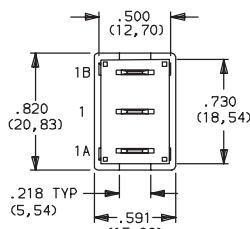
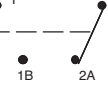
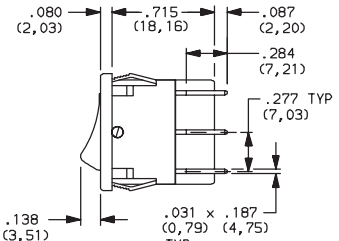
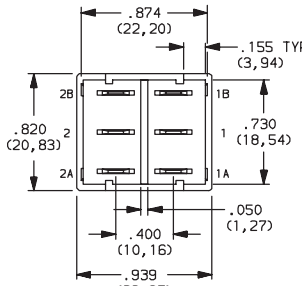


C&K

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

D Series Miniature Snap-in Power Rocker Switches

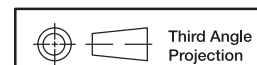
SWITCH FUNCTION

NO. POLES	MODEL NO.	AMP RATING*	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC			
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3				
SP	D102 D502	4 10	ON	NONE	OFF		N/A	OPEN	SPST 			
	D101 D501	4 10	ON	NONE	ON	1-1A	OPEN	1-1B	SPDT 			
	D103 D503	4 10		OFF								
	D105	4	MOM.	OFF	MOM.							
	D108 D508	4 10	MOM.	NONE	ON							
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>SPDT</p>  <p>ACTUATOR SHOWN IN POSITION 1</p> </div> <div style="text-align: center;">  <p>TERMINAL NOS. FOR REF. ONLY</p> </div> </div> <p>Part number shown: D101J12S215QA</p>											
DP	D202 D602	4 10	ON	NONE	OFF					1-1A, 2-2A	N/A	OPEN
	D201 D601	4 10	ON	NONE	ON	1-1B, 2-2B	OPEN	1-1B, 2-2B	DPDT 			
	D203	4		OFF								
	D608	10	MOM.	NONE								
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>DPDT</p>  <p>ACTUATOR SHOWN IN POSITION 1</p> </div> <div style="text-align: center;">  <p>TERMINAL NOS. FOR REF. ONLY</p> </div> </div> <p>Part number shown: D201J12S215QA</p>											

MOM. = Momentary

*AMP RATING: see G-60

See CONTACT MATERIALS, page G-64.



Third Angle Projection

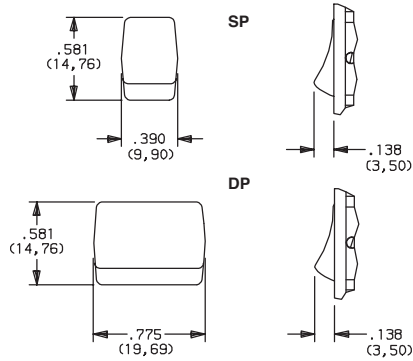
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



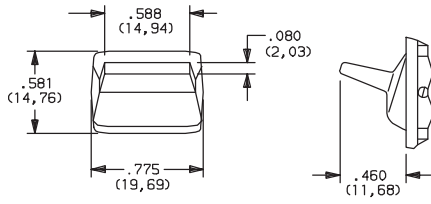
D Series Miniature Snap-in Power Rocker Switches



J1 ROCKER



J5 LEVER



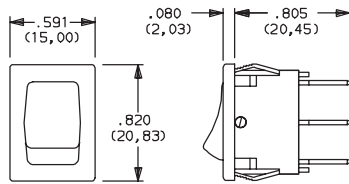
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED

NOTE: Actuator finish: matte. Other colors available, consult Customer Service Center.

'J5' actuator available only with DP models D201, D202, D601 and D602.



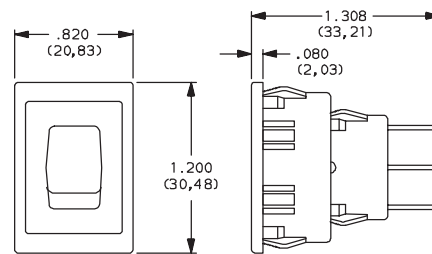
S SNAP-IN



OPTION CODE	HOUSING COLOR
2	(STD.) BLACK
1	WHITE

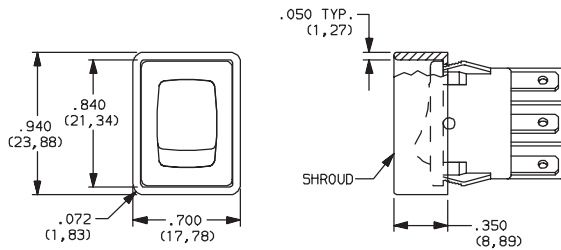
NOTE: Frame finish on housing: matte. Other colors available, consult Customer Service Center.

B2 RECESSED SNAP-IN ACTUATOR GUARD, BLACK



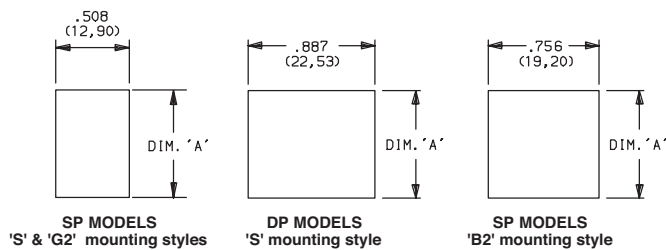
NOTE: Vertical mount, SP models only.

G2 ACTUATOR GUARD, BLACK



NOTE: Vertical mount, SP models only.

PANEL MOUNTING



PANEL THICKNESS	DIM 'A' SP & DP MODELS 'S' MOUNTING STYLE	DIM 'A' WITH 'G2' OPTION SP MODELS ONLY	DIM 'A' SP MODELS 'B' MOUNTING STYLE
.030-.049 (0,76) (1,24)	.756 (19,20)	.764 (19,41)	1.068 (27,13)
.049-.079 (1,24) (2,01)	.764 (19,41)	.780 (19,81)	1.076 (27,33)
.079-.118 (2,01) (3,00)	.780 (19,81)	n/a	1.092 (27,74)

NOTE: Blank insert available for SP models only, see page G-64.

Rocker



G



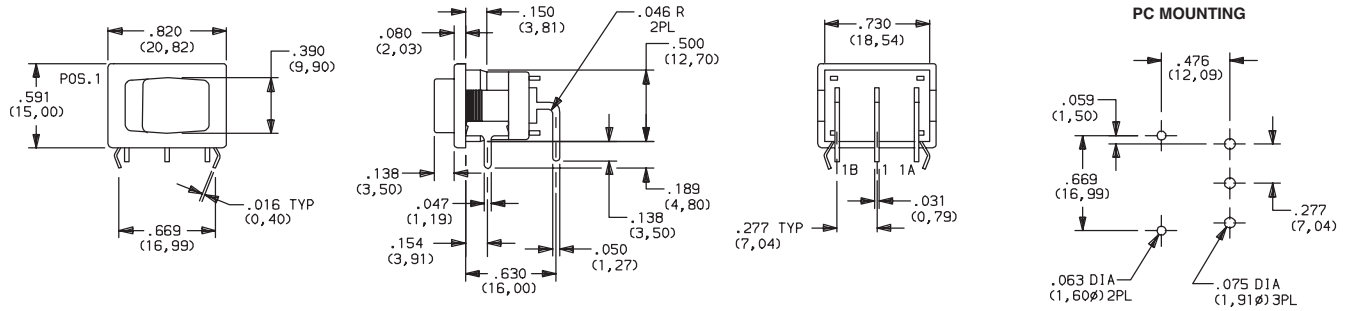
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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D Series Miniature Snap-in Power Rocker Switches

TERMINATIONS

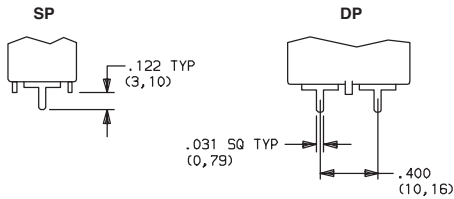
A RIGHT ANGLE, PC THRU-HOLE



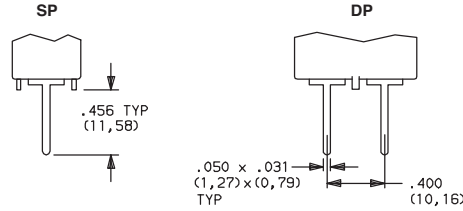
Available with D101, D102, D501, D502 SP models only.

TERMINATIONS

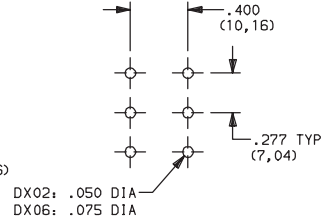
02 PC THRU-HOLE



06 EXTENDED PC THRU-HOLE



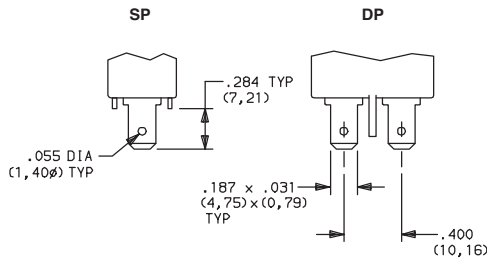
PC MOUNTING (02 and 06)



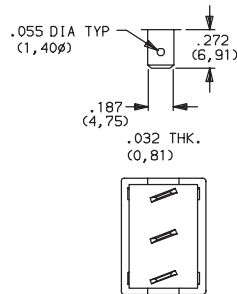
Available with DX01 and DX02 models only.

Available with DX01 and DX02 models only.

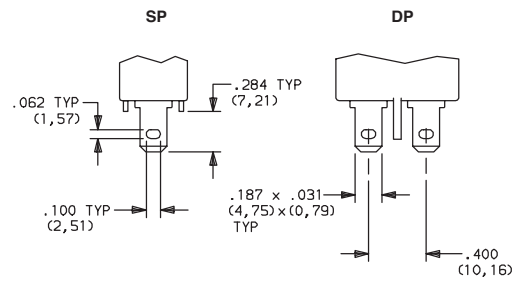
15 QUICK CONNECT



05 TWISTED QUICK CONNECT



17 WIRABLE QUICK CONNECT



Available with DX01 and DX02 models only.

NOTE: Terminals are twisted.

Available with DX01 and DX02 models only.

ACTUATORS

NONE NO MARKING

D ON-OFF

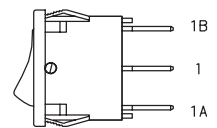
H O |

N LARGE DOT

P O -

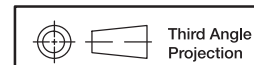
R RED RECTANGLE
ON END

U LARGE DOT ON END



'D, H, P & U' marking options: marking color white, standard for all actuator colors except white. Black marking color, standard for white actuators. 'R & N' marking option: red marking color, standard. Consult Customer Service Center for other available marking colors.

NOTE: Orientation of actuator markings and terminals.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



D Series Miniature Snap-in Power Rocker Switches

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS
QA	SILVER 1	D101, D102, D103, D105, D108, D201, D202, D203
		GP (general purpose) 4 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
		2 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
		R (resistive) 4 AMPS 30 VDC T85 10,000 cycles
		D501, D502, D503, D508, D601, D602, D608
		GP (general purpose) 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
		5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
		R (resistive) 10 AMPS 30 VDC T85 10,000 cycles

¹MOVABLE CONTACT: D10X and D20X MODELS: Copper, silver plated.
D50X and D60X MODELS: Coin silver, silver plated.

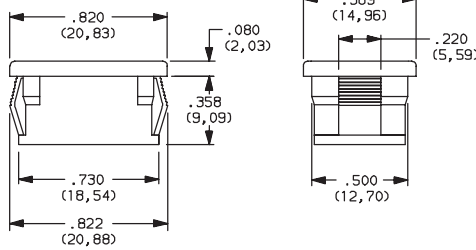


0.4VA @ 20V AC/DC Gold plated options available contact Customer Service.

STATIONARY CONTACTS & TERMINALS: Copper or brass, silver plated.

AVAILABLE HARDWARE

Insert SP Only



PART NO.
057190200 BLACK

Material: Nylon 6/6
Finish: Matte

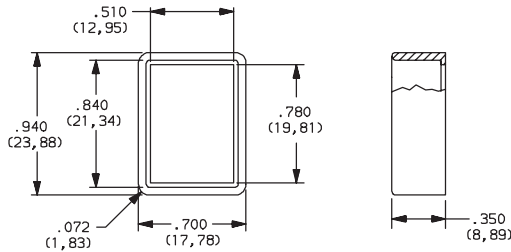
Recessed Actuator Guard, SP Only



599D02000 BLACK

Material: 6/6 Nylon
Finish: Matte

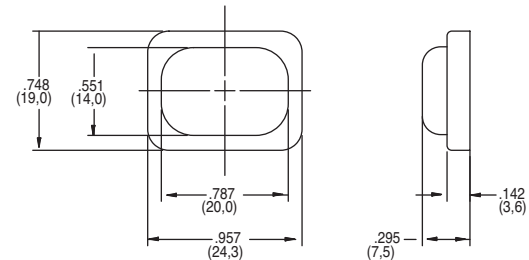
Actuator Guard



PART NO.
104C22000

Material: PBT thermoplastic
Finish: Matte

PART NO.
216C00000 IP65 SPLASH PROOF RUBBER BOOT



Rocker



G

C&K



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DM Series Miniature 2 Pole Power Rocker Switches



Features/Benefits

- 3 AMPS to 10 AMPS
- Quick connect terminals
- Double pole in miniature size
- Recessed bracket available—prevents accidental actuation
- RoHS compliant

Typical Applications

- Computers
- Appliances
- Electric tools

UL 61058-1



Specifications

CONTACT RATING:

DM21, DM22:

GP (general purpose)

3 AMPS 125 VAC 50/60 Hz T85 10,000 cycles

2 AMPS 250 VAC 50/60 Hz T85 10,000 cycles

R (resistive)

3 AMPS 30 VDC T85 10,000 cycles

DM61, DM62:

GP (general purpose)

10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles

5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles

R (resistive)

10 AMPS 30 VDC T85 10,000 cycles

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -20°C to +65°C

Materials

HOUSING & ACTUATOR: 6/6 nylon (UL94V-2), black.

MOVABLE CONTACTS: DM2X Models: Copper, silver plated.

DM6X Models: Coin silver, silver plated.

STATIONARY CONTACTS & TERMINALS: Copper or brass, silver plated.

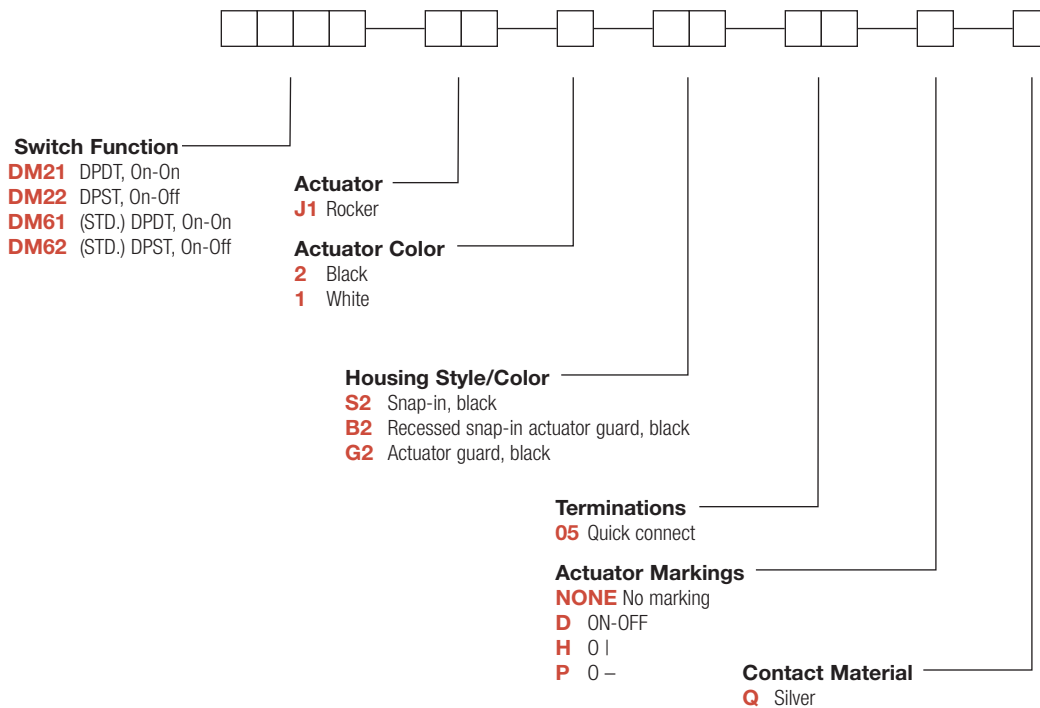
CONTACT SPRING: Music wire or stainless steel.

NOTE: Any models supplied with Q contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for standard switches. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-66 and G-68. For additional options not shown in catalog, consult Customer Service Center.



2 aug 16



DM Series Miniature 2 Pole Power Rocker Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	AMP RATING*	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
DP	DM22	3	ON	OFF	1-1A, 2-2A	OPEN	 DPST
	DM62	10	ON	OFF	1-1A, 2-2A	OPEN	
	DM21	3	ON	ON	1-1A, 2-2A	1-1B, 2-2B	 DPDT
	DM61	10	ON	ON	1-1A, 2-2A	1-1B, 2-2B	

DPDT

PART NUMBER SHOWN: DM21J1XS205Q

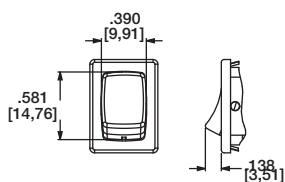
NOTES 1. ACTUATOR SHOWN IN POSITION 1-'ON' POSITION

RATINGS: See page G-65 for complete ratings.

UL 61058-1 tested to 30C temperature rise @ 6,000 cycles.

ACTUATOR

J1 ROCKER

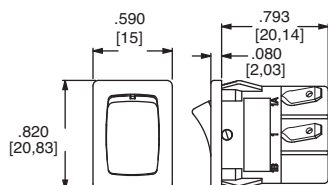


OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE

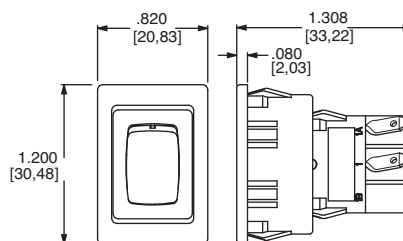
NOTE: Actuator finish: matte. Other colors available, consult Customer Service Center.

HOUSING STYLE/COLOR

S2 SNAP-IN, BLACK



B2 RECESSED SNAP-IN ACTUATOR GUARD, BLACK



Rocker

NOTE: Housing finish: matte. Other colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

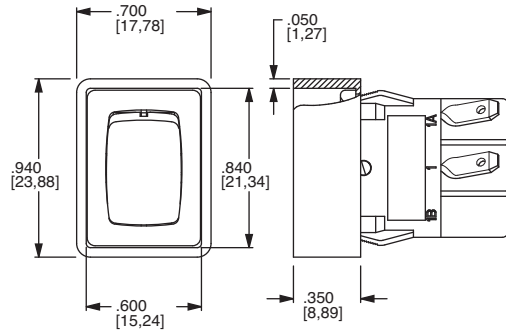


2 aug 16

DM Series Miniature 2 Pole Power Rocker Switches

HOUSING STYLE/COLOR

G2 ACTUATOR GUARD, BLACK



PANEL MOUNTING



'S2' & 'G2' housing styles

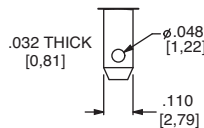
'B2' housing style

NOTE: Blank insert available for SP models only, see page H-76.

PANEL THICKNESS	DIM 'A' 'S2' & 'G2' HOUSING STYLES	DIM 'A' 'G2' OPTION SP MODELS ONLY	DIM 'A' 'B2' HOUSING STYLES
.030-.049 (0,76) (1,24)	.756 (19,20)	0.764 (19,41)	1.068 (27,13)
.049-.079 (1,24) (2,01)	.764 (19,41)	0.780 (19,81)	1.076 (27,33)
.079-.118 (2,01) (3,00)	.780 (19,81)	n/a	1.092 (27,74)

TERMINATIONS

05 QUICK CONNECT



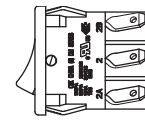
ACTUATOR MARKINGS

NONE NO MARKING

D ON-OFF

H 0 1

P 0 -



NOTE: Orientation of actuator markings and terminals.

'D & P' marking options: marking color white, standard for all actuator colors except white actuators. Black marking color standard for white actuators. Consult Customer Service Center for other available marking colors.

CONTACT MATERIAL

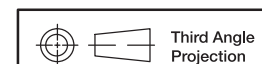
OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS		
Q	SILVER 1,2	DM21, DM22:	GP (general purpose)	3 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
			R (resistive)	2 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
		DM61, DM62:	GP (general purpose)	3 AMPS 30 VDC T85 10,000 cycles
			R (resistive)	10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
			5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles	
			10 AMPS 30 VDC T85 10,000 cycles	

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

1 MOVABLE CONTACT: DM2X Models: Copper, silver plated.
DM6X Models: Coin silver, silver plated.

2 STATIONARY CONTACTS & TERMINALS: Copper or brass, silver plated.

NOTE: Any models supplied with Q contact material are RoHS compliant.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



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Rocker

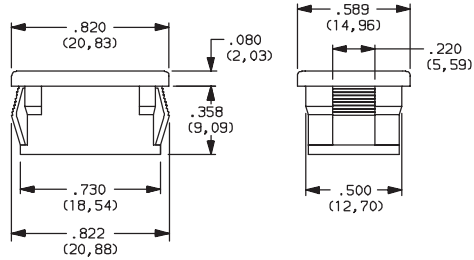


G

DM Series Miniature 2 Pole Power Rocker Switches

AVAILABLE HARDWARE

Insert



PART NO.
057190200

Material: Nylon 6/6
Finish: Matte

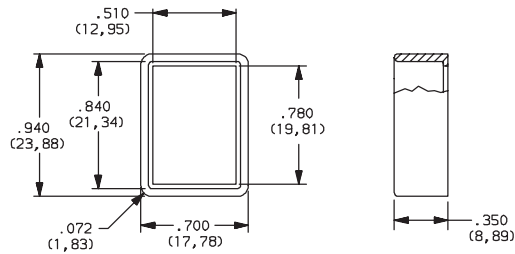
Recessed Actuator Guard



PART NO.
599D02000

Material: 6/6 Nylon
Finish: Matte

Actuator Guard

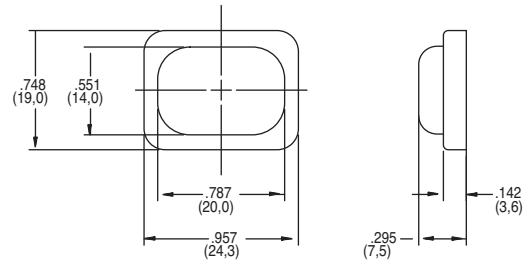


PART NO.
104C22000

Material: PBT thermoplastic
Finish: Matte

PART NO.

216C00000 IP65 SPLASH PROOF RUBBER BOOT

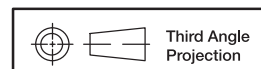


Rocker



C&K

2 aug 16



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DM Series Miniature Illuminated Power Rocker Switches



Features/Benefits

- 3 AMPS to 10 AMPS
- Illuminated LED
- Positive detent
- RoHS compliant

Typical Applications

- Instrumentation
- Industrial
- Office machines



Specifications

CONTACT RATING: DM14 and DM24 Models: 3 AMPS @ 125 V AC; 2 AMPS @ 250 V AC. DM54 and DM64 Models: 10 AMPS @ 125 V AC; 5 AMPS @ 250 V AC (UL).

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

NOTE: Any models supplied with Q contact material are RoHS compliant.

NOTE: Specification and materials listed above are for standard switches. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING: 6/6 nylon (UL94V-2), black.

ACTUATOR: 6/6 nylon (UL94V-2), black.

MOVABLE CONTACTS: DM14 and DM24 Models: Copper, silver plated. DM54 and DM64 Models: Coin silver, silver plated.

STATIONARY CONTACTS & TERMINALS: Copper or brass, silver plated.

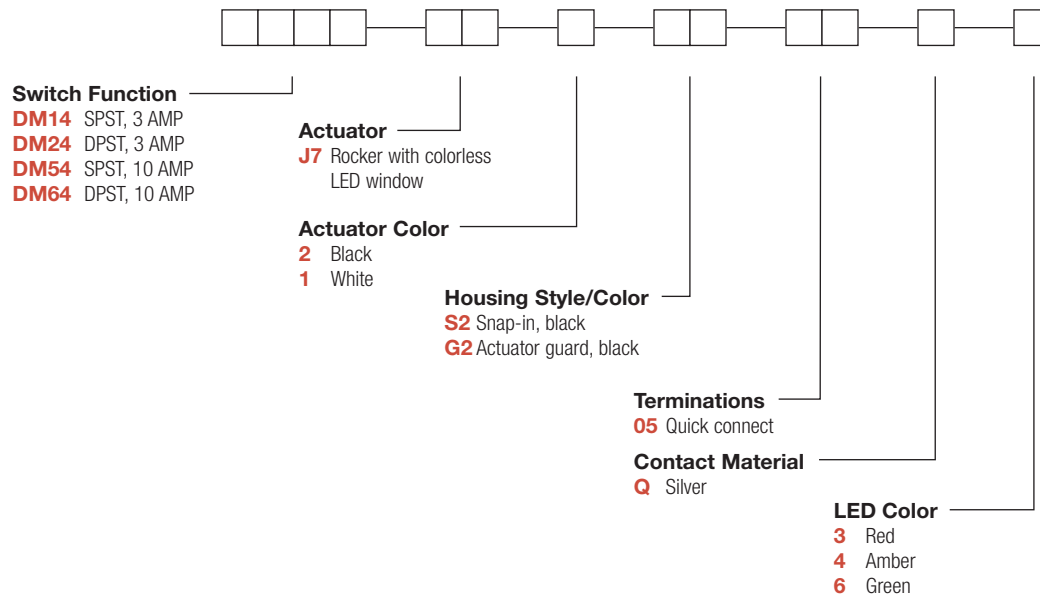
LED TERMINALS: Brass, unplated.

CONTACT SPRING: Music wire or stainless steel.

OPERATING TEMPERATURE: -20°C to +65°C

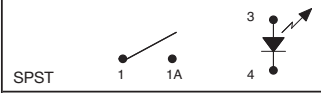
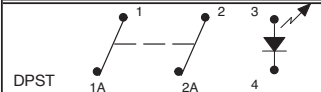
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-70 and G-72. For additional options not shown in catalog, consult Customer Service Center.

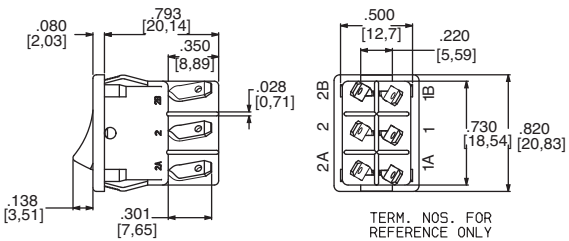


DM Series Miniature Illuminated Power Rocker Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	AMP RATING*	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
SP	DM14	3	ON	OFF	1-1A	OPEN	
	DM54	10					
DP	DM24	3	ON	OFF	1-1A, 2-2A	OPEN	
	DM64	10					

DPDT



Actuator shown in pos. 1 – 'ON' position.
SPST MODELS (DM14 & DM54) OMIT TERMINALS 2 & 2A.

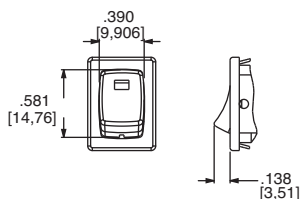
Part number shown: DM24J72S205Q3

* RATINGS: see page G-69.



ACTUATOR

J7 ROCKER WITH COLORLESS LED WINDOW

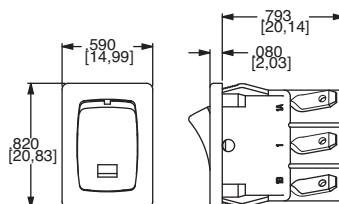


OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE

NOTE: Other colors available, consult Customer Service Center.

HOUSING STYLE/COLOR

S2 SNAP-IN, BLACK



NOTE: Housing finish: matte. Other colors available, consult Customer Service Center.

Rocker



G



2 aug 16

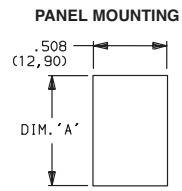
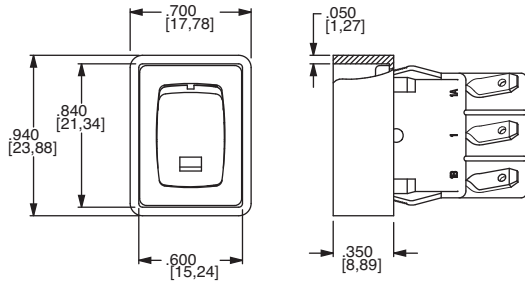


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DM Series Miniature Illuminated Power Rocker Switches

HOUSING STYLE/COLOR

G2 ACTUATOR GUARD, BLACK



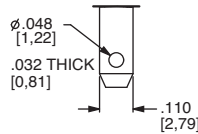
'S2' & 'G2' housing style

NOTE: Blank insert available for SP models only, see page H-80.

PANEL THICKNESS	DIM 'A' 'S2' & 'G2' HOUSING STYLES	DIM 'A' with 'G2' option SP MODELS ONLY
.030-.049 (0,76) (1,24)	0.756 (19,20)	0.764 (19,41)
.049-.079 (1,24) (2,01)	0.764 (19,41)	0.780 (19,81)
.079-.118 (2,01) (3,00)	.780 (19,81)	n/a

TERMINATIONS

05 QUICK CONNECT



CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS	
		POWER	DM14 and DM24 Models: 3 AMPS @ 125 V AC; 2 AMPS @ 250 V AC. DM54 and DM64 Models: 10 AMPS @ 125 V AC; 5 AMPS @ 250 V AC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

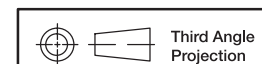
- ¹ MOVABLE CONTACTS: DM14 and DM24 models: Copper, silver plated.
DM54 and DM64 models: Coin silver, silver plated.
² STATIONARY CONTACTS & TERMINALS: Copper or brass, silver plated.

NOTE: Any models supplied with Q contact material are RoHS compliant.



LED COLOR

OPTION CODE	LED COLOR	FORWARD V _{FD}	CURRENT I _{LED}	REVERSE V _R	INTENSITY M _{CD}	RECOMMENDED RESISTOR @ VOLTAGE		
						5V	12V	24V
3	Red	2.1	10	4V	1.6 typ.	270	1K	2.2K
4	Amber	2.2	20	4V	2.5 typ.	150	510	1.2K
6	Green	2.1	20	4V	2.0 typ.	150	510	1.2K



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



2 aug 16

G-71

www.ck-components.com

Rocker

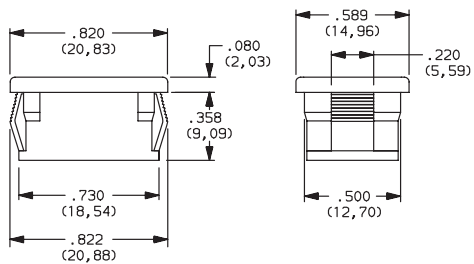


G

DM Series Miniature Illuminated Power Rocker Switches

AVAILABLE HARDWARE

Blank Insert



PART NO.
057190200

Material: Zinc nylon 6/6
Finish: Matte

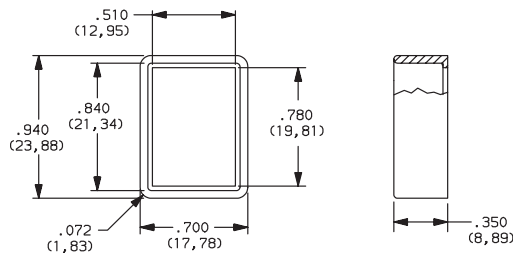
Recessed Bracket



PART NO.
599D02000

Material: 6/6 Nylon
Finish: Matte

Actuator Guard



PART NO.
104C22000

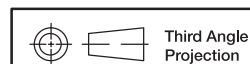
Material: PBT thermoplastic
Finish: Matte

Rocker



C&K

2 aug 16



Third Angle
Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DF Series Power Rocker Switches



Features/Benefits

- Power switching up to 16 AMPS
- Sub-panel and Front-panel mounting
- PC and quick connect terminals
- Multi-position and multi-pole function
- RoHS compliant

Typical Applications

- Computers
- Power supplies
- Appliances
- Fitness equipment
- Off-road vehicles



Specifications

CONTACT RATING: 16 AMPS @ 125, 250 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 6 AMPS @ 48 V DC, 2 AMPS @ 60 V DC, 11 AMPS @ 30 V DC

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -20°C to +85°C

Materials

HOUSING & ACTUATOR: 6/6 nylon (UL 94V-2), black, finish: matte.

CONTACTS: Fine silver, silver plated.

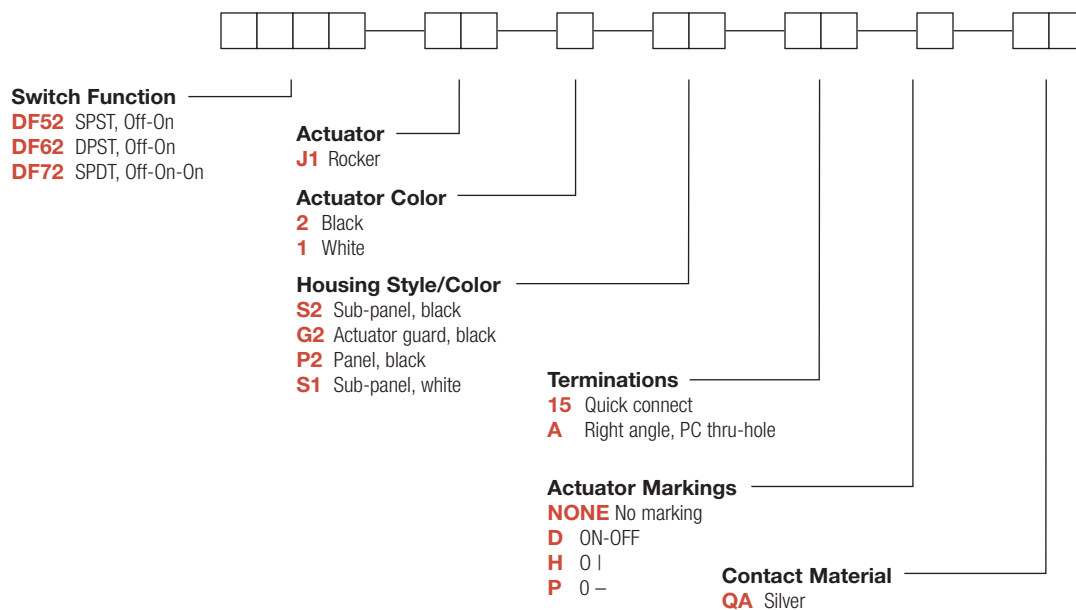
TERMINALS: Copper, silver plated.

CONTACT SPRING: Music wire or stainless steel.

NOTE: Specifications and materials listed above are for standard switches. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-74 thru G-76. For additional options not shown in catalog, consult Customer Service Center.



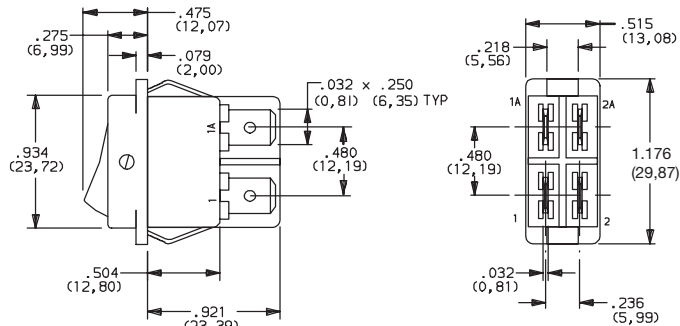
DF Series Power Rocker Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	DF52	OFF	ON	OPEN	1-1A	SPST
DP	DF62	OFF	ON	OPEN	1-1A, 2-2A	DPST

NO. POLES	MODEL NO.	POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	SCHEMATIC
SP	DF72	OFF	ON	ON	OPEN	1 / 2-2A	1 / 2-1A 1 / 2-2A	

DPST

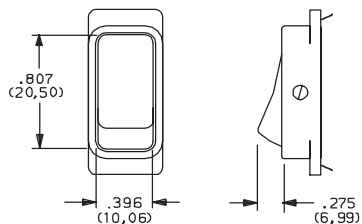


Part number shown: DF62J12S215QA

All models

ACTUATOR

J1 ROCKER



OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE

NOTE: Actuator finish: matte. Other colors available, consult Customer Service Center.

Rocker



G

C&K

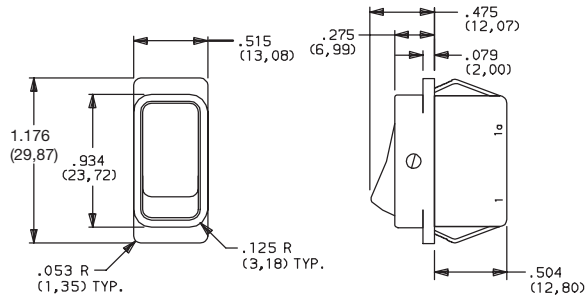


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DF Series Power Rocker Switches

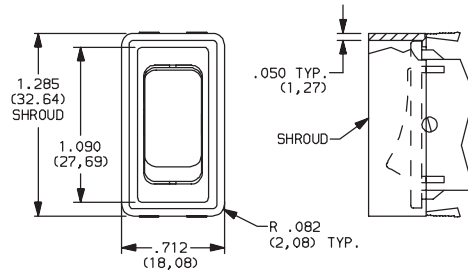
HOUSING STYLE/COLOR

S SUB-PANEL



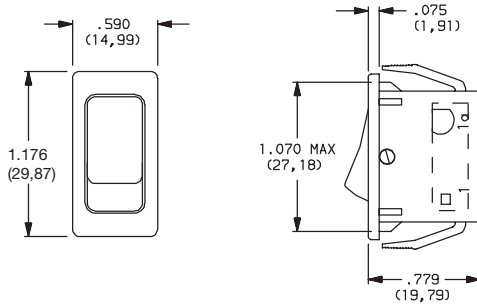
NOTE: DF52 & DF62 models only.

G2 ACTUATOR GUARD



NOTE: Not available with 'A' termination. Available in black only.

P PANEL



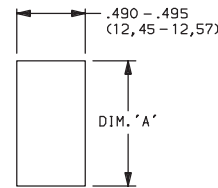
NOTE: Not available with 'A' termination. Available in black only.

OPTION CODE	HOUSING COLOR
2	(STD.) BLACK
1	WHITE

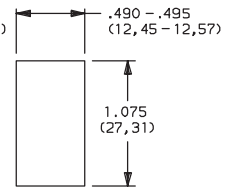
NOTE: Housing finish: matte. Other colors available, consult Customer Service Center.

PANEL MOUNTING

PANEL THICKNESS	DIM 'A'
.029-.048 (0,74) (1,22)	1.021 (25,93)
.048-.078 (1,22) (1,98)	1.029 (26,14)
.078-.117 (1,98) (2,97)	1.045 (26,54)
.075-.140 (1,91) (3,56)	1.075 (27,31)



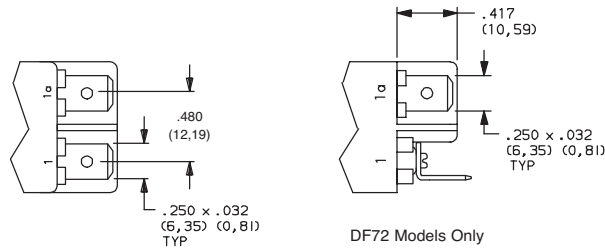
DF52 & DF62 Models with 'S' housing style



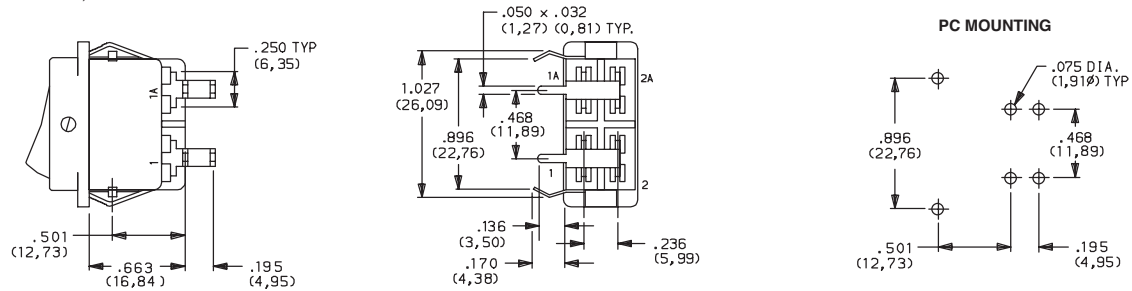
DF52, DF62 & DF72 Models with 'P2' & 'G2' housing style

TERMINATIONS

15 QUICK CONNECT



A RIGHT ANGLE, PC THRU-HOLE



Actuator shown in Pos. 1

NOTE: DF52 and DF62 Models Only



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



DF Series Power Rocker Switches

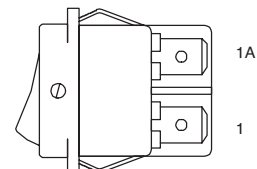
ACTUATOR MARKINGS

NONE NO MARKING

D ON-OFF

H O |

P O -



NOTE: Orientation of actuator markings and terminals.

'D, H, & P' marking options: marking color white, standard for all actuator colors except white. Marking color black, standard for white actuators. Consult Customer Service Center for other available marking colors.

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS	
		POWER	
QA	SILVER 1,2		16 AMPS @ 125, 250 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 6 AMPS @ 48 V DC (UL), 2 AMPS @ 60 V DC, 11 AMPS @ 30 V DC
			16 AMPS @ 125, 250 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC (UL)

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

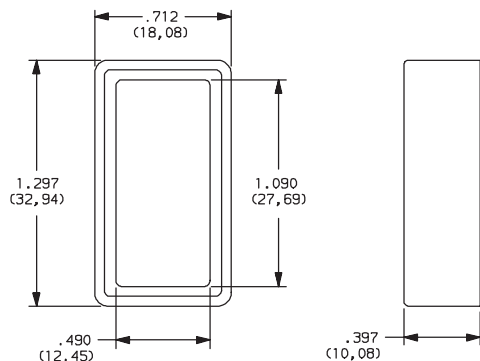
1 CONTACTS: Fine silver, silver plated.

All models 

2 TERMINALS: Copper, silver plated.

AVAILABLE HARDWARE

Actuator Guard



PART NO.

285B02000

Material: Nylon 6/6
Finish: Matte

Rocker



G

C&K



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

CR Series Round Single Pole Specialty Rocker Switches

Features/Benefits

- Round actuator and body
- Nice styling
- Multiple illuminated versions available
- IP65 splash proof rubber boot option

Typical Applications

- Appliances, small and large
- Office equipment
- Computers and peripherals
- Audio/Video equipment
- RoHS compliant



UL US UL 61058-1

Specifications

CONTACT RATING:

16 AMPS @ 125 VAC, 10 AMPS @ 250 VAC.

16 AMPS @ 125 VAC, 10 AMPS @ 250 VAC.

ELECTRICAL LIFE: 10,000 make and break cycles at full load.

INSULATION RESISTANCE: $10^8 \Omega$ min.

DIELECTRIC STRENGTH: 1,500 VRMS @ sea level.

OPERATING TEMPERATURE: -20°C to + 85°C

Materials

HOUSING AND ACTUATOR: 6/6 nylon (UL94V-2), matte finish.

ILLUMINATED ACTUATOR: Polycarbonate, matte finish.

CENTER CONTACTS: Silver plated, copper alloy.

END CONTACTS: Silver plated AgSnO₂InO₃.

ALL TERMINALS: Silver plated, copper alloy.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-78 through G-80. For additional options not shown in catalog, consult Customer Service Center.

<p>Switch Function</p> <p>CR101 SPDT On-None-On</p> <p>CR102 SPST On-None-Off</p> <p>Actuator</p> <p>J1 Rocker</p> <p>J2* Two-tone rocker</p> <p>J3 Illuminated rocker</p> <p>J4** Circle, illuminated rocker</p> <p>J5 Oval, illuminated rocker</p> <p>JN Paddle, rocker</p> <p>JP Paddle, illuminated rocker</p>	<p>Actuator Color</p> <p>2 Black</p> <p>1 White</p> <p>3 Red</p> <p>R Red, illuminated</p> <p>A Amber, illuminated</p> <p>G Green, illuminated</p> <p>Mounting Style/Color</p> <p>S2 Snap-in, black</p> <p>S1 Snap-in, white</p>	<p>Termination</p> <p>15 .187" quick connect</p> <p>Contact Rating</p> <p>QF Silver</p> <p>Lamp Rating</p> <p>(NONE) No lamp</p> <p>6 LED</p> <p>7 125 VAC neon</p> <p>8 250 VAC neon</p>
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* Refer to table on page G-79 for actuator options.

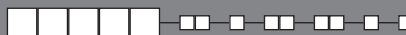


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

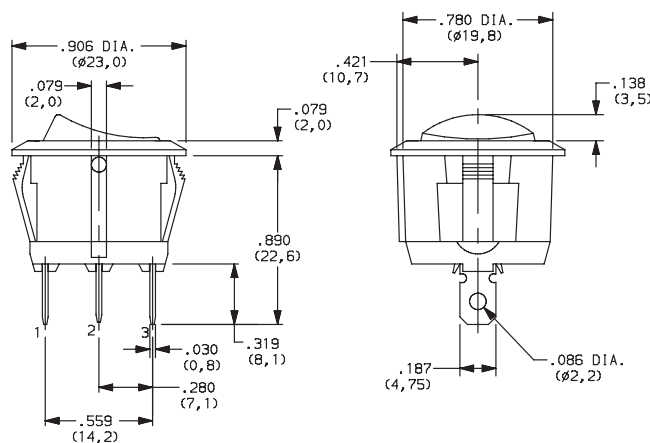


CR Series Round Single Pole Specialty Rocker Switches

SWITCH FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		Pos. 1	Pos. 2	Pos. 3	Pos. 1	Pos. 2	Pos. 3	
SP	CR101	ON	NONE	ON	2-3		2-1	
	CR102	ON	NONE	OFF		N/A		<p>OR</p> <p>For 7 & 8 Illuminated Versions</p>



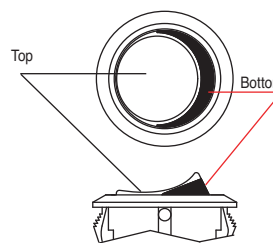
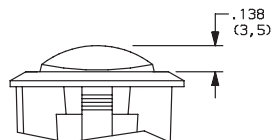
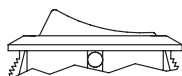
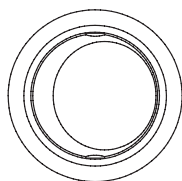
ACTUATOR



- J1** ROCKER
- J3** ILLUMINATED ROCKER

- J2** TWO-TONE ROCKER

Rocker

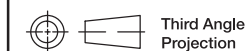


NOTE: J3 actuator available with the combination of 7 & 8 lamp ratings and CR102 switch function only.



G

C&K

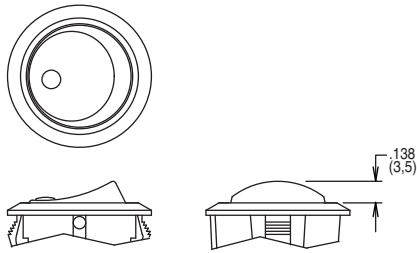


Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

CR Series Round Single Pole Specialty Rocker Switches

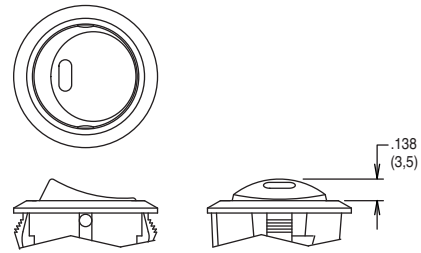
ACTUATOR

J4 CIRCLE, ILLUMINATED ROCKER



NOTE: Available with the combination of CR102 switch function and 7 & 8 lamp ratings only.

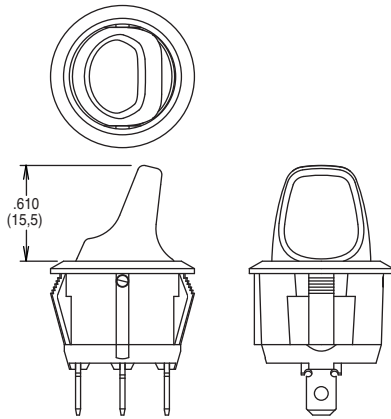
J5 OVAL, ILLUMINATED ROCKER



NOTE: Available with the combination of CR102 switch function and 6 lamp rating only.

JN PADDLE, ROCKER

JP PADDLE, ILLUMINATED ROCKER

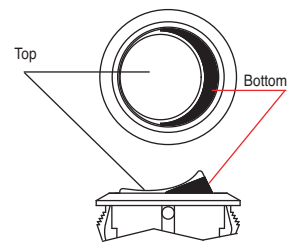


NOTE: JP actuator available with the combination of CR102 switch function and 7 & 8 lamp ratings only.

ACTUATOR COLOR

ACTUATOR	OPTION CODE	ACTUATOR COLOR
J1	2	BLACK
	1	WHITE
	3	RED
J3, J4 J5, JP	R	RED, ILLUMINATED
	A	AMBER, ILLUMINATED
	G	GREEN, ILLUMINATED

ACTUATOR	OPTION CODE	ACTUATOR COLOR	
		TOP	BOTTOM
J2	1	WHITE	RED
	2	WHITE	BLACK
	3	RED	WHITE
	4	BLACK	WHITE
	5	BLACK	RED

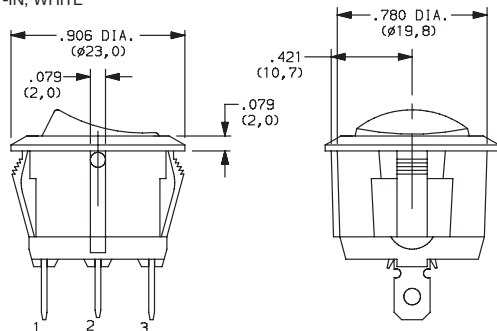


J2 actuator only

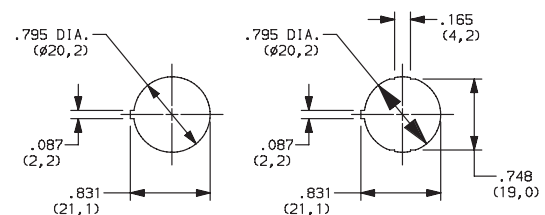
MOUNTING STYLE/COLOR

S2 SNAP-IN, BLACK

S1 SNAP-IN, WHITE

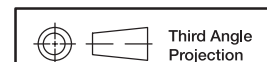


PANEL MOUNTING



Panel thickness:
2.0 - 3.0 mm

Panel thickness:
0.7 - 3.0 mm



Third Angle
Projection

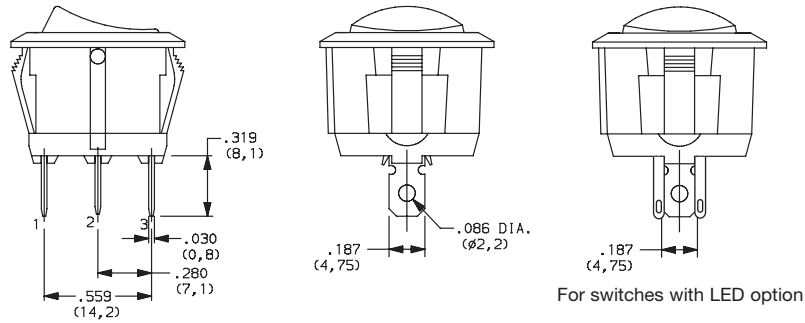
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change




CR Series Round Single Pole Specialty Rocker Switches

TERMINATION

15 .187" QUICK CONNECT



CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATINGS	
QF	SILVER	POWER	16 AMPS @ 125 VAC; 10 AMPS @ 250 VAC 

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

LAMP RATING

(NONE) NO LAMP

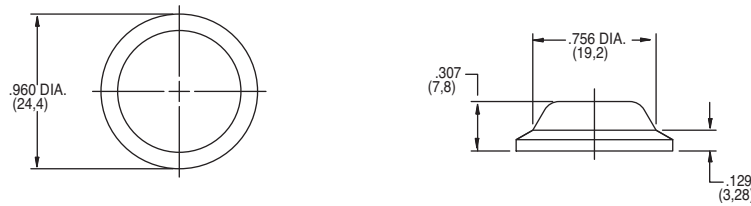
6 LED RATING @ 10 mA $V_f=1.85V$

7 125 VAC 33kΩ NEON

8 250 VAC 150kΩ NEON

ACCESSORIES

377C00000 IP65 SPLASH PROOF RUBBER BOOT



Rocker



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

DIP

Product Selection Guide



H

DIP

DIP											
Series	TDP	TDA	SDA	SD	BD	BPA	TDD	SPA	RTE	CD	CRD
Switch Type	Half-pitch .050" Side actuated	Half-pitch .050"	Low Profile	Low Profile	Standard Profile	Side Actuated	Jumper Switch	Single In-line Package	Rotary & Coded	8 mm Coded Rotary	10 mm Coded Rotary
No. of Positions	2-10 (even only)	1 & 2-10 (even only)	1-12 (except 11)	2-12 (except 11)	1-12 (except 11)	1-12 (except 11)	1	2-10 (even only)	4 10,16	8, 10 & 16	10 & 16
Contact Style	SPST	SPST	SPST	SPST	SPST	SPST	SPDT	SPST	Coded	Coded	Coded
Profile off PCB	.173 (4,4)	.087 (2,2)	.189 (4,80) Thru-hole .177 (4,5) SMT	.168 (4,27) Thru-hole .160 (4,06) SMT	.297 (7,55) Vertical .380 (9,65) Rt. Angle	.287 (7,3) Thru-hole .277 (7,04) SMT	.090 (2,3)	.244 (6,2) Vertical .169 (4,3) Rt. Angle	.167 (4,25) Thru-hole .335 (8,5) Rt. angle	.168 (4,27) Thru-hole .340 (8,6) Rt. angle	.272 (6,9) Vertical .414 (10,5) Rt. angle
Process Sealed	washable with tape seal	washable with tape seal	washable (tape not required)	washable with tape seal	washable (tape not required)	washable (tape not required)	washable with tape seal	washable (tape not required)	NA	washable (tape not required)	washable (tape not required)
Extended Actuator	•		•	•	•	•		•	•		•
Flush Actuator	•	•	•	•			•	•	•	•	•
Thru-hole			•	•	•	•		•	•	•	•
Vertical		•	•	•	•		•	•	•	•	•
Right Angle	•				•	•		•	•	•	•
Surface Mount	•	•	•	•		•	•	•	•	•	•
Tape & Reel (SMT only)	•	•	•	•		•	•	•	•	•	•
Maximum Current	100mA	100mA	100mA	100mA	100mA	100mA	100mA	10mA	100mA	0.4VA	0.4VA
Retention Feature								•	•	• C option	
Page No.	H-3	H-6	H-9	H-13	H-16	H-18	H-21	H-23	H-25	H-31	H-35

TDP Series Ultra-miniature Surface Mount Half-pitch Side-Actuated DIP Switches



Features/Benefits

- World's first ultra-miniature SMT half-pitch side-actuated DIP
- Side actuation allows visual indication of on/off position in horizontal applications
- Process sealed for surface mount soldering and washable processing
- RoHS compliant
- Lead free

Typical Applications

- Hand-held electronic devices
- Portable computer and electronic devices
- Instrumentation and controls



Specifications

SWITCH FUNCTION: SPST — 2, 4, 6, 8, 10 positions.

CONTACT RATING:

24 V DC, 25 mA (switching).

50 V DC, 100 mA (steady state).

MECHANICAL AND ELECTRICAL LIFE: 1,000 cycles.

CONTACT RESISTANCE: 100 mΩ max.

INSULATION RESISTANCE: 100 MΩ @ 100 V DC min.

DIELECTRIC STRENGTH: 300 V AC min.

STORAGE TEMPERATURE: -40°C to 85°C.

OPERATING TEMPERATURE: -40°C to 85°C.

OPERATING FORCE: 4,9N max.

SOLDERABILITY: Per MIL-STD-202F method 208D, or

EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: Switches supplied in rigid dispensing tubes in full tube quantities only, this may affect order quantity. Tape and reel packaging also available.

Materials

CASE & COVER: glass filled PPS (UL94V-0).

ACTUATOR: PA6T (UL94V-0).

CONTACTS: Copper alloy with gold plate over nickel plate.

TERMINALS: Copper alloy, with gold over nickel plate.

All terminals are insert molded.

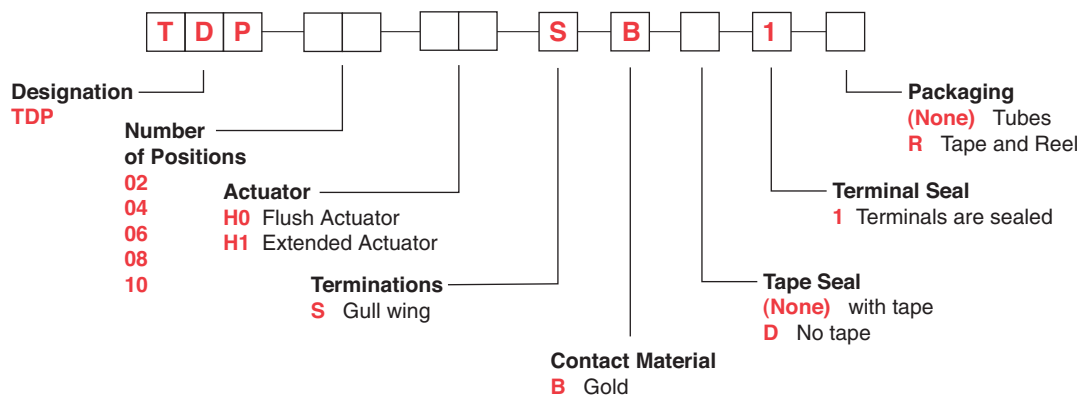
TAPE SEAL: Polyimide.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position.



Note: Tape seal is not available with H1 Extended Actuators.

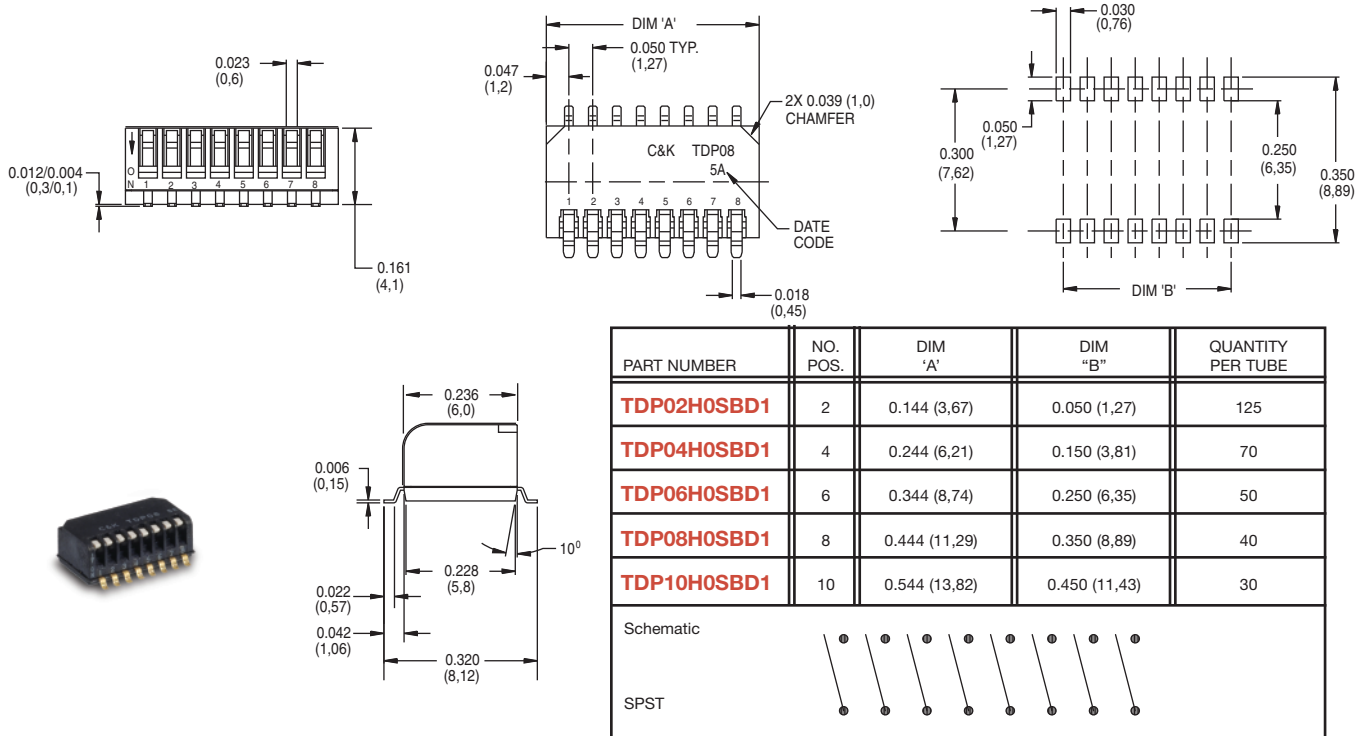


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

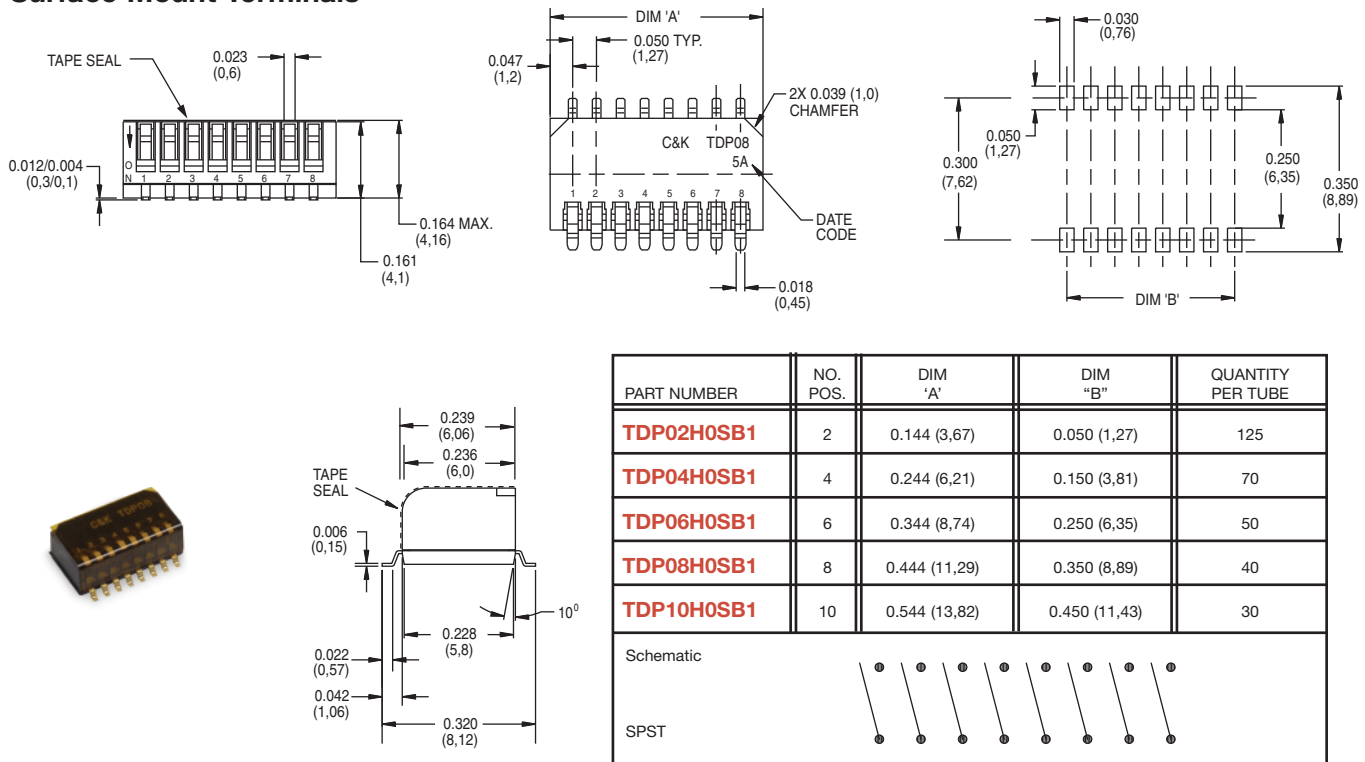


TDP Series Ultra-miniature Surface Mount Half-pitch Side-Actuated DIP Switches

Flush Actuator-No Top Tape,
Surface Mount Terminals



Flush Actuator-with Top Tape,
Surface Mount Terminals



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

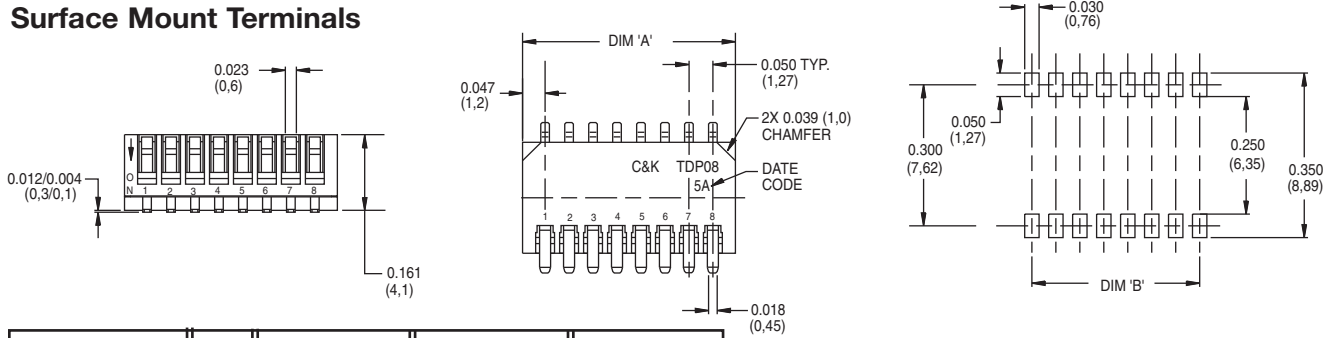


TDP Series Ultra-miniature Surface Mount Half-pitch Side-Actuated DIP Switches



H
DIP

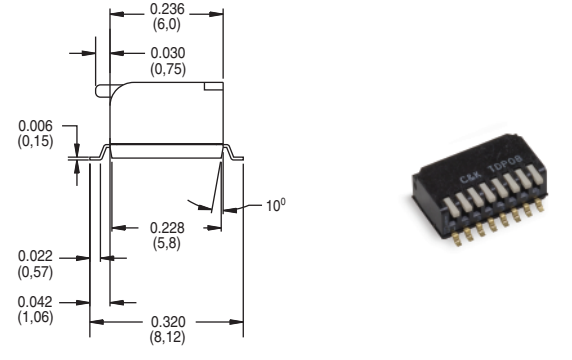
Extended Actuator-No Top Tape, Surface Mount Terminals



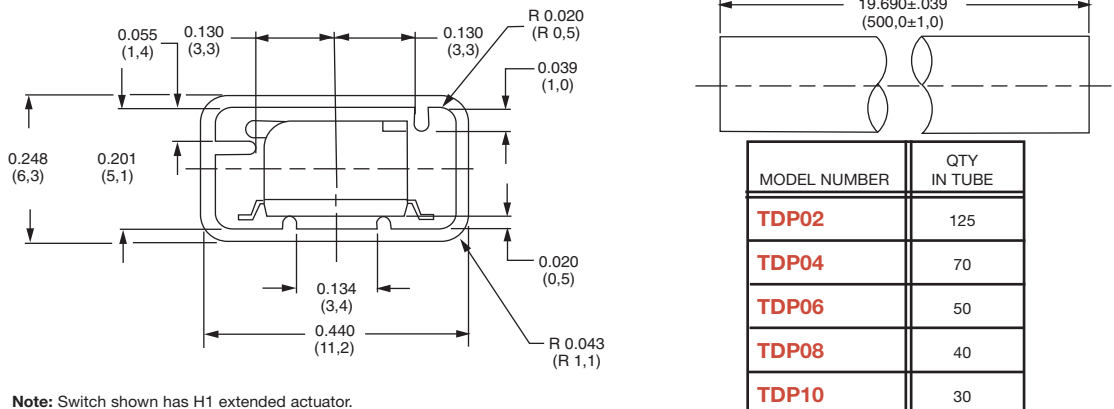
PART NUMBER	NO. POS.	DIM 'A'	DIM "B"	QUANTITY PER TUBE
TDP02H1SBD1	2	0.144 (3,67)	0.050 (1,27)	125
TDP04H1SBD1	4	0.244 (6,21)	0.150 (3,81)	70
TDP06H1SBD1	6	0.344 (8,74)	0.250 (6,35)	50
TDP08H1SBD1	8	0.444 (11,29)	0.350 (8,89)	40
TDP10H1SBD1	10	0.544 (13,82)	0.450 (11,43)	30

Schematic

SPST

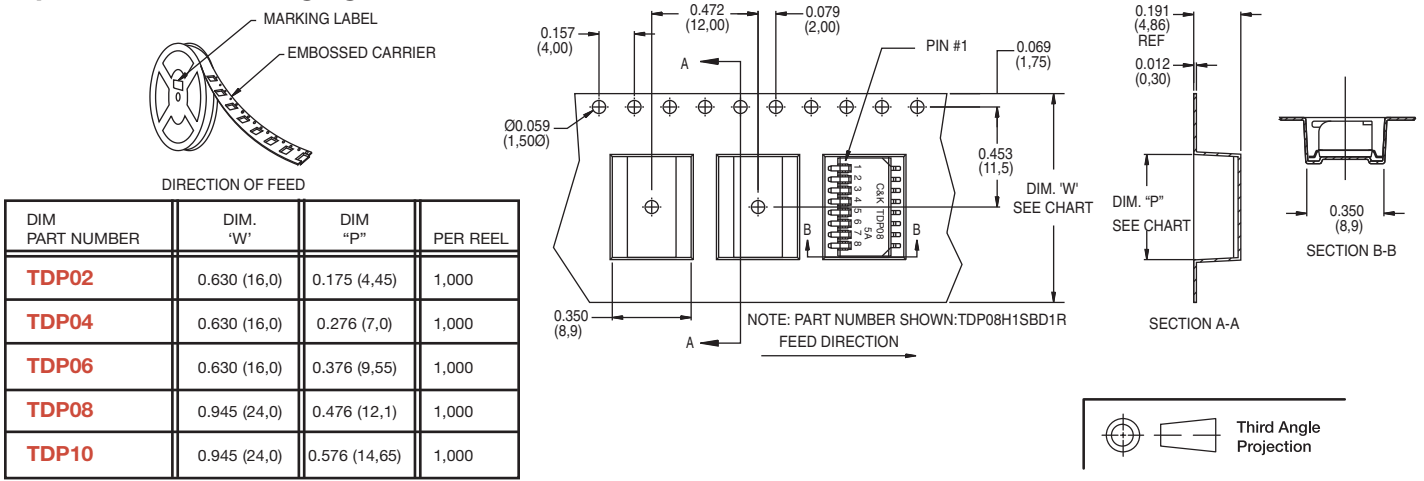


Tube Packaging



Note: Switch shown has H1 extended actuator.

Tape and Reel Packaging



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

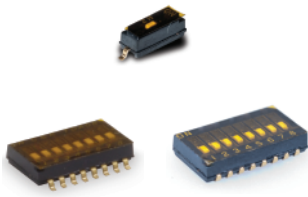
TDA Series

Ultra-miniature Surface Mount Half-pitch DIP Switches



H

DIP



Features/Benefits

- Bifurcated contact for increased electrical reliability
- Process sealed for surface mount soldering and washable processing
- RoHS compliant

Typical Applications

- Hand-held electronic devices
- Portable computer and electronic devices
- Instrumentation and controls

Specifications

SWITCH FUNCTION: SPST – 1, 2, 4, 6, 8 & 10 positions.
 CONTACT RATING:
 24 V DC, 25 mA (switching).
 50 V DC, 100 mA (steady state).
 MECHANICAL AND ELECTRICAL LIFE: 1,000 cycles.
 CONTACT RESISTANCE: 100 mΩ max.
 INSULATION RESISTANCE: 100 MΩ @ 100 V DC min.
 DIELECTRIC STRENGTH: 300 V AC min.
 STORAGE TEMPERATURE: -40°C to 85°C.
 OPERATING TEMPERATURE: -40°C to 85°C.
 OPERATING FORCE: 4.9N max.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: Switches supplied in rigid dispensing tubes in full tube quantities only, this may affect order quantity. Numbers of switches per tube varies with model. Tape and reel packaging quantity varies with model.

Materials

CASE & COVER: PPS (UL94V-0)
 ACTUATOR: LCP (UL94V-0).
 CONTACTS: Copper alloy, with gold plate over nickel plate.
 TERMINALS: Copper alloy, with gold flash over nickel plate.
 All terminals are insert molded.
 TAPE SEAL: Polyimide.

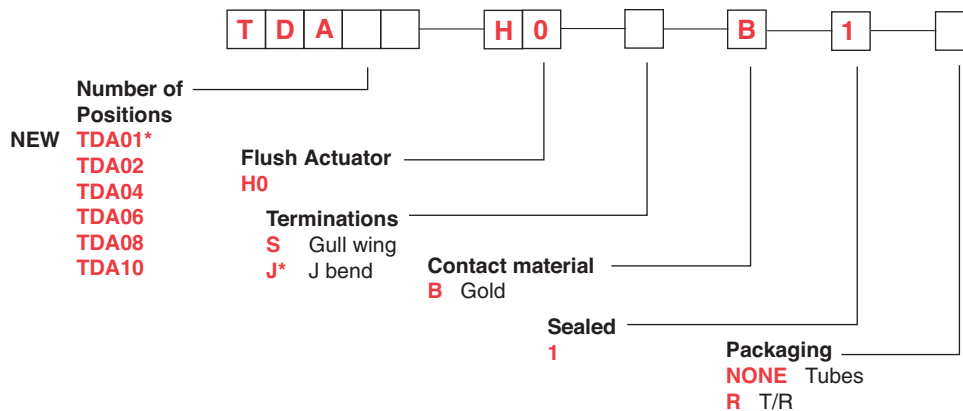
Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Note: All switches supplied in "OFF" position.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position.



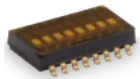
* TDA01H0JB1R is not available, TDA01 only offered in tape & reel



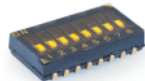
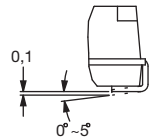
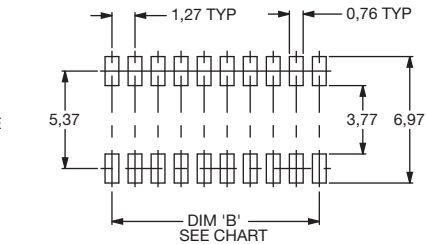
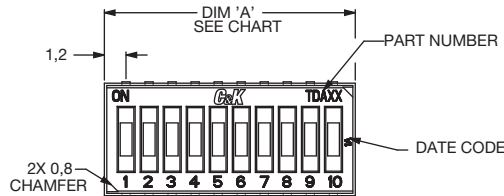
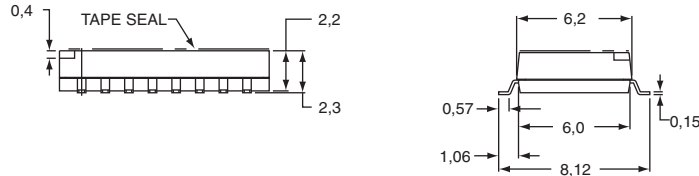
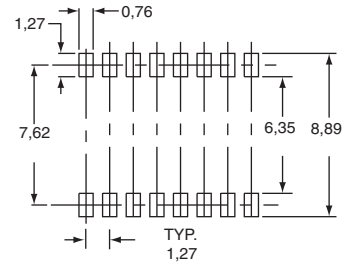
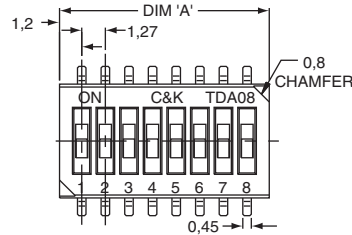
Dimensions are shown: mm
 Specifications and dimensions subject to change



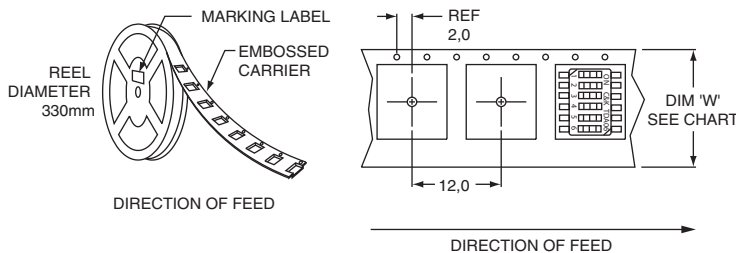
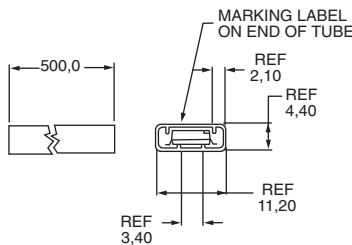
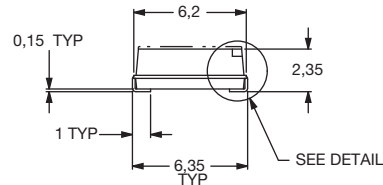
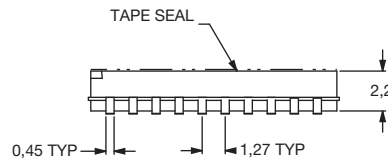
TDA Series Ultra-miniature Surface Mount Half-pitch DIP Switches



TDA08H0SB1



TDA10H0JB1



Tube Package

ROHS PART NUMBER	NO. POS.	DIM. 'A'	DIM. 'B'	QUANTITY PER TUBE
TDA01H0SB1	1	2,40	NA	NA
TDA02H0_B1	2	3,67	1,27	125
TDA04H0_B1	4	6,21	3,81	70
TDA06H0_B1	6	8,75	6,35	50
TDA08H0_B1	8	11,29	8,89	40
TDA10H0_B1	10	13,83	11,43	30

Schematic

SPST

Tape & Reel Package

ROHS PART NUMBER	NO. POS.	DIM. 'W'	QUANTITY PER REEL
TDA01H0SB1R*	1	16,0	2500
TDA02H0_B1R	2	16,0	2000
TDA04H0_B1R	4	16,0	2000
TDA06H0_B1R	6	16,0	2000
TDA08H0_B1R	8	24,0	2000
TDA10H0_B1R	10	24,0	2000

* see next page for TDA01 tape & reel drawing



Dimensions are shown: mm
Specifications and dimensions subject to change



TDA Series

Ultra-miniature Surface Mount Half-pitch DIP Switches

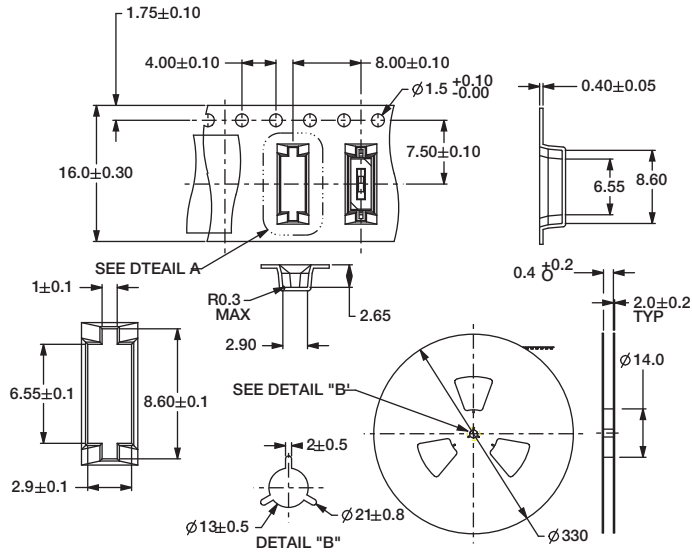


DIP

DIP



TDA01H0SB1R



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

SDA Series Low Profile DIP Switches



H

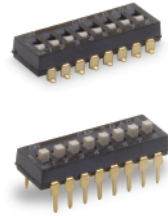
DIP

Features/Benefits

- Low profile design saves space
- Thru-hole and surface mount models
- Tape and reel packaging available
- RoHS compliant

Typical Applications

- Address switch for industrial controls
- Logic switching for computers and peripherals
- Function controlling for numerous applications



Specifications

CONTACT RATING: 25 mA @ 24 V DC or 100 mA @ 5 V DC.
 MECHANICAL AND ELECTRICAL LIFE: 1,000 cycles at rated loads.
 CONTACT RESISTANCE: 50 mΩ max. initial.
 INSULATION RESISTANCE: 100 MΩ between terminals.
 DIELECTRIC WITHSTANDING VOLTAGE: 300 V DC min. for 1 minute.
 STORAGE TEMPERATURE: -40°C to 85°C.
 OPERATING TEMPERATURE: -40°C to 85°C.
 OPERATING FORCE: 800 grams max.
 SOLDERABILITY: Dip and look solderability testing per C&K spec. #448. Unplated edges of terminals permitted.
 PACKAGING: Switches supplied in rigid dispensing tubes in full-tube quantities only, this may affect order quantity. Numbers of switches per tube varies with model. Tape and reel packaging also available for surface mount options.

Materials

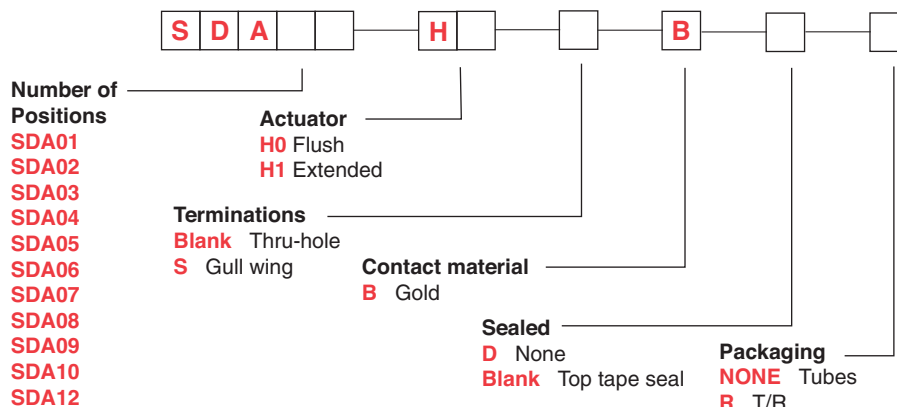
HOUSING: PPS, color black (UL94V-0).
 COVER: PPS, color black (UL94V-0).
 ACTUATOR: PA6T (UL94-0)
 CONTACTS: Gold plated Beryllium copper.
 TERMINALS: Gold plate over nickel plated brass.
 TAPE SEAL: Polyimide.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center. For Tin Lead options consult customer service center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position..



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

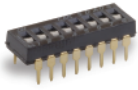
SDA Series Low Profile DIP Switches



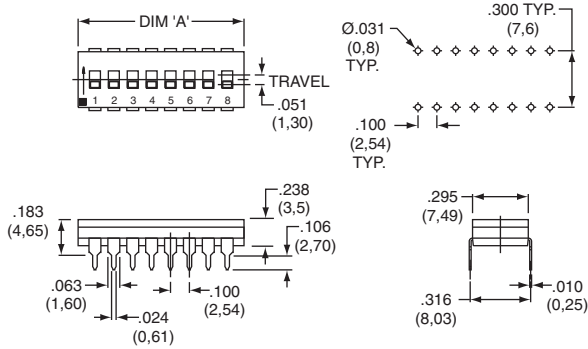
H

DIP

Flush Actuator – No Tape, Thru-hole Terminals



SDA08H0BD



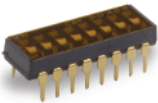
NOTE: SDA 01 options are 4,25mm thick

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H0BD	1	.178 (4,52)	100
SDA02H0BD	2	.278 (7,06)	60
SDA03H0BD	3	.378 (9,60)	45
SDA04H0BD	4	.476 (12,10)	35
SDA05H0BD	5	.578 (14,68)	30
SDA06H0BD	6	.676 (17,18)	25
SDA07H0BD	7	.778 (19,76)	20
SDA08H0BD	8	.876 (22,26)	20
SDA09H0BD	9	.978 (24,84)	15
SDA10H0BD	10	1.076 (27,34)	15
SDA12H0BD	12	1.279 (32,50)	14

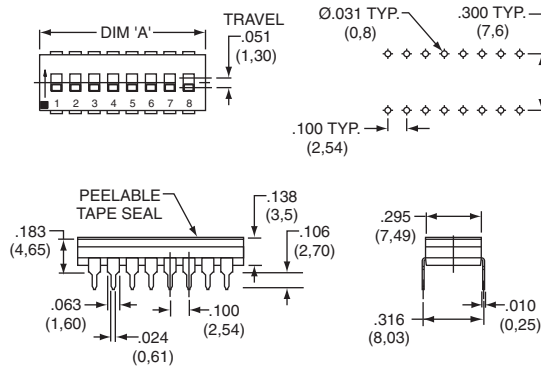
Schematic

SPST

Flush Actuator – With Top Tape, Thru-hole Terminals



SDA08H0B



NOTE: SDA 01 options are 4,25mm thick

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H0B	1	.178 (4,52)	100
SDA02H0B	2	.278 (7,06)	60
SDA03H0B	3	.378 (9,60)	45
SDA04H0B	4	.476 (12,10)	35
SDA05H0B	5	.578 (14,68)	30
SDA06H0B	6	.676 (17,18)	25
SDA07H0B	7	.778 (19,76)	20
SDA08H0B	8	.876 (22,26)	20
SDA09H0B	9	.978 (24,84)	15
SDA10H0B	10	1.076 (27,34)	15
SDA12H0B	12	1.279 (32,50)	14

Schematic

SPST



Third Angle Projection



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

SDA Series Low Profile DIP Switches

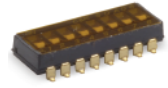
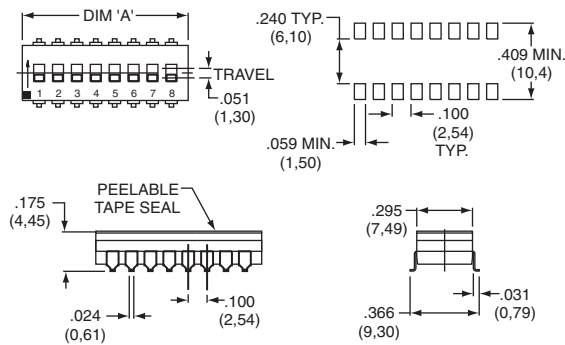


Flush Actuator – With Top Tape, Surface Mount Terminals

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H0SB	1	.178 (4,52)	100
SDA02H0SB	2	.278 (7,06)	60
SDA03H0SB	3	.378 (9,60)	45
SDA04H0SB	4	.476 (12,10)	35
SDA05H0SB	5	.578 (14,68)	30
SDA06H0SB	6	.676 (17,18)	25
SDA07H0SB	7	.778 (19,76)	20
SDA08H0SB	8	.876 (22,26)	20
SDA09H0SB	9	.978 (24,84)	15
SDA10H0SB	10	1.076 (27,34)	15
SDA12H0SB	12	1.279 (32,50)	14

Schematic

SPST



SDA08H0SB

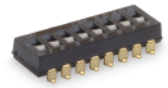
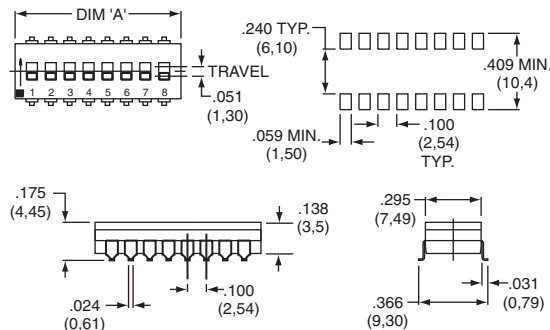
NOTE: SDA 01 options are 4,25mm thick

Flush Actuator – No Tape, Surface Mount Terminals

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H0SBD	1	.178 (4,52)	100
SDA02H0SBD	2	.278 (7,06)	60
SDA03H0SBD	3	.378 (9,60)	45
SDA04H0SBD	4	.476 (12,10)	35
SDA05H0SBD	5	.578 (14,68)	30
SDA06H0SBD	6	.676 (17,18)	25
SDA07H0SBD	7	.778 (19,76)	20
SDA08H0SBD	8	.876 (22,26)	20
SDA09H0SBD	9	.978 (24,84)	15
SDA10H0SBD	10	1.076 (27,34)	15
SDA12H0SBD	12	1.279 (32,50)	14

Schematic

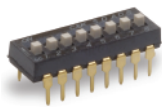
SPST



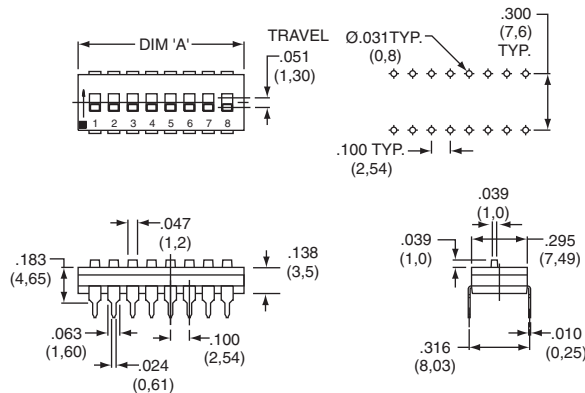
SDA08H0SBD

NOTE: SDA 01 options are 4,25mm thick

Extended Actuator – No Top Tape, Thru-hole Terminals



SDA08H1BD



NOTE: SDA 01 options are 4,25mm thick

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H1BD	1	.178 (4,52)	100
SDA02H1BD	2	.278 (7,06)	60
SDA03H1BD	3	.378 (9,60)	45
SDA04H1BD	4	.476 (12,10)	35
SDA05H1BD	5	.578 (14,68)	30
SDA06H1BD	6	.676 (17,18)	25
SDA07H1BD	7	.778 (19,76)	20
SDA08H1BD	8	.876 (22,26)	20
SDA09H1BD	9	.978 (24,84)	15
SDA10H1BD	10	1.076 (27,34)	15
SDA12H1BD	12	1.279 (32,50)	14

Schematic

SPST

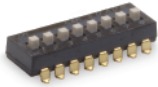


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

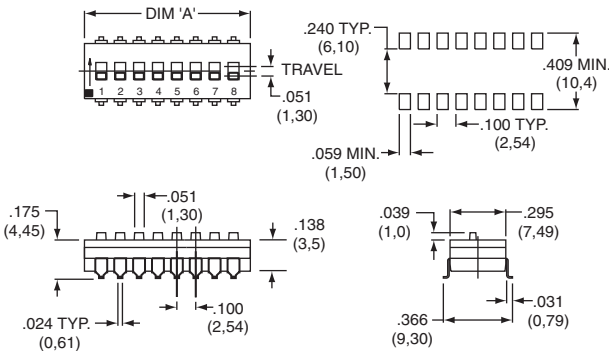


SDA Series Low Profile DIP Switches

Extended Actuator – No Top Tape, Surface Mount Terminals



SDA08H1SBD



NOTE: SDA 01 options are 4,25mm thick

ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SDA01H1SBD	1	.178 (4,52)	100
SDA02H1SBD	2	.278 (7,06)	60
SDA03H1SBD	3	.378 (9,60)	45
SDA04H1SBD	4	.476 (12,10)	35
SDA05H1SBD	5	.578 (14,68)	30
SDA06H1SBD	6	.676 (17,18)	25
SDA07H1SBD	7	.778 (19,76)	20
SDA08H1SBD	8	.876 (22,26)	20
SDA09H1SBD	9	.978 (24,84)	15
SDA10H1SBD	10	1.076 (27,34)	15
SDA12H1SBD	12	1.279 (32,50)	14

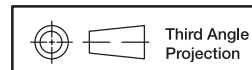
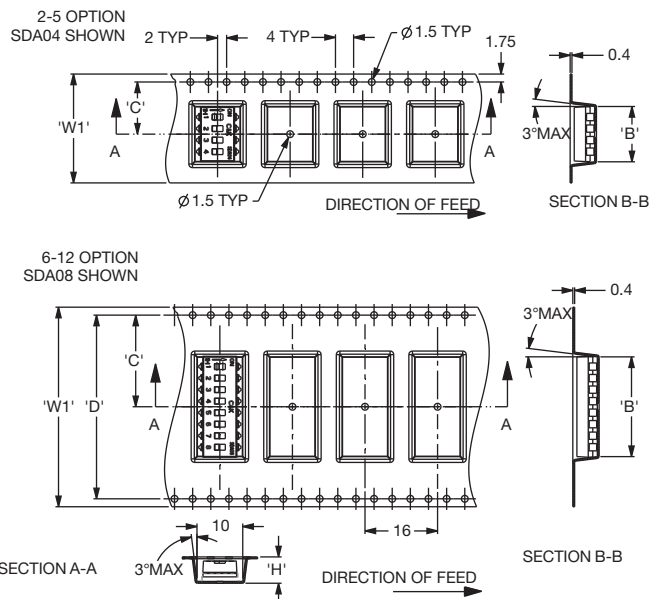
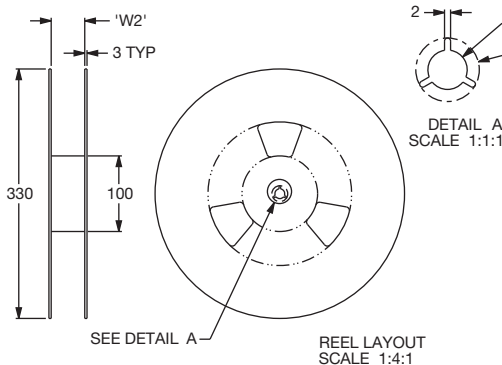
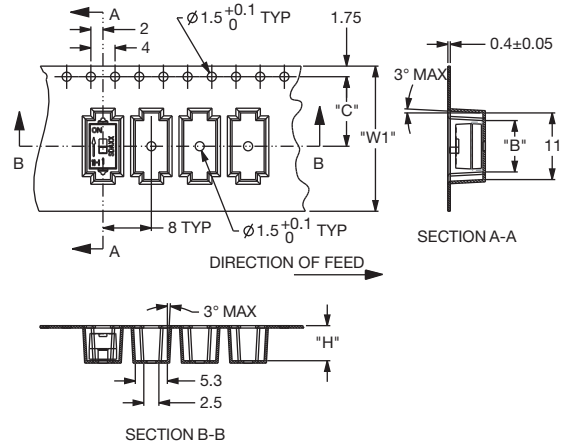
Schematic

SPST

Tape & Reel Packaging – Surface Mount Options only

MODEL NO. 'S' OPTION	DIM. 'H' (REF.)	DIM. 'W1' (REF.)	DIM. 'W2' (REF.)	DIM. 'B' (REF.)	DIM. 'C' (REF.)	DIM. 'D' (REF.)	QUANTITY PER REEL	
SDA01	H0	5.2	24.0	24.4	8.5	11.5	1500	
	H1	5.8					1450	
SDA02	H0	4.8	24.0	24.4	7.9	11.5	750	
	H1	5.8					700	
SDA03	H0	4.8	24.0	24.4	10.4	11.5	750	
	H1	5.8					700	
SDA04	H0	4.8	24.0	24.4	12.9	11.5	750	
	H1	5.8					700	
SDA05	H0	4.8	24.0	24.4	15.4	11.5	750	
	H1	5.8					700	
SDA06	H0	4.8	32.0	32.4	18.0	14.2	28.4	750
	H1	5.8					700	
SDA07	H0	4.8	32.0	32.4	20.5	14.2	28.4	750
	H1		NOT CURRENTLY AVAILABLE IN TAPE AND REEL					
SDA08	H0	4.8	44.0	44.4	22.7	20.2	40.4	750
	H1	5.8					700	
SDA09	H0	4.8	44.0	44.4	25.5	20.2	40.4	750
	H1	5.8					700	
SDA10	H0	4.8	44.0	44.0	28.1	20.2	40.4	750
	H1	5.8					700	
SDA12	H0	4.8	44.0	44.4	33.2	20.2	40.4	750
	H1		NOT CURRENTLY AVAILABLE IN TAPE AND REEL					

SDA01H1SBD OPTION SHOWN



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

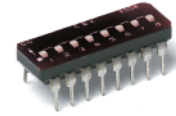


SD Series Low Profile DIP Switches



H

DIP



Features/Benefits

- Low profile design saves space
- Thru-hole and surface mount models
- Tape and reel packaging available
- Sealed with top tape
- RoHS compliant

Typical Applications

- Address switch for industrial controls
- Logic switching for computers and peripherals
- Function controlling for numerous applications

Specifications

SWITCH FUNCTION: SPST - 2, 3, 4, 5, 6, 7, 8, 9, 10 & 12 positions

CONTACT RATING:

Carry: 100 mA @ 50 V DC max.

Switch: 0.1 mA @ 5 V DC min to 100 mA @ 25 V DC max.

MECHANICAL AND ELECTRICAL LIFE: 2,000 make-and-break cycles at full load, each circuit.

CONTACT RESISTANCE: Below 50 milliohms typ. initial @ 2-4 V DC, 100mA.

INSULATION RESISTANCE: 10⁹ ohms min.

DIELECTRIC STRENGTH: 500 V RMS min. @ sea level between adjacent terminals.

STORAGE TEMPERATURE: -40°C to 85°C.

OPERATING TEMPERATURE: -40°C to 85°C.

OPERATING FORCE: 100-700g initial.

PACKAGING: Thru-hole switches supplied in rigid dispensing tubes in full-tube quantities only: this may effect order quantity. Surface mount switches available in tape and reel packaging by added 'R' to end of part number; 1,000 pieces per reel. Switch position 1 denotes pin number 1. All switch actuators in 'OFF' position, standard.

Materials

CASE & COVER: (PPA), flame retardant (UL 94V-0)

ACTUATOR: Nylon, flame retardant (UL 94V-0)

CONTACTS: BeCu with gold plate.

TERMINALS: Bright tin-plated brass.

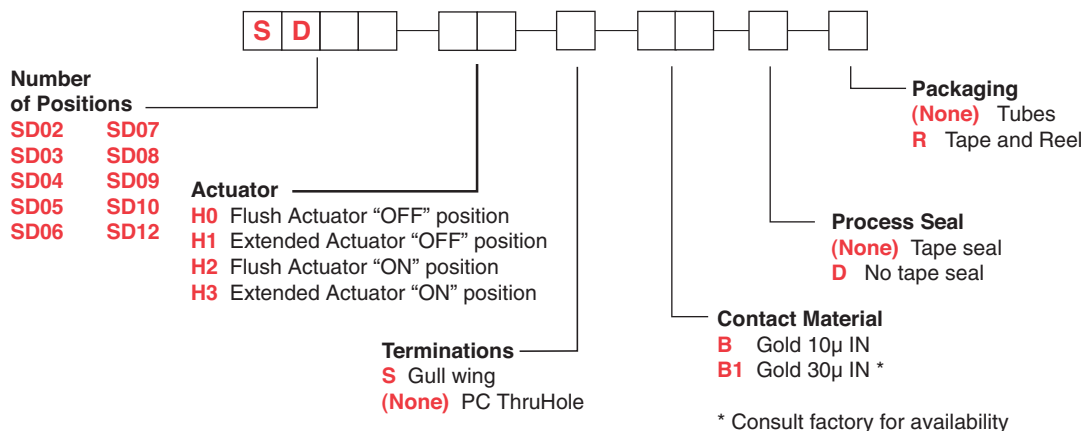
TERMINAL SEAL: All terminals insert molded.

TAPE SEAL: Polyimide.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.



Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



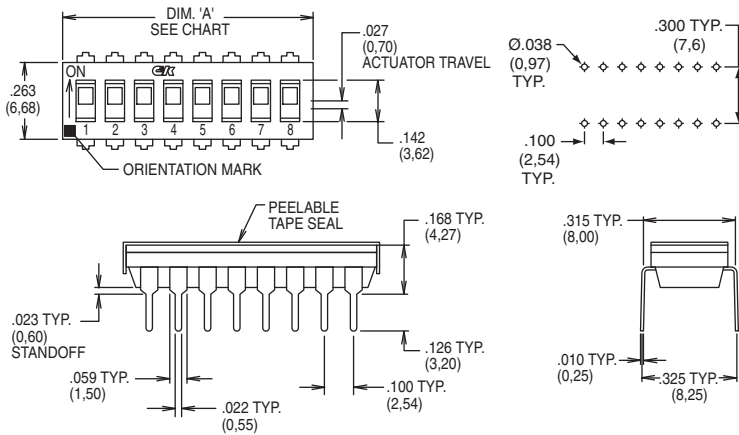
SD Series Low Profile DIP Switches



DIP

Sealed Flush Actuator – With Top Tape, Thru-hole Terminals

Process sealed - withstands soldering and cleaning processes



ROHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SD02H0B	2	.258 (6,55)	85
SD03H0B	3	.358 (9,09)	60
SD04H0B	4	.458 (11,63)	45
SD05H0B	5	.558 (14,17)	40
SD06H0B	6	.658 (16,71)	30
SD07H0B	7	.758 (19,25)	25
SD08H0B	8	.858 (21,79)	25
SD09H0B	9	.958 (24,33)	20
SD10H0B	10	1.058 (26,87)	20
SD12H0B	12	1.258 (31,95)	15

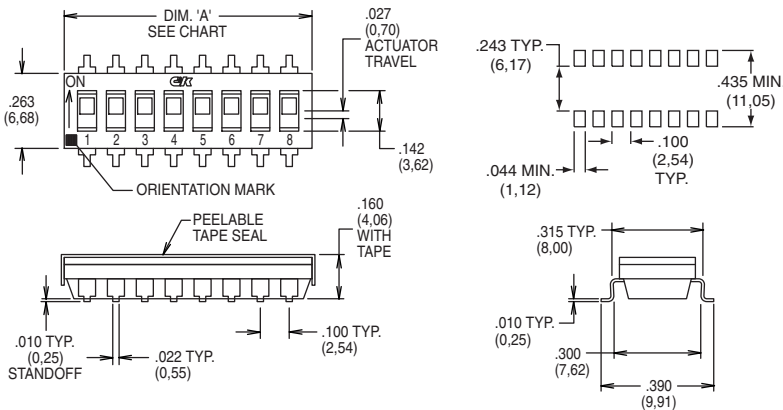
Schematic



SPST

Table applicable to "H0" and "H2" actuator options.

Sealed Flush Actuator – With Top Tape, Surface Mount Terminals



RoHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SD02H0SB	2	.258 (6,55)	85
SD03H0SB	3	.358 (9,09)	60
SD04H0SB	4	.458 (11,63)	45
SD05H0SB	5	.558 (14,17)	40
SD06H0SB	6	.658 (16,71)	30
SD07H0SB	7	.758 (19,25)	25
SD08H0SB	8	.858 (21,79)	25
SD09H0SB	9	.958 (24,33)	20
SD10H0SB	10	1.058 (26,87)	20
SD12H0SB	12	1.258 (31,95)	15

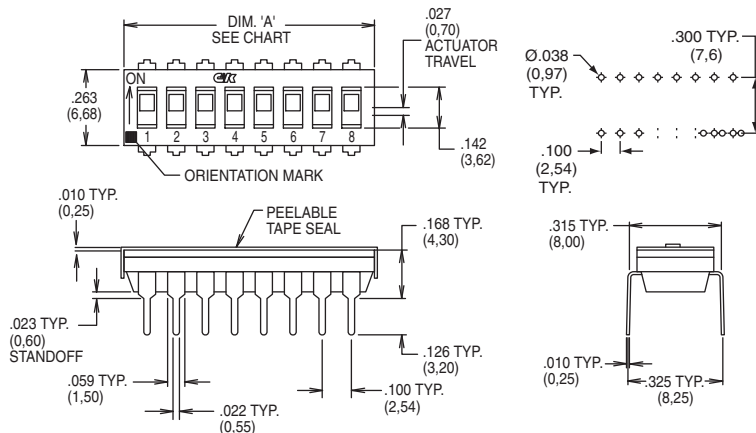
Schematic



SPST

Table applicable to "H0" and "H2" actuator options.

Sealed Extended Actuator – With Top Tape, Thru-hole Terminals



RoHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SD02H1B	2	.258 (6,55)	85
SD03H1B	3	.358 (9,09)	60
SD04H1B	4	.458 (11,63)	45
SD05H1B	5	.558 (14,17)	40
SD06H1B	6	.658 (16,71)	30
SD07H1B	7	.758 (19,25)	25
SD08H1B	8	.858 (21,79)	25
SD09H1B	9	.958 (24,33)	20
SD10H1B	10	1.058 (26,87)	20
SD12H1B	12	1.258 (31,95)	15

Schematic



SPST

Table applicable to "H1" and "H3" actuator options.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



SD Series Low Profile DIP Switches

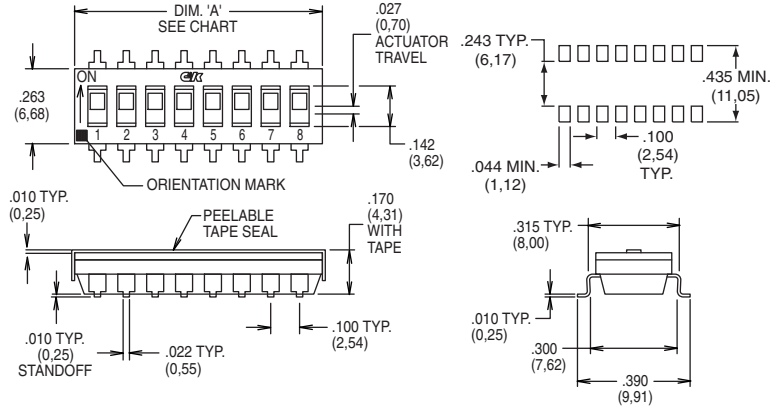


Sealed Extended Actuator – With Top Tape, Surface Mount Terminals

RoHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER TUBE
SD02H1SB	2	.258 (6,55)	85
SD03H1SB	3	.358 (9,09)	60
SD04H1SB	4	.458 (11,63)	45
SD05H1SB	5	.558 (14,17)	40
SD06H1SB	6	.658 (16,71)	30
SD07H1SB	7	.758 (19,25)	25
SD08H1SB	8	.858 (21,79)	25
SD09H1SB	9	.958 (24,33)	20
SD10H1SB	10	1.058 (26,87)	20
SD12H1SB	12	1.258 (31,95)	15



Table applicable to "H1" and "H3" actuator options.

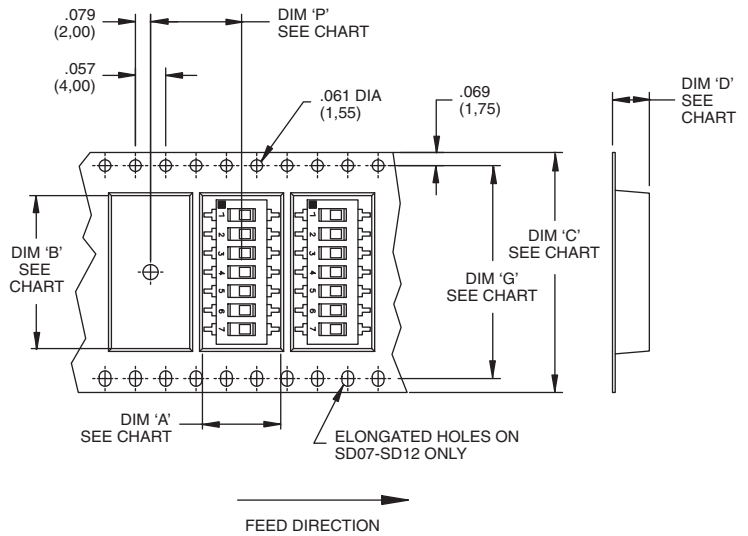


TAPE & REEL PACKAGING – SURFACE MOUNT OPTIONS ONLY

RoHS PART NUMBER	NO. POS.	DIM. 'A'	QUANTITY PER REEL
SD02H0SBR	2	.258 (6,55)	1000
SD03H0SBR	3	.358 (9,09)	1000
SD04H0SBR	4	.458 (11,63)	1000
SD05H0SBR	5	.558 (14,17)	1000
SD06H0SBR	6	.658 (16,71)	1000
SD07H0SBR	7	.758 (19,25)	1000
SD08H0SBR	8	.858 (21,79)	1000
SD09H0SBR	9	.958 (24,33)	1000
SD10H0SBR	10	1.058 (26,87)	1000
SD12H0SBR	12	1.258 (31,95)	1000



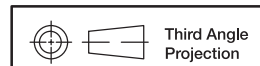
Table applicable to "H0" and "H2" actuator options.



SWITCH NO.	DIM 'A' POCKET LENGTH @ BOTTOM	DIM 'B' POCKET LENGTH @ BOTTOM	DIM 'C' TAPE WIDTH	DIM 'D' POCKET DEPTH	DIM 'G' SPROCKET HOLE SPACING	DIM 'P' PITCH BETWEEN POCKETS
SD02	.413(10,5)	.315(8,0)	.630(16,0)	.177(4,5)	N/A	.472(12,0)
SD03	.406(10,3)	.406(10,3)	.630(16,0)	.177(4,5)	N/A	.472(12,0)
SD04	.429(10,9)	.476(12,1)	.954(24,0)	.177(4,5)	N/A	.472(12,0)
SD05	.406(10,3)	.602(15,3)	.954(24,0)	.177(4,5)	N/A	.472(12,0)
SD06	.406(10,3)	.701(17,8)	.954(24,0)	.177(4,5)	N/A	.472(12,0)
SD07	.406(10,3)	.803(20,4)	1.260(32,0)	.177(4,5)	1.118(28,4)	.472(12,0)
SD08	.406(10,3)	.854(21,7)	1.732(44,0)	.177(4,5)	1.591(40,4)	.472(12,0)
SD09	.406(10,3)	1.028(26,1)	1.732(44,0)	.177(4,5)	1.591(40,4)	.472(12,0)
SD10	.406(10,3)	1.055(26,8)	1.732(44,0)	.177(4,5)	1.591(40,4)	.472(12,0)
SD12	.406(10,3)	1.303(33,1)	1.732(44,0)	.177(4,5)	1.591(40,4)	.472(12,0)

Reel Information

Outside diameter 13.00 (333,0)
Pilot hole .512 (13,0)



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

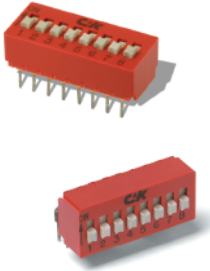


BD Series Standard Profile DIP Switches



H

DIP



Features/Benefits

- Traditional full profile DIP switch
- Extended actuator for easy actuation
- Open bottom construction allows for solder washing without the need for tape seal
- RoHS compliant

Typical Applications

- Address switch for industrial controls
- Logic switching for computers and peripherals
- Function controlling for numerous applications

Specifications

SWITCH FUNCTION: SPST - 1 thru 12 position available (except 11 position).

CONTACT RATING:

Carry: 100 mA max. @ 50 V DC.

Switch: 100 mA max. @ 5 V DC or 25 mA max. @ 25 V DC.

MECHANICAL AND ELECTRICAL LIFE: 10,000 make-and-break cycles at full load, each circuit.

CONTACT RESISTANCE: Below 50 milliohms typ. initial

@ 2-4 V DC 100mA.

INSULATION RESISTANCE: 10⁹ ohms min.

DIELECTRIC STRENGTH: 500 V RMS min. @ sea level between adjacent terminals.

CAPACITANCE: 5pF max. between adjacent terminals.

STORAGE & OPERATING TEMPERATURE: -40°C to 85°C.

SHOCK: Withstands 20g 11 ms sawtooth waveform with no contact opening greater than 10 microseconds.

VIBRATION: No contact opening greater than 10 microseconds and no contact closure when exposed to vibration .06 in DA or 5g, whichever is less, from 10 to 55 Hz, and 10g from 55 to 500 Hz.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: Switches supplied in rigid dispensing tubes in full-tube quantities only: this may effect order quantity. Number of switches per tube varies with model. Switch position 1 denotes pin number 1. All switch actuators in 'OFF' position, standard.

Materials

CASE & COVER: Glass filled polyester (PBT), flame retardant (UL 94V-0).

ACTUATOR: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)

CONTACTS: Gold over nickel over phosphor bronze.

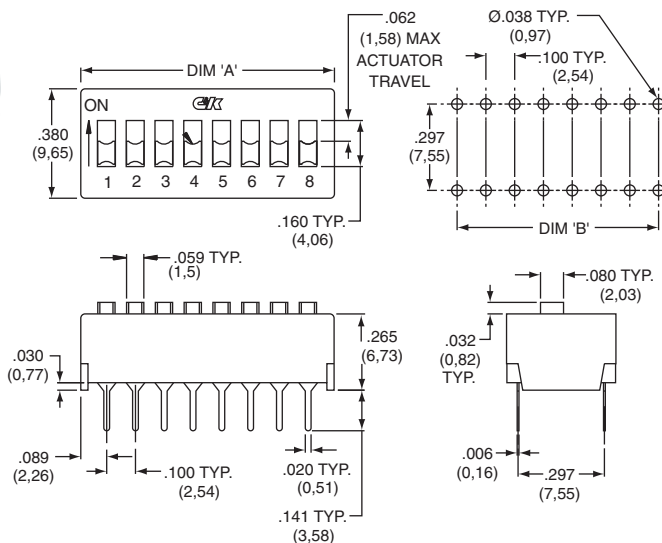
TERMINALS: Matte-tin over nickel over phosphor bronze.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Vertical Full Profile DIP



BD08



PART NUMBER	NO.POS.	DIM. 'A'	DIM. 'B'	QUANTITY PER TUBE
BD01	1	.180 (4,57)	NA	115
BD02	2	.280 (7,11)	.100 (2,54)	74
BD03	3	.380 (9,65)	.200 (5,08)	54
BD04	4	.480 (12,19)	.300 (7,62)	43
BD05	5	.580 (14,73)	.400 (10,16)	35
BD06	6	.680 (17,27)	.500 (12,75)	30
BD07	7	.780 (19,81)	.600 (15,24)	26
BD08	8	.880 (22,35)	.700 (17,78)	23
BD09	9	.980 (24,89)	.800 (20,32)	21
BD10	10	1.080 (27,43)	.900 (22,86)	19
BD12	12	1.280 (32,51)	1.100 (27,94)	16

Schematic

SPST



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



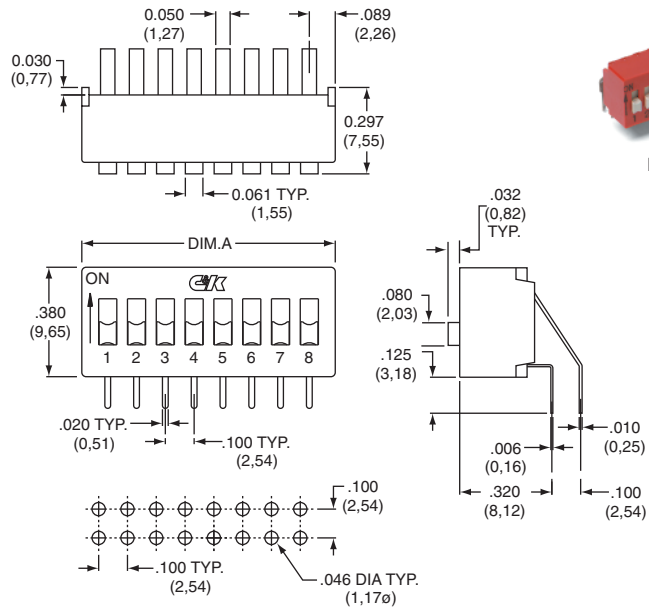
BD Series Standard Profile DIP Switches

Open Base and AV Right Angle Terminal Style

PART NUMBER	NO.POS.	DIM. 'A'	QUANTITY PER TUBE
BD02AV	2	.280 (7,11)	72
BD03AV	3	.380 (9,65)	52
BD04AV	4	.480 (12,19)	42
BD05AV	5	.580 (14,73)	35
BD06AV	6	.680 (17,27)	29
BD07AV	7	.780 (19,81)	26
BD08AV	8	.880 (22,35)	23
BD09AV	9	.980 (24,89)	20
BD10AV	10	1.080 (27,43)	18
BD12AV	12	1.280 (32,51)	15

Schematic

SPST



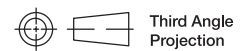
H

DIP

Installation, Soldering and Cleaning

All BD Series Standard Profile DIP Switches can be hand soldered or machine soldered without the use of boot, caps, tapes or special attention. Open base washable models have unique design, allowing solvent cleaners and water/detergent solutions to flush and clean the electrical contacts of the contaminants and fluxes. For best results, follow these directions:

- 1) Wave soldering recommended at 500° F (260°C) solder temperature.
- 2) Hand solder using 30 watt small tip iron controlled at 500° F (260°C), 10 seconds max./terminal.
- 3) Open base washable models: Clean flux using forced rinse, high agitation or triple bath cleaning method.
DO NOT mask or cover switch in any way during cleaning. Switch is designed for easy solvent flush out.
- 4) All switch actuators must be in 'OFF' position during soldering and cleaning processes.



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

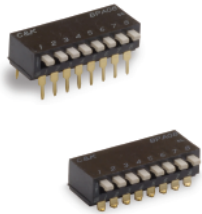


BPA Series Side Actuated DIP Switches

10
9
8
7
6
5
4
3
2
1

H

DIP



Features/Benefits

- Side actuated contacts
- Available in thru-hole or SMT models
- High pressure contact system does not require tape seal for washing
- RoHS compliant & compatible

Typical Applications

- Address switch for industrial controls
- Logic switching for computers and peripherals
- Function controlling for numerous applications

Specifications

SWITCH FUNCTION: 1 thru 10 and 12 position available.
 CONTACT RATING: 100 mA max. @ 5 V DC or 25 mA max. @ 24 V DC.
 MECHANICAL AND ELECTRICAL LIFE: 1,000 cycles min. @ 5 V DC 10mA.
 CONTACT RESISTANCE: 50 milliohms initial max.
 INSULATION RESISTANCE: 100 V DC 100 megohms min.
 DIELECTRIC WITHSTAND VOLTAGE: 300 V AC for 1 minute.
 STORAGE TEMPERATURE: -40°C to 85°C.
 OPERATING TEMPERATURE: -20°C to 85°C.
 OPERATING FORCE: 800 grams max.
 SOLDERABILITY: Flow solderable and washable (soldering: 260°C for 10 sec. max.)

PACKAGING: Switches supplied in rigid dispensing tubes in full-tube quantities only, this may affect order quantity. Numbers of switches per tube varies with model. Tape and reel packaging available for SMT options.

Materials

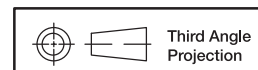
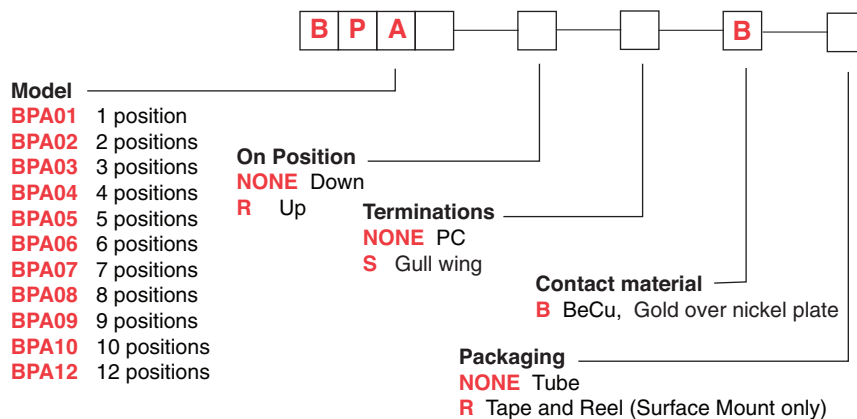
HOUSING: PPS, color black (UL94V-0).
 COVER: PPS, color black (UL94V-0).
 ACTUATOR: PA-6T UL94V-0).
 CONTACTS: Beryllium Copper with Gold over Nickel plate.
 TERMINALS: Brass, Gold over Nickel plate.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position.



Dimensions are shown: Inch (mm)

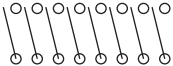
Specifications and dimensions subject to change



BPA Series Side Actuated DIP Switches

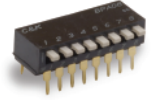
Side Actuator – Thru-hole Terminals

ROHS PART NUMBER	NO. POS.	DIM. 'A'	DIM. 'B'	QUANTITY PER TUBE
BPA01B	1	.176 (4,48)	N/A	100
BPA02B	2	.276 (7,0)	.100 (2,54)	60
BPA03B	3	.376 (9,6)	.200 (5,08)	45
BPA04B	4	.476 (12,1)	.300 (7,62)	35
BPA05B	5	.575 (14,6)	.400 (10,16)	30
BPA06B	6	.677 (17,2)	.500 (12,70)	25
BPA07B	7	.776 (19,7)	.600 (15,24)	20
BPA08B	8	.878 (22,3)	.700 (17,78)	20
BPA09B	9	.976 (24,8)	.800 (20,32)	15
BPA10B	10	1.075 (27,3)	.900 (22,86)	15
BPA12B	12	1.280 (32,5)	1.100 (27,94)	14

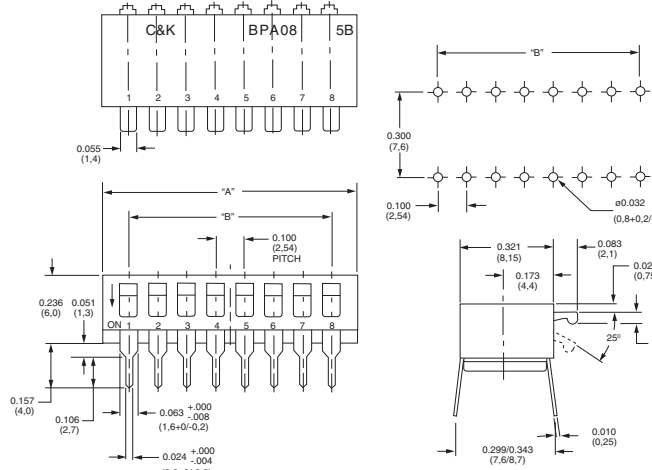
Schematic 

SPST

NOTE: Reverse throw available, contact C&K for P/N and quote.

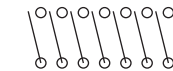


BPA08B



Side Actuator – Surface Mount Terminals

ROHS PART NUMBER	NO. POS.	DIM. 'A'	DIM. 'B'	QUANTITY PER TUBE
BPA01SB	1	.176 (4,48)	N/A	100
BPA02SB	2	.276 (7,0)	.100 (2,54)	60
BPA03SB	3	.376 (9,6)	.200 (5,08)	45
BPA04SB	4	.476 (12,1)	.300 (7,62)	35
BPA05SB	5	.575 (14,6)	.400 (10,16)	30
BPA06SB	6	.677 (17,2)	.500 (12,70)	25
BPA07SB	7	.776 (19,7)	.600 (15,24)	20
BPA08SB	8	.878 (22,3)	.700 (17,78)	20
BPA09SB	9	.976 (24,8)	.800 (20,32)	15
BPA10SB	10	1.075 (27,3)	.900 (22,86)	15
BPA12SB	12	1.280 (32,5)	1.100 (27,94)	14

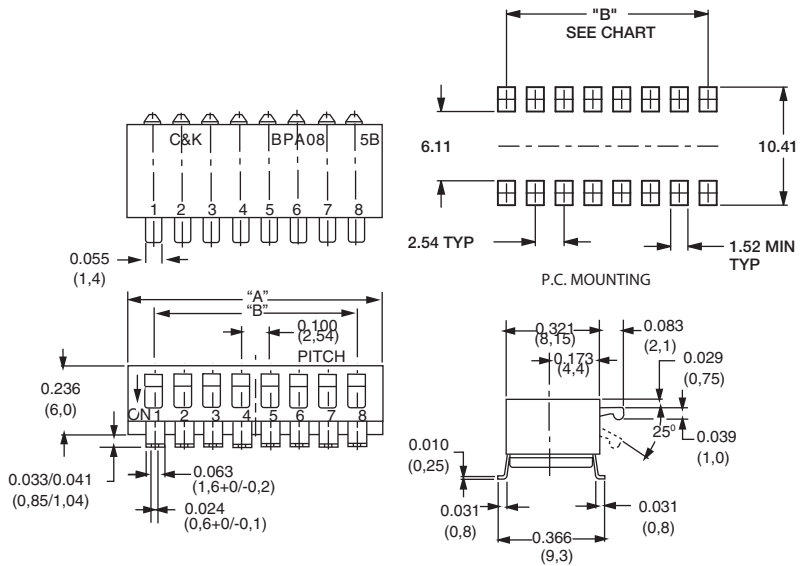
Schematic 

SPST

NOTE: Tape and reel packaging available by adding "R" to end of project number.



BPA08SB



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

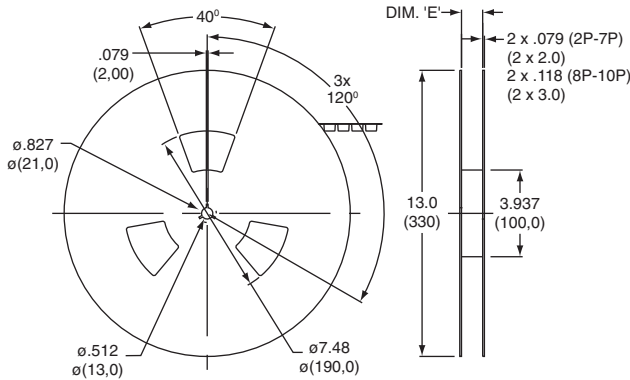


BPA Series Side Actuated DIP Switches

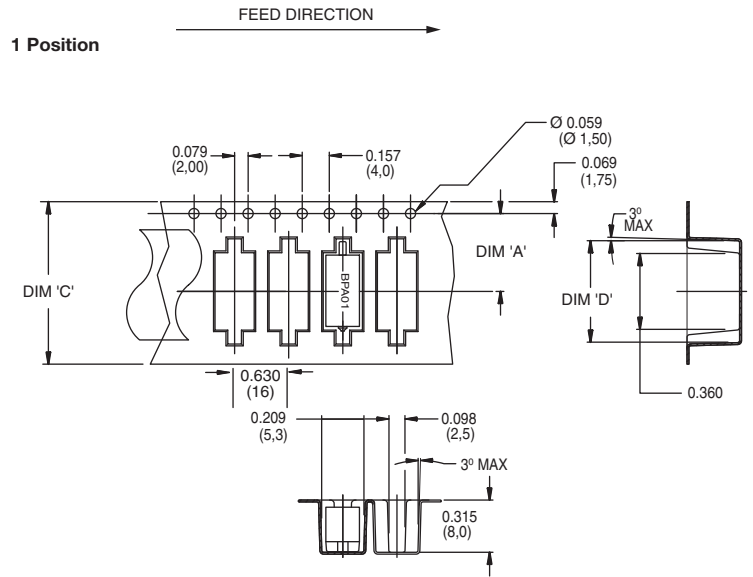
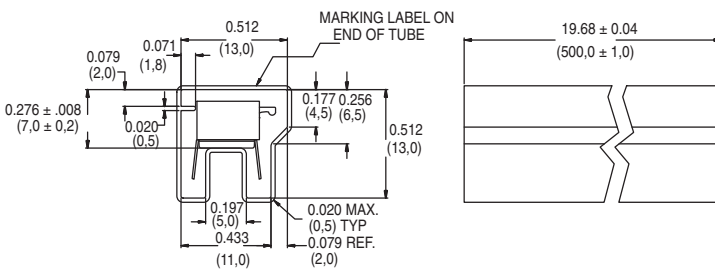
Tape & Reel Packaging – Surface Mount Options Only

QTY/ REEL	POLES	DIM. 'A'	DIM. 'B'	DIM. 'C'	DIM. 'D'	DIM. 'E'
500	1	.453 (11,5)	—	.945 (24,0)	.530 (13,45)	.960 (24,4)
500	2	.453 (11,5)	—	.945 (24,0)	.311 (7,9)	.960 (24,4)
500	3	.453 (11,5)	—	.945 (24,0)	.409 (10,4)	.960 (24,4)
500	4	.453 (11,5)	—	.945 (24,0)	.508 (12,9)	.960 (24,4)
500	5	.453 (11,5)	—	.945 (24,0)	.606 (15,4)	.960 (24,4)
500	6	.559 (14,2)	1.118 (28,4)	1.260 (32,0)	.709 (18,0)	1.275 (32,4)
500	7	.559 (14,2)	1.118 (28,4)	1.260 (32,0)	.807 (20,5)	1.275 (32,4)
500	8	.795 (20,2)	1.590 (40,4)	1.732 (44,0)	.894 (22,7)	1.748 (44,4)
500	9	.795 (20,2)	1.590 (40,4)	1.732 (44,0)	1.004 (25,5)	1.748 (44,4)
500	10	.795 (20,2)	1.590 (40,4)	1.732 (44,0)	1.106 (28,1)	1.748 (44,4)
500	12	.795 (20,2)	1.590 (40,4)	1.732 (44,0)	1.311 (33,3)	1.748 (44,4)

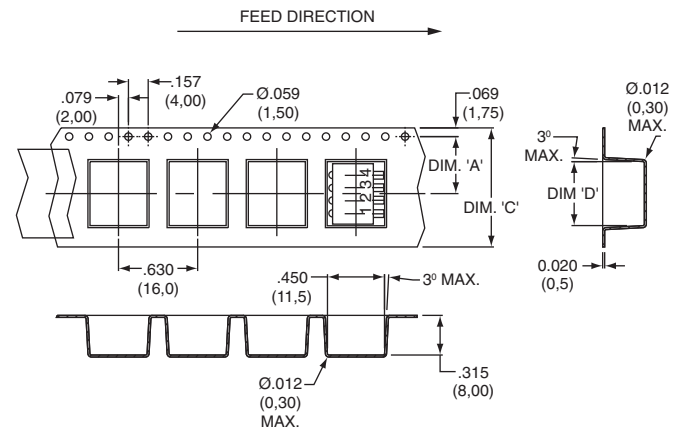
Note: For tape and reel packaging, add 'R' to end of part number.



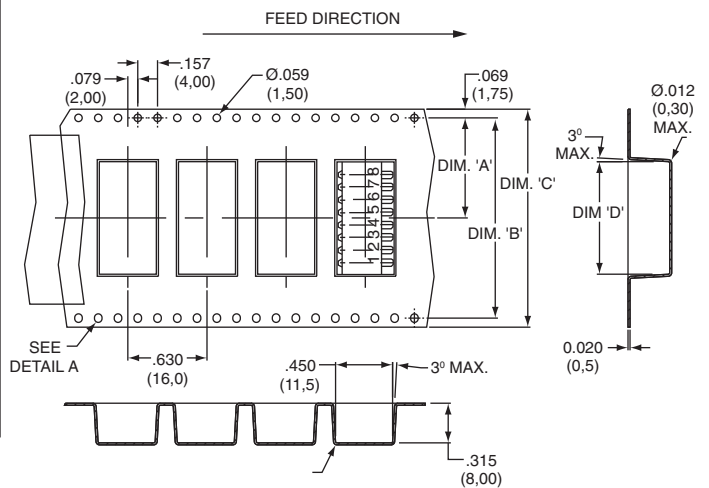
Tube Packaging



2, 3, 4 & 5 Positions



6, 7, 8, 9, 10 & 12 Positions



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TDD Series Jumper Switch



H

DIP

Features/Benefits

- **Bifurcated contact for increased electrical reliability**
- **Process sealed for surface mount soldering and washable processing**
- **RoHS compliant**

Typical Applications

- **Hand-held electronic devices**
- **Portable computer and electronic devices**
- **Instrumentation and controls**
- **Inverters**



Specifications

CONTACT RATING: 25 mA @ 24 V DC (switching) or 100 mA @ 50 V DC (steady state).

MECHANICAL AND ELECTRICAL LIFE: 200 cycles at rated loads.

CONTACT RESISTANCE: 100 mΩ max. initial. @ 2 V DC /10 mA

INSULATION RESISTANCE: 100 MΩ @ 100 V DC min.

DIELECTRIC STRENGTH: 300 V AC /minute

STORAGE TEMPERATURE: -40°C to 85°C.

OPERATING TEMPERATURE: -30°C to 85°C.

OPERATING FORCE: 4.9 N max.

SOLDERABILITY: Per MIL-STD-202F method 208D, or

EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: 1,000 pieces tape & reel

Materials

CASE AND COVER: PPS, color black (UL94V-0).

ACTUATOR: LCP (UL94-0)

CONTACTS: Copper alloy with gold plate over nickel plate

TERMINALS (INSERT MOLDED):

Copper alloy gold flash over nickel plate

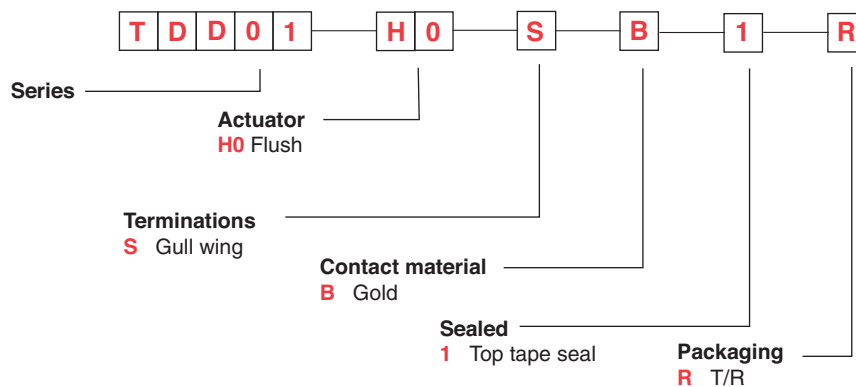
TAPE SEAL: Polyamide

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center. For Tin Lead options consult customer service center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position..



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

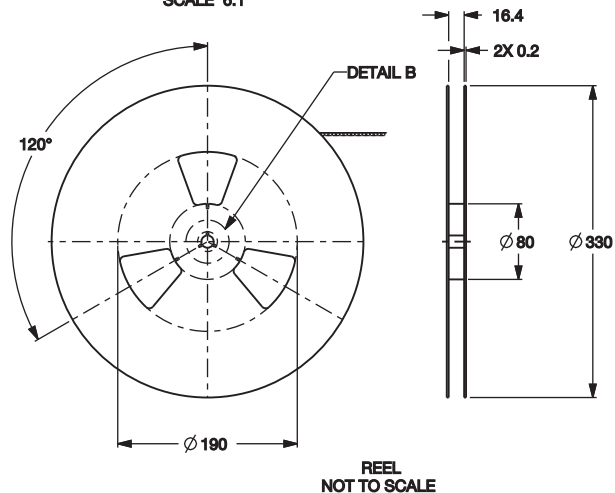
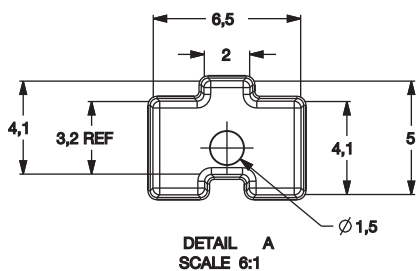
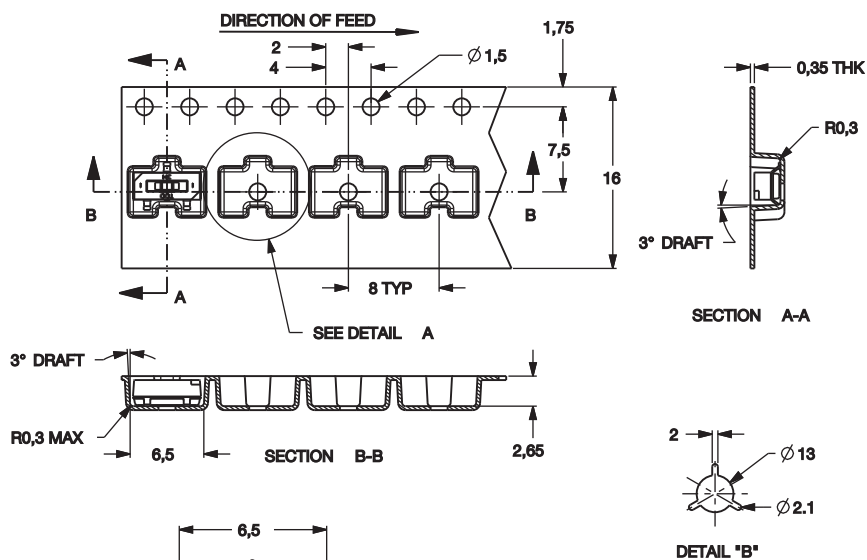
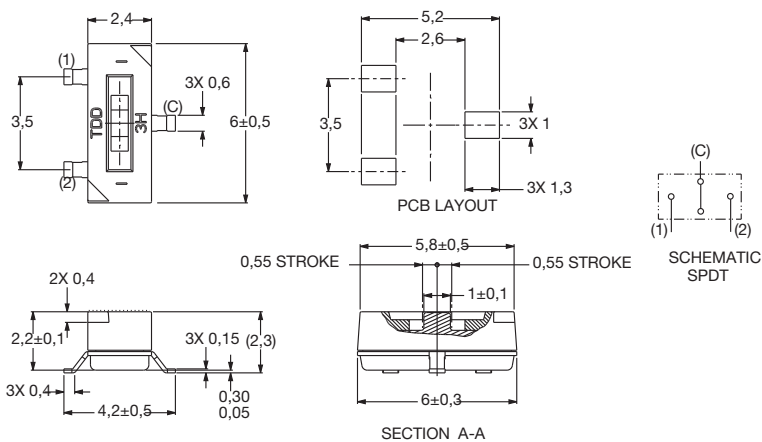


TDD Series Jumper Switch



DIP

H



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

SPA Series Single In-line Package Switches



H

DIP

Features/Benefits

- **Thin Single In-line Packaging saves PCB space**
- **Retention feature holds part to PCB prior to soldering**
- **Available in vertical or right angle models**
- **High pressure contact system does not require tape sealing**
- **RoHS compliant**

Typical Applications

- **Address switch for industrial controls**
- **Logic switching for computers and peripherals**
- **Function controlling for numerous applications**



Specifications

CONTACT RATING:

Carry: 10 mA @ 5VDC

Switching: 0.1 mA @ 0.1m VDC min.

MECHANICAL AND ELECTRICAL LIFE: 1,000 cycles min.

CONTACT RESISTANCE: 50 mΩ max. @ 20 V DC 10mA.

INSULATION RESISTANCE: 100 MΩ min. @ 100 V DC.

DIELECTRIC STRENGTH: 1 minute @ 300 V AC.

CAPACITANCE: 5pF max. between adjacent terminals.

OPERATING TEMPERATURE: -30°C to 60°C.

STORAGE TEMPERATURE: -30°C to 80°C.

OPERATING FORCE: 5.9N max.

SOLDERABILITY: Dip & look solderability testing per C&K spec. #448. Unplated edges of terminals permitted.

PACKAGING: Switches supplied in rigid dispensing tubes in full-tube quantities only, this may affect order quantity. Numbers of switches per tube varies with model.

Materials

BASE: PPS (UL94V-0).

COVER: PBT (UL94V-0).

ACTUATOR: 4/6 Nylon (UL 94V-0).

MOVABLE CONTACT: Beryllium copper alloy, gold over nickel plate.

FIXED CONTACT: Copper alloy, gold over nickel plate.

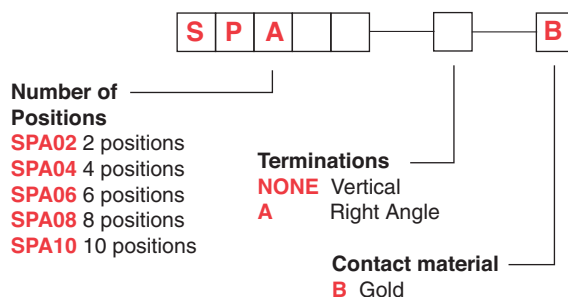
CLIP: Phosphor bronze wire. Phosphor bronze, Tin over nickel plate.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

All switches supplied in "OFF" position.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

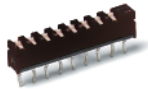
SPA Series Single In-line Package Switches

Vertical

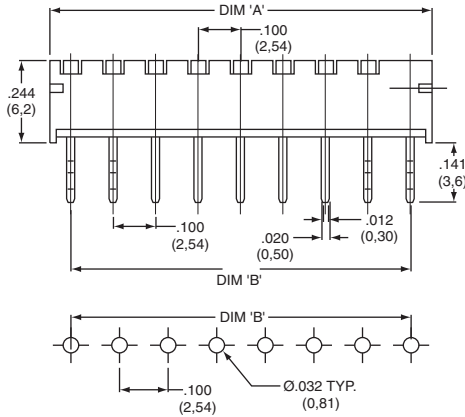
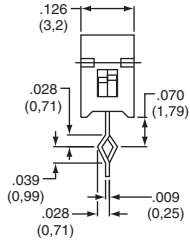


DIP

H



SPA08B



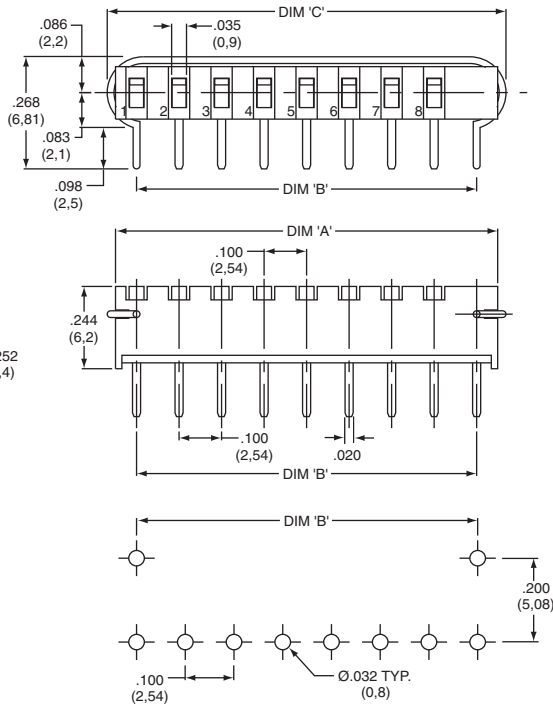
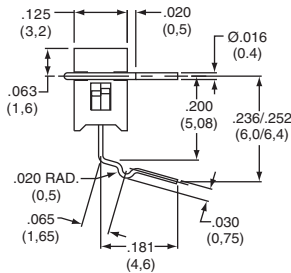
ROHS PART NUMBER	NO. POS.	DIM. 'A'	DIM. 'B'	QUANTITY PER TUBE
SPA02B	2	.342 (8,68)	.200 (5,08)	50
SPA04B	4	.542 (13,76)	.400 (10,16)	30
SPA06B	6	.742 (18,84)	.600 (15,24)	25
SPA08B	8	.942 (23,92)	.800 (20,32)	20
SPA10B	10	1.142 (29,00)	1.000 (25,40)	15

Schematic

SPST



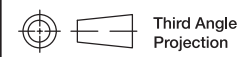
SPA08AB



ROHS PART #	NO. POS.	DIM. 'A'	DIM. 'B'	DIM. 'C'	QTY PER TUBE
SPA02AB	2	.342 (8,68)	.200 (5,08)	.339 (8,6)	50
SPA04AB	4	.542 (13,76)	.400 (10,16)	.540 (13,7)	30
SPA06AB	6	.742 (18,84)	.600 (15,24)	.736 (18,7)	25
SPA08AB	8	.942 (23,92)	.800 (20,32)	.937 (23,8)	20
SPA10AB	10	1.142 (29,00)	1.000 (25,40)	1.138 (28,9)	15

Schematic

SPST



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



RTE Series Low Profile Rotary DIP Switches

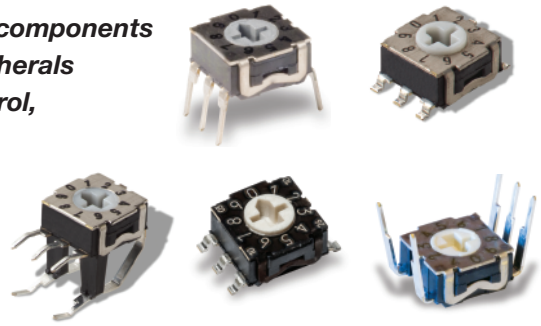


Features/Benefits

- Thru-hole and surface mount models
- Miniature size with robust metal cover in black or silver nickel finish
- 4, 10, & 16 positions
- Large choice of codings
- Vertical or reverse versions
- RoHS compliant

Typical Applications

- Timers, automation components
- Computer and peripherals
- Alarms, access control, smoke detectors
- Instrumentation



Specifications

CONTACT RATING:
Gold: 100 mA max. 10µ A min. 30 V DC max. 20 mVDC min.
MECHANICAL LIFE: 20,000 actuations
CONTACT RESISTANCE: 100 mΩ max. initial;
150 mΩ after life
INSULATION RESISTANCE: 10¹⁰ Ω min. initial
DIELECTRIC STRENGTH: 300 Vrms 1 mn
OPERATING TEMPERATURE: -25°C to 85°C.
STORAGE TEMPERATURE: -40°C to 85°C.
PACKAGING: N or R terminations in tube.
V termination in box. G termination in reel, 750 pieces per reel. G termination with flush actuator, 1250 pieces per reel.

Materials

COVER: Brass, nickel plated (black or silver)
BASE: PPS
ACTUATOR: LCP
MOVABLE CONTACTS: Bronze, gold plated.
STATIONARY CONTACTS: Brass, gold plated.
TERMINALS: See page I-28 to I-29
O-RING: Silicone

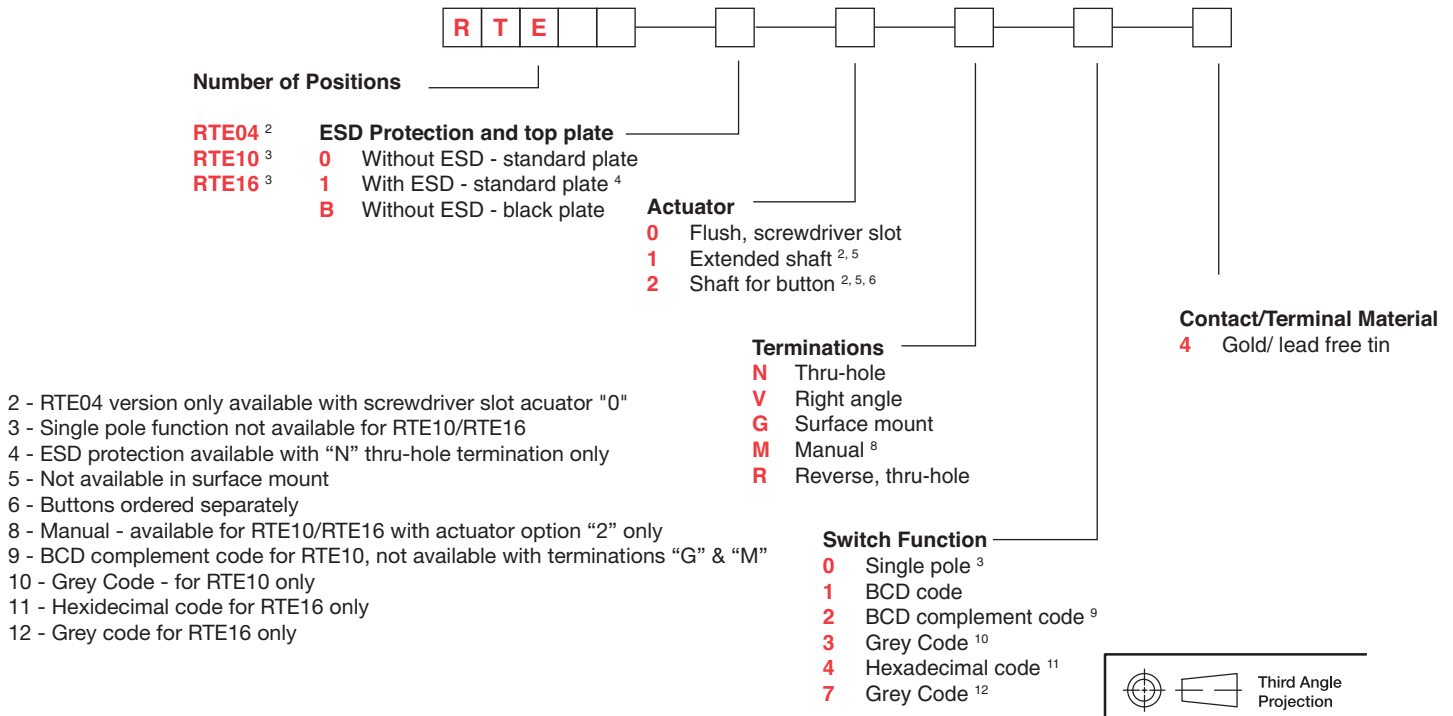
Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Solderability: Wave soldering 260°/10 s.
SMT are reflow compatible according to C&K lead free specification for SMT components PS-LF-001.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.

NOTE: Some of the configurations may not be available or could require some development.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

RTE Series Low Profile Rotary DIP Switches

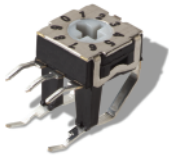
SWITCHES WITH STANDARD OPTIONS

PC Mount-Terminal Option N



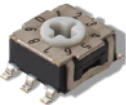
PART NUMBER WITHOUT ESD PIN	WITH ESD PIN	NO. POS.	FUNCTION	QTY PER TUBE
RTE0400N04	RTE0410N04	4	SP4T	65
RTE1000N14	RTE1010N14	10	BCD	65
RTE1600N44	RTE1610N44	16	HEXADECIMAL	65

Right Angle Mount-Terminal Option V



PART NUMBER	NO. POS.	FUNCTION	QUANTITY
RTE0400V04	4	SP4T	150 per box
RTE1000V14	10	BCD	150 per box
RTE1600V44	16	HEXADECIMAL	150 per box

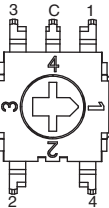
Surface Mount-Terminal Option G



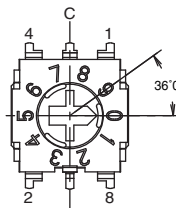
PART NUMBER	NO. POS.	FUNCTION	QUANTITY PER REEL
RTE0400G04	04	SP4T	1250
RTE1000G14	10	BCD	1250
RTE1600G44	16	HEXADECIMAL	1250

NUMBER OF POSITIONS

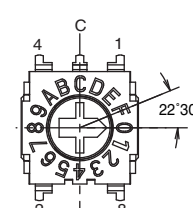
RTE04 4 POSITION



RTE10 10 POSITION



RTE16 16 POSITION



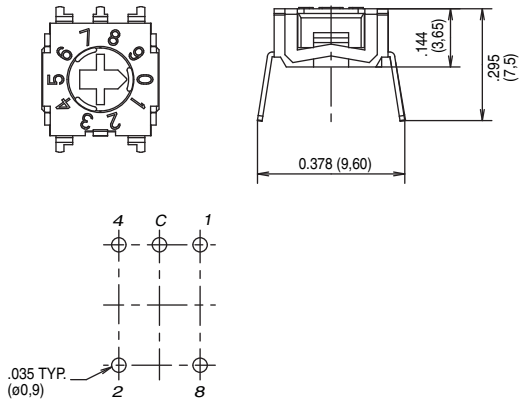
RTE Series Low Profile Rotary DIP Switches

ESD PROTECTION 

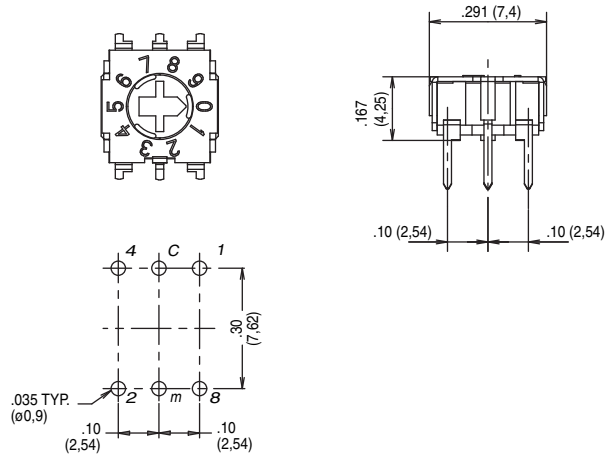


H
DIP

0 WITHOUT

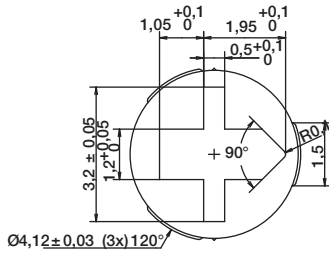


1 WITH

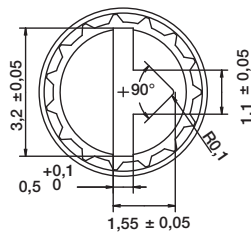


ACTUATOR 

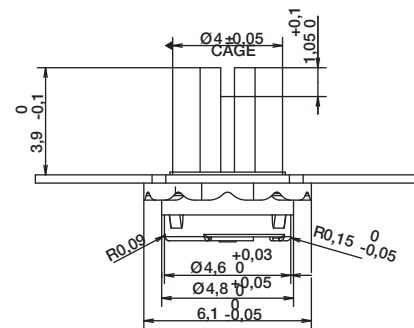
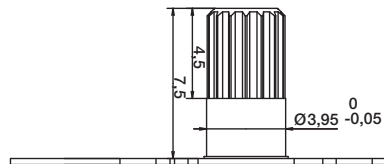
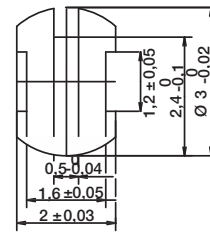
0 FLUSH, SCREWDRIVER SLOT



1 EXTENDED SHAFT
(not available in surface mount)



2 SHAFT FOR BUTTON



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

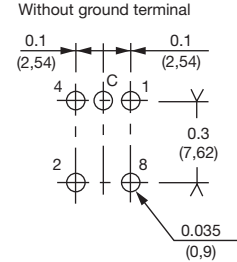
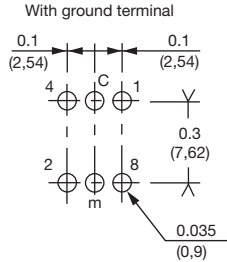
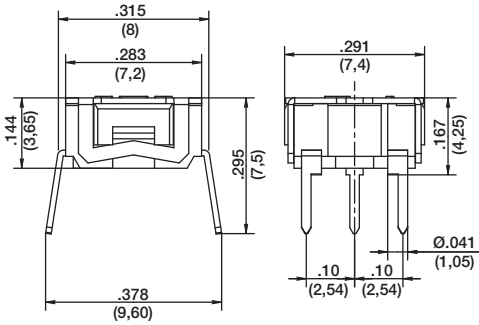
RTE Series Low Profile Rotary DIP Switches

TERMINATIONS

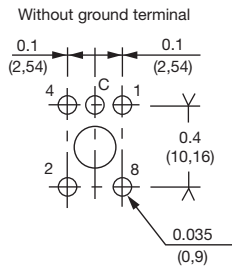
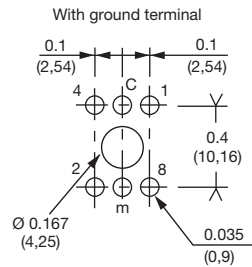
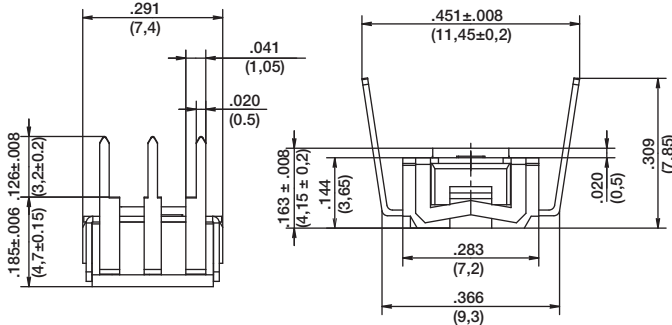


DIP H

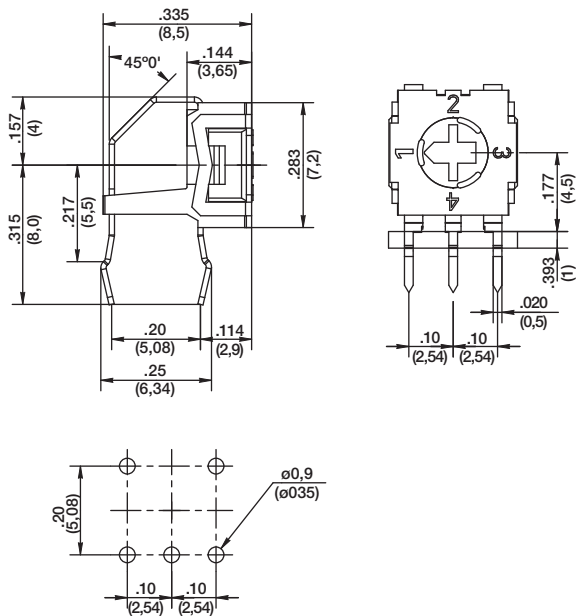
N THRU-HOLE



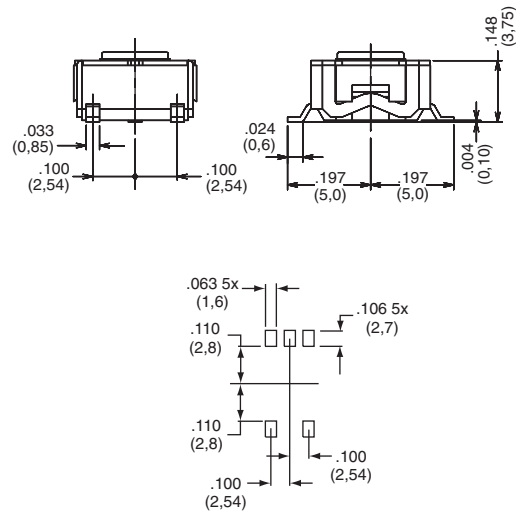
R REVERSE, THRU-HOLE



V RIGHT ANGLE, THRU-HOLE



G SURFACE MOUNT



PCB layout seen component side



Third Angle
Projection

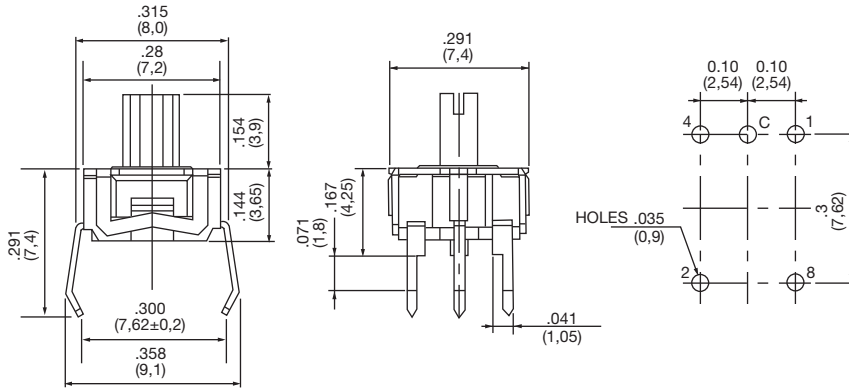


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

RTE Series Low Profile Rotary DIP Switches

TERMINATIONS

M OPTION



H

DIP

SWITCH FUNCTION

0 SINGLE POLE

POS.	1	2	3	4
C	●	●	●	●
1	●			
2		●		
3			●	
4				●

1 BCD CODE

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1		●				●				●
2			●				●			
4				●	●	●				
8								●	●	

2 BCD COMPLEMENT CODE

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1	●				●			●		●
2	●	●				●				●
4	●	●	●							●
8	●	●	●	●						●

Other codes available by request.

3 GREY CODE (for RTE10 only)

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1		●	●			●				●
2			●	●	●					
4				●	●	●	●	●	●	
8									●	●

4 HEXADECIMAL CODE

POS.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1		●		●		●		●		●		●		●		●
2			●	●			●			●		●		●		●
4				●	●	●	●			●		●		●		●
8								●	●	●	●	●	●	●	●	●

7 GREY CODE (for RTE04 only)

POS.	1	2	3	4
C	●	●	●	●
1	●			
2		●		
4			●	
8				●

(for RTE16 only)

POS.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1		●				●				●			●		●	
2			●	●			●				●		●		●	
4				●	●	●	●			●		●		●		●
8								●	●	●	●	●	●	●	●	●

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT	RoHS COMPATIBLE	CONTACT MATERIAL	TERMINAL PLATING
4	YES	YES	GOLD	LEAD FREE TIN



Third Angle Projection



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

RTE Series Low Profile Rotary DIP Switches

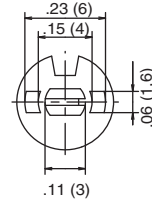
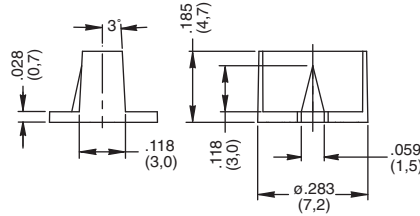
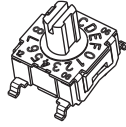


DIP H

BUTTONS AVAILABLE

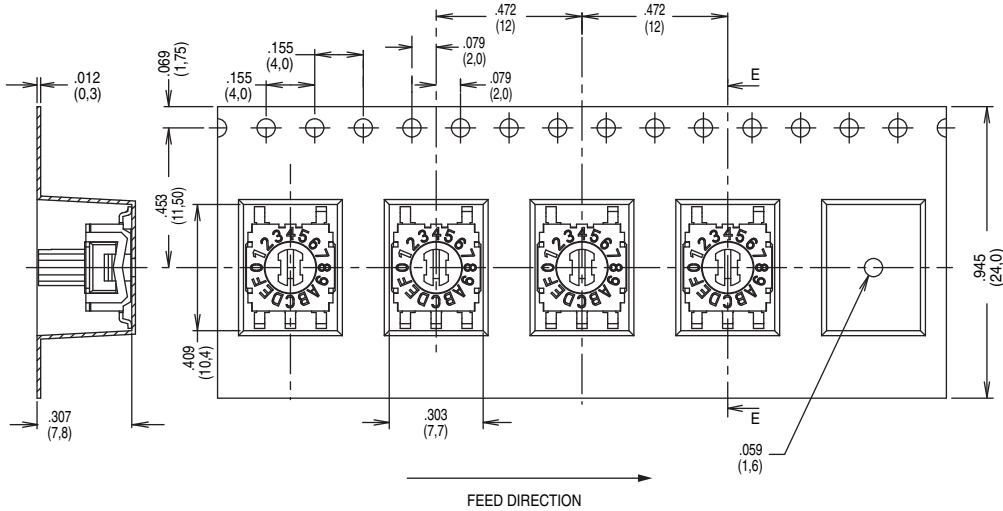
Buttons are ordered separately, shipped in bulk.

Part Number	Color
BTN RTE 40	Red
BTN RTE 50	Green
BTN RTE 90	Black

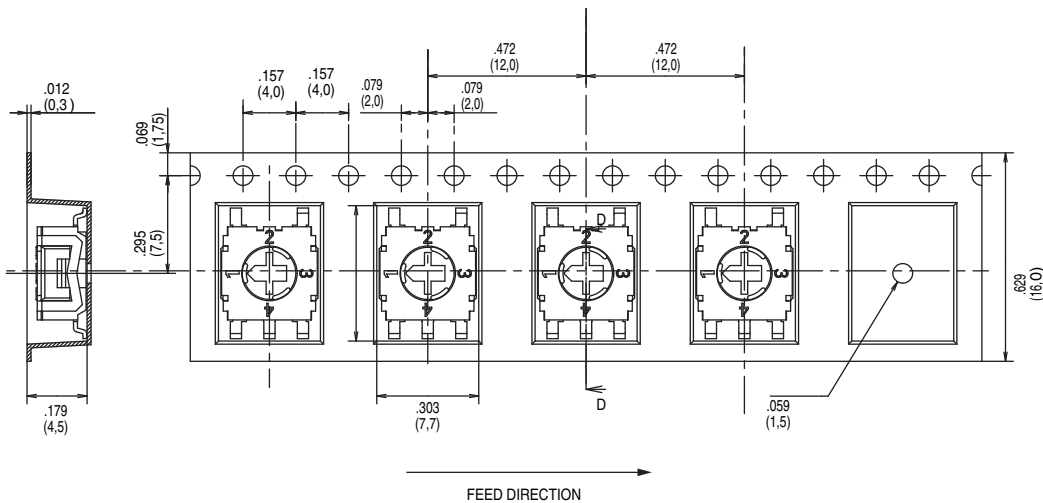


TAPE AND REEL

Tape and reel for RTExx02Gxx
750 pieces per reel.



Tape and reel for RTExx00Gxx
1,250 pieces per reel.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



CD Series 8mm DIP Coded Rotary Switches

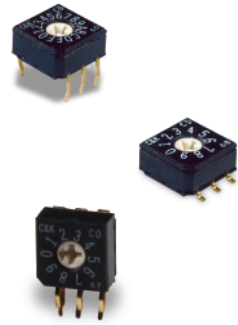


Features/Benefits

- Process sealed – withstands soldering and cleaning
- Thru-hole and surface mount models
- Compact size saves space – 36% smaller than traditional 10mm DIP
- Crisp, positive detent ensures actuation
- RoHS compliant

Typical Applications

- Address switching applications
- Data storage devices
- Computer and peripherals
- Instrumentation



Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or V DC max.

MECHANICAL AND ELECTRICAL LIFE:

CD10 & CD16: 20,000 actuations.

CD08: 12,000 actuations.

CONTACT RESISTANCE: 50 milliohms max. initial.

INSULATION RESISTANCE: 100 megohms min.

@ 250 V AC min.

DIELECTRIC STRENGTH: 250 V RMS min. @ sea level.

OPERATING TEMPERATURE: -25°C to 85°C.

STORAGE TEMPERATURE: -40°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D or EIA RS-186E, method 9 (1 hour steam aging).

PACKAGING: Switches supplied in rigid tubes in full-tube quantities only: this may affect order quantity. Tube quantity is 60 pieces per tube. Surface mount switches available in tape & reel packaging per EIA 481A, 800 per reel, surface mount with “M0” actuator only.

Materials

COVER: PPS (UL94V-0), Color; Black.

BASE: PPS (UL94V-0), Color; Black

ACTUATOR: LCP (UL 94V-0), Color White (CDXXR)
Color Black (CDXXC)

Note: internal o-ring seal standard with all actuators.

MOVABLE CONTACTS: Copper alloy with gold plate over nickel plate.

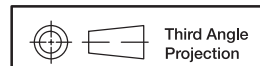
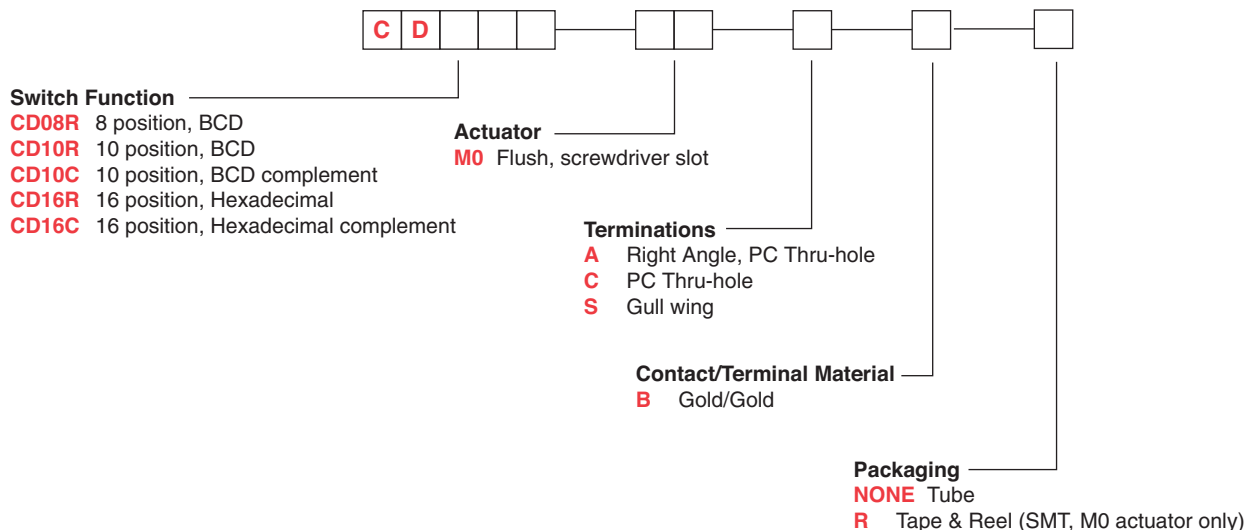
STATIONARY CONTACTS: Copper alloy with gold plate over nickel plate.

TERMINALS: Copper alloy with gold plate over nickel plate.

Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



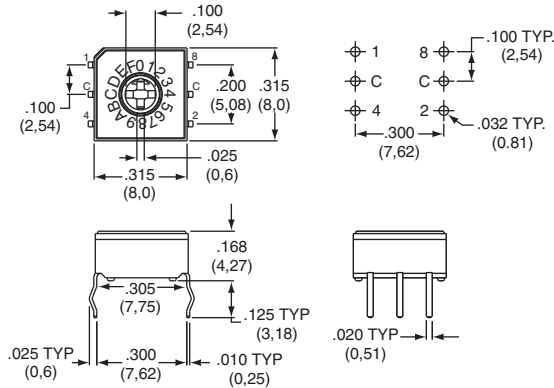
CD Series 8mm DIP Coded Rotary Switches

SWITCHES WITH STANDARD OPTIONS

PC Mount



CD16RM0CB

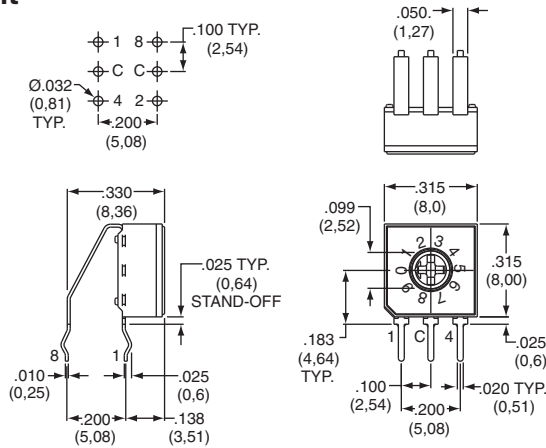


PART NUMBER	NO. POS.	QUANTITY PER TUBE
CD08RM0CB	8	60
CD10RM0CB	10	60
CD10CM0CB	10	60
CD16RM0CB	16	60
CD16CM0CB	16	60

Right Angle Mount



CD10RM0AB

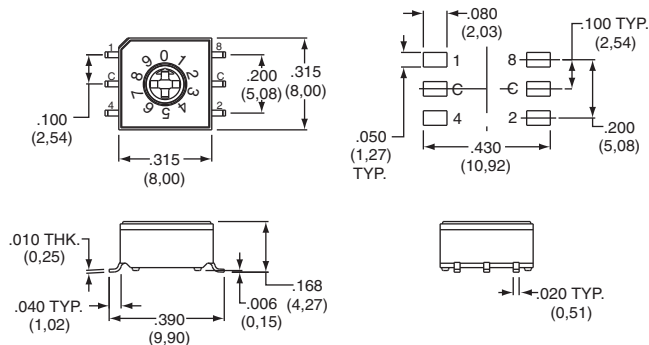


PART NUMBER	NO. POS.	QUANTITY PER TUBE
CD08RM0AB	8	60
CD10RM0AB	10	60
CD10CM0AB	10	60
CD16RM0AB	16	60
CD16CM0AB	16	60

Surface Mount

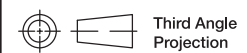


CD10RM0SB



PART NUMBER	NO. POS.	QUANTITY PER TUBE
CD08RM0SB	8	60
CD10RM0SB	10	60
CD10CM0SB	10	60
CD16RM0SB	16	60
CD16CM0SB	16	60

Note: For tape and reel packaging, add 'R' to end of part number.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



CD Series 8mm DIP Coded Rotary Switches

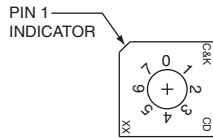


H
DIP

SWITCH FUNCTION

CD08R 8 POSITION, BCD
ACTUATOR COLOR: WHITE

POS.	0	1	2	3	4	5	6	7
C	●	●	●	●	●	●	●	●
1		●	●		●	●		●
2			●	●			●	●
4				●	●	●	●	
8								



Switches ship and to be solder processed in position "0"

CD10R 10 POSITION, BCD
ACTUATOR COLOR: WHITE

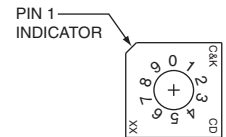
POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1		●	●		●	●		●	●	
2			●	●			●	●		
4				●	●	●	●			
8									●	●

Switches ship and to be solder processed in position "0"

CD10C 10 POSITION, BCD COMPLEMENT
ACTUATOR COLOR: BLACK

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1	●		●		●		●		●	
2	●			●		●		●		●
4	●	●	●	●					●	●
8					●	●	●	●		

Switches ship and to be solder processed in position "7"



CD16R 16 POSITION, HEXADECIMAL
ACTUATOR COLOR: WHITE

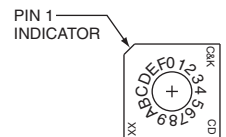
POS.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1		●		●		●		●		●		●		●		●	
2			●	●			●	●			●	●			●	●	
4				●	●	●	●					●	●	●	●		
8									●	●	●	●	●	●	●	●	

Switches ship and to be solder processed in position "0"

CD16C 16 POSITION, HEXADECIMAL COMPLEMENT
ACTUATOR COLOR: BLACK

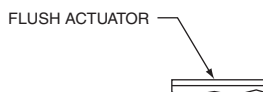
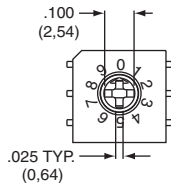
POS.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1	●		●		●		●		●		●		●		●		
2	●			●		●		●		●		●		●		●	
4	●	●	●	●							●	●	●	●			
8					●	●	●	●									

Switches ship and to be solder processed in position "F"



ACTUATOR

M0 (STD.) FLUSH WITH SCREWDRIVER SLOT



NOTE: Designed for #0 Phillips screwdriver.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



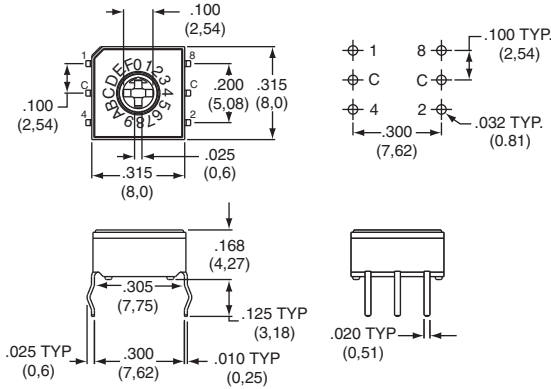
CD Series 8mm DIP Coded Rotary Switches

TERMINATIONS

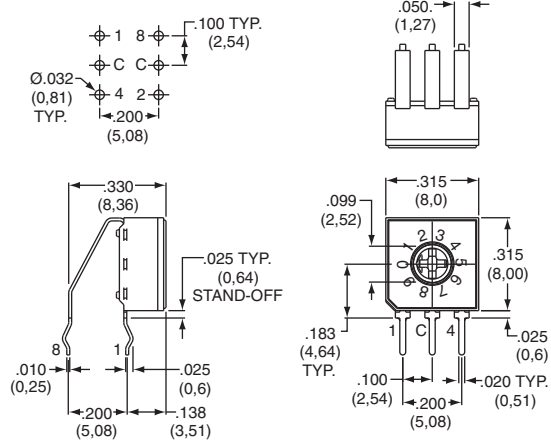
DIP H

DIP H

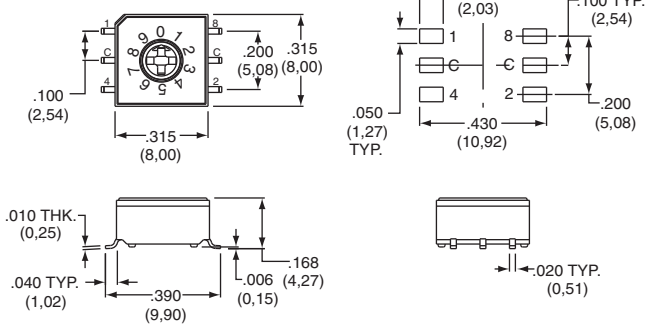
C PC, THRU-HOLE



A RIGHT ANGLE, PC THRU-HOLE



S SURFACE MOUNT



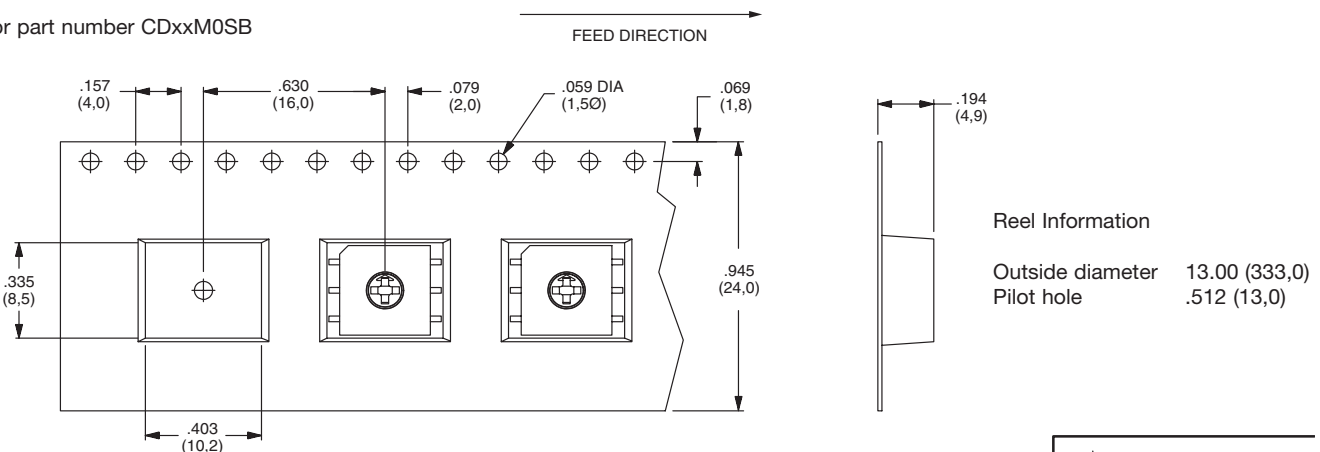
CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL	TERMINAL PLATING	RATING	
B	YES	YES	GOLD	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VC MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

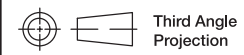
TAPE & REEL

For part number CDxxM0SB



Reel Information

Outside diameter 13.00 (333,0)
Pilot hole .512 (13,0)



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



CRD Series 10mm DIP Coded Rotary Switches



H

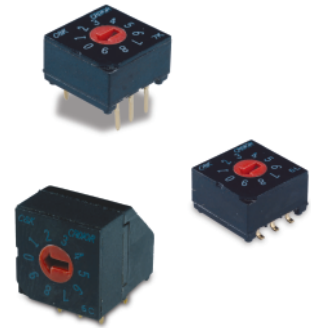
DIP

Features/Benefits

- **Process sealed – withstands soldering and cleaning**
- **Thru-hole and surface mount models**
- **Crisp, positive detent ensures actuation**
- **Computer and peripherals**
- **RoHS compliant**

Typical Applications

- **Address switching applications**
- **Data storage devices**
- **Computer and peripherals**
- **Instrumentation**



Specifications

CONTACT RATING: 0.4 V AC, DC 20 V max.
 ELECTRICAL LIFE: 20,000 steps min. @ 5 V DC 10 mA.
 MECHANICAL LIFE: 30,000 steps min.
 CONTACT RESISTANCE: 100 milliohms max. initial @ 2 V DC 10 mA.
 INSULATION RESISTANCE: 1000 megohms min. @ 100 V DC
 DIELECTRIC STRENGTH: 300 V AC for 1 minute.
 OPERATING TEMPERATURE: -20°C to 85°C.
 STORAGE TEMPERATURE: -40°C to 85°C.
 OPERATING FORCE: 1000 grams max.
 PACKAGING: Switches supplied in anti-static tubes in full quantities only. This may affect order quantity. Surface mount models with MO actuators available in tape and reel, 500 pieces per reel.

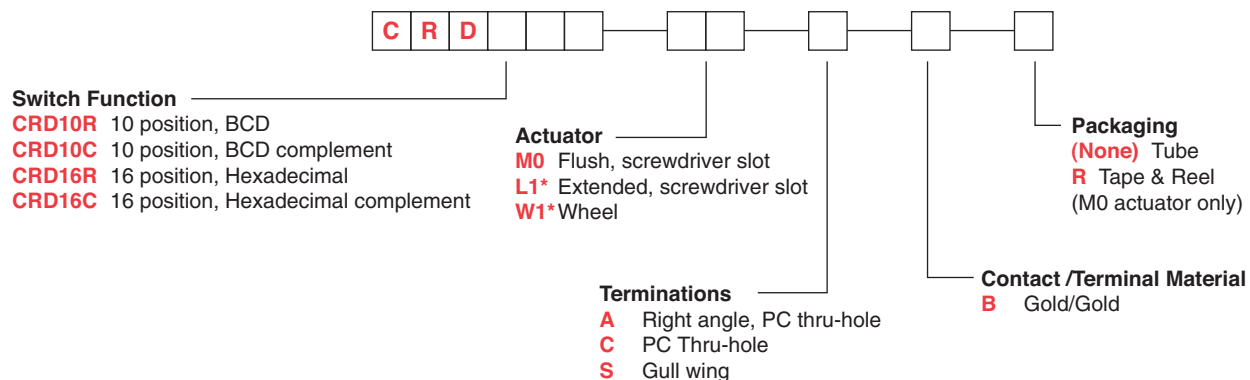
Materials

COVER: PPS (black)
 HOUSING: PPS (black)
 ACTUATOR: PA 6T M0 actuator option; PBT L1 and W1 actuator option.
 CONTACTS: Beryllium Copper with Gold over Nickel plate
 TERMINALS: Brass with Gold Nickel plate.

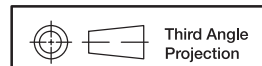
Note: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

The Build-A Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box.



* Note - L1 and W1 actuators are not available in termination "S"



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



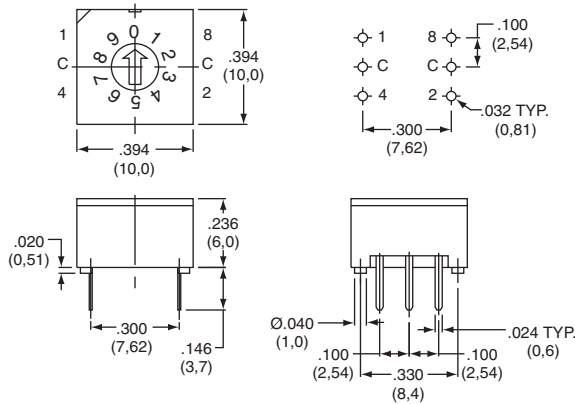
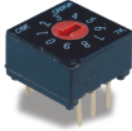
CRD Series 10mm DIP Coded Rotary Switches

SWITCHES WITH STANDARD OPTIONS



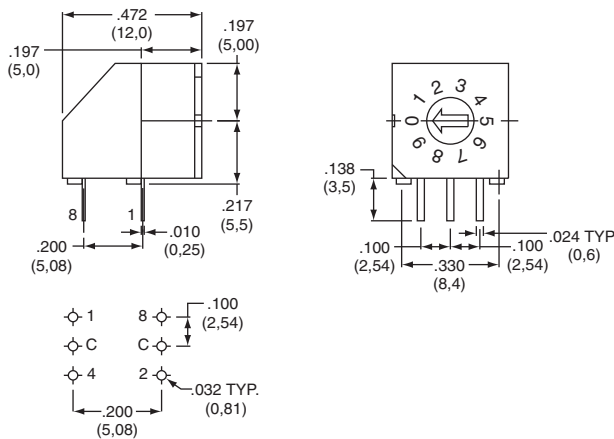
DIP

PC Mount



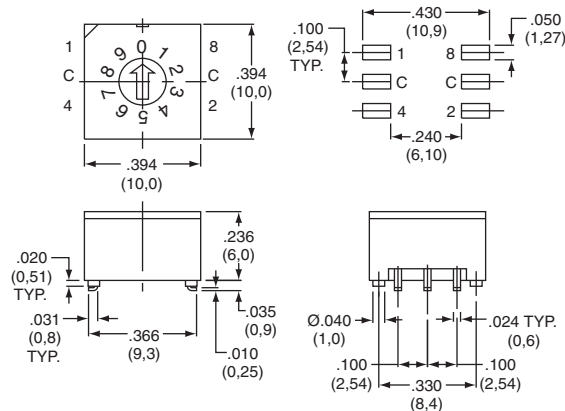
PART NUMBER	NO. POS.	QUANTITY PER TUBE
CRD10RM0CB	10	45
CRD16RM0CB	16	45

Right Angle Mount

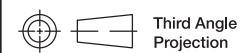


PART NUMBER	NO. POS.	QUANTITY PER TUBE
CRD10RM0AB	10	45
CRD16RM0AB	16	45

Surface Mount



PART NUMBER	NO. POS.	QUANTITY PER TUBE
CRD10RM0SB	10	45
CRD16RM0SB	16	45



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



CRD Series 10mm DIP Coded Rotary Switches



SWITCH FUNCTION

CRD10R

10 POSITION, BCD
ACTUATOR COLOR: RED

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1		●		●		●		●		●
2			●		●		●		●	
4				●		●		●		●
8					●		●		●	●

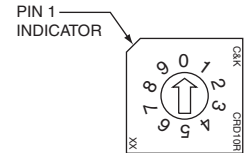
Switches ship and to be solder processed in position "0"

CRD10C

10 POSITION, BCD COMPLEMENT
ACTUATOR COLOR: ORANGE

POS.	0	1	2	3	4	5	6	7	8	9
C	●	●	●	●	●	●	●	●	●	●
1	●									
2	●	●								
4	●	●	●							
8	●	●	●	●						

Switches ship and to be solder processed in position "7"



CRD16R

16 POSITION, HEXADECIMAL
ACTUATOR COLOR: BLACK

POS.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1		●														
2			●		●			●		●						
4				●		●			●			●		●		
8							●		●		●		●		●	

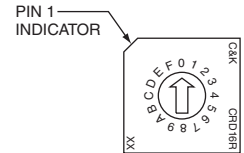
Switches ship and to be solder processed in position "0"

CRD16C

16 POSITION, HEXADECIMAL COMPLEMENT
ACTUATOR COLOR: WHITE

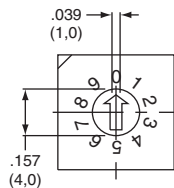
POS.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1	●															
2	●	●														
4	●	●	●													
8	●	●	●	●												

Switches ship and to be solder processed in position "F"



ACTUATOR

(STD.) FLUSH WITH SCREWDRIVER SLOT

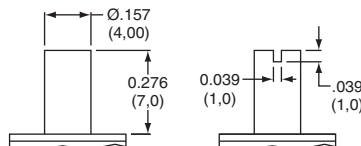
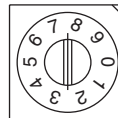


FLUSH ACTUATOR



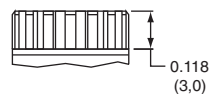
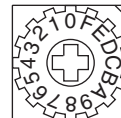
L1*

EXTENDED WITH SCREWDRIVER SLOT



W1*

WHEEL



NOTE: Designed for #0 Phillips screwdriver.

* L1 and W1 actuators are not available in termination "S"



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

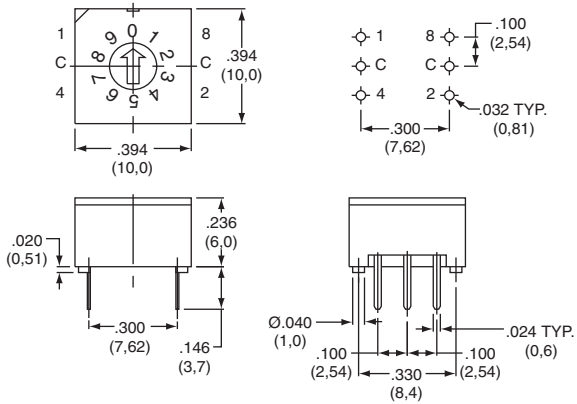


CRD Series 10mm DIP Coded Rotary Switches

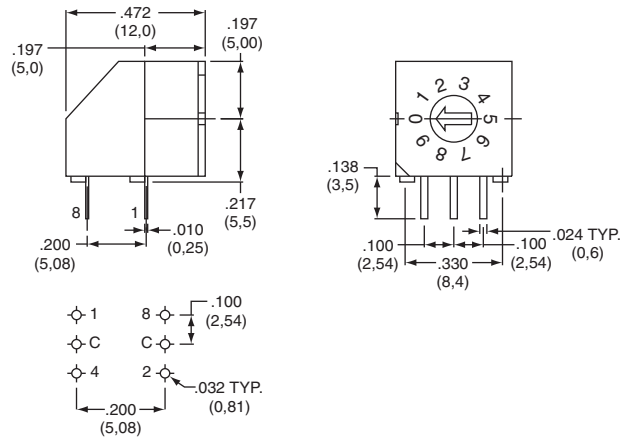
TERMINATIONS



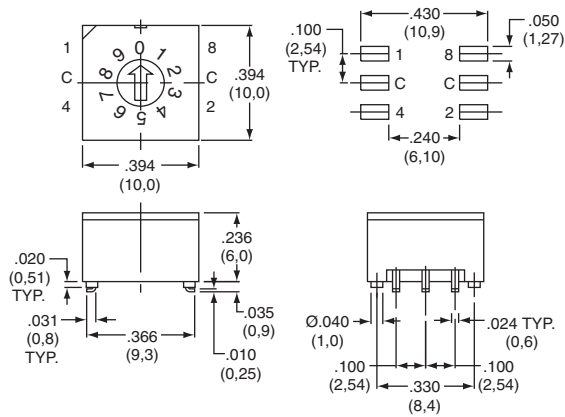
C PC, THRU-HOLE



A RIGHT ANGLE, PC THRU-HOLE



S SURFACE MOUNT



M0

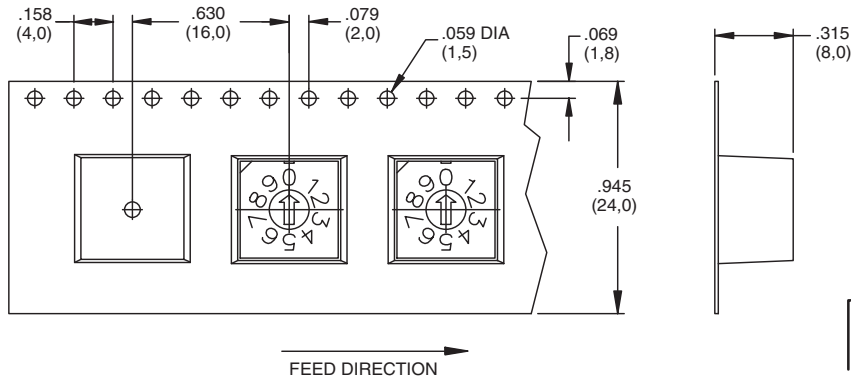
CONTACT MATERIAL



OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL	TERMINAL PLATING	RATING	
B	YES	YES	GOLD	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VC MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

TAPE & REEL











Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



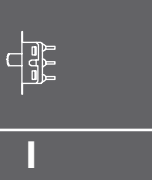
Slides

Product Selection Guide

Slide								
Series	ES	TS	1000	GS	L	LP	S	V
Switch Type	Tiny	Tiny	Miniature	Ultra-miniature	Miniature	Miniature	Power	Power & Line Voltage
Poles	1 & 2	1	1 & 2	1	1 & 2	1 & 2	1 & 2	1 & 2
Momentary			•		•		•	
Process Sealed	•			•				
Splashproof	•				•			
Screwdriver Slot					•		•	•
Housing Marking						•	•	
Tape & Reel	•			•				
Max. Current	0.4 VA	3 A	6 A	0.4 VA	4 A	11 A	15 A	10.1 A
Terminations								
Wire Wrap		•	•		•			
Quick Connect			•				•	•
Wire Lead					•	•	•	
Solder Lug			•		•	•	•	
PC	•	•	•	•	•		•	•
PCB Mount Options								
Thru-hole	•	•	•	•	•	•	•	•
Vertical	•	•	•	•	•	•	•	•
Right Angle	•	•	•	•			•	•
Surface Mount	•			•				
Panel Mount Options								
Snap-in						•	•	•
Mounting Ears			•		•		•	•
Right Angle	•	•	•	•			•	•
Page No.	I-4	I-8	I-11	I-17	I-19	I-25	I-28	I-33

Slides Product Selection Guide

Slide								
Series	OS	PCM	AYZ	JS	JSM	JSX	SK	SS
Switch Type	Miniature	Low Profile	Low Profile	Low Profile	Low Profile	Low Profile	Miniature	Miniature
Poles	1 & 2	1 & 2	1 & 2	1 & 2	1	1	1, 2 & 4	1, 2 & 4
Momentary					•	•		
Process Sealed								
Splashproof								
Screwdriver Slot								
Housing Marking								
Tape & Reel		•		•	•	•		
Max. Current	200mA	0.3A	100mA	0.3A	0.3A	0.3A	0.3A	0.3A
Terminations								
Wire Wrap								
Quick Connect								
Wire Lead								
Solder Lug	•							
PC	•	•	•	•			•	•
PCB Mount Options								
Thru-hole	•			•			•	•
Vertical	•			•				•
Right Angle	•			•			•	
Surface Mount		•	•	•	•	•	•	•
Panel Mount Options								
Snap-in								
Mounting Ears	•							•
Right Angle								
Page No.	I-37	I-44	I-46	I-49	I-55	I-60	I-61	I-91

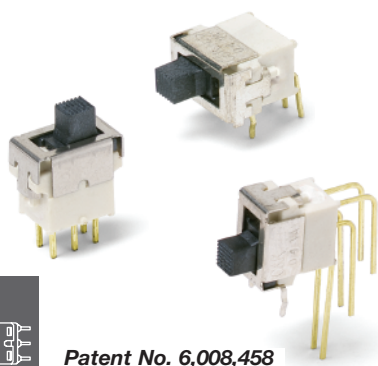


Slide



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ES Series Sealed Tiny Slide Switches



Patent No. 6,008,458

Features/Benefits

- Process compatible—internal o-ring and epoxy base seal
- Thru-hole & surface mount models
- Reliable contact design ensures long electrical life
- Robust actuator for easy actuation
- RoHS compliant

Typical Applications

- Computer peripherals & network products
- Test & measurement equipment
- Telephone & cable modems

Slide

Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.
 MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: 50 m Ω max. initial @ 2-4 V DC, 100 mA.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 500 Vrms min.
 OPERATING TEMPERATURE: -30°C to 85°C.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9.
 DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.
 ESD ENDURANCE: 8kv min. (EIA 545).
 PACKAGING: Thru-hole switches supplied in anti-static trays. Surface mount switches available in tape and reel packaging.

Materials

HOUSING & BASE: Nylon (UL 94V-0).
 ACTUATOR: LCP (UL 94V-0) black, standard.
 SURFACE PLATE: Stainless steel with tin plate.
 MOVABLE CONTACT: Bronze with gold plate over nickel plate.
 STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.
 TERMINALS: Copper alloy, with gold over nickel plate. All terminals insert molded.
 BASE & TERMINAL SEAL: Epoxy.

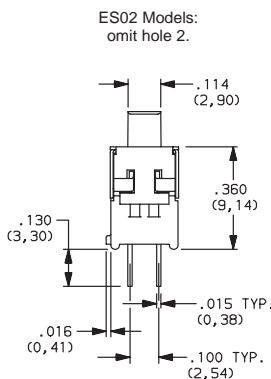
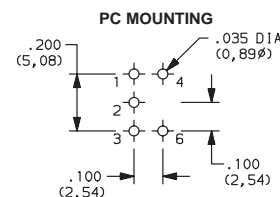
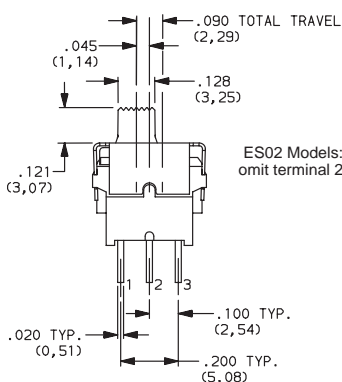
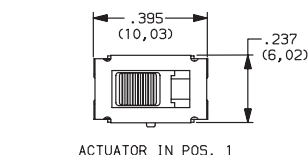
NOTE: All models RoHS compliant and compatible with all options.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Complete part numbers for ES Series Sealed Tiny Slide Switches are shown on pages I-5 through I-7. These unique tiny slide switches are process compatible. An internal o-ring and epoxy base seal protects the switch from wave and reflow soldering, as well as cleaning processes.

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
ES01MCBE	ON	NONE	ON
ES03MCBE	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			
SPDT			
ES02MCBE	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
SPST			



ES01MCBE
SPDT



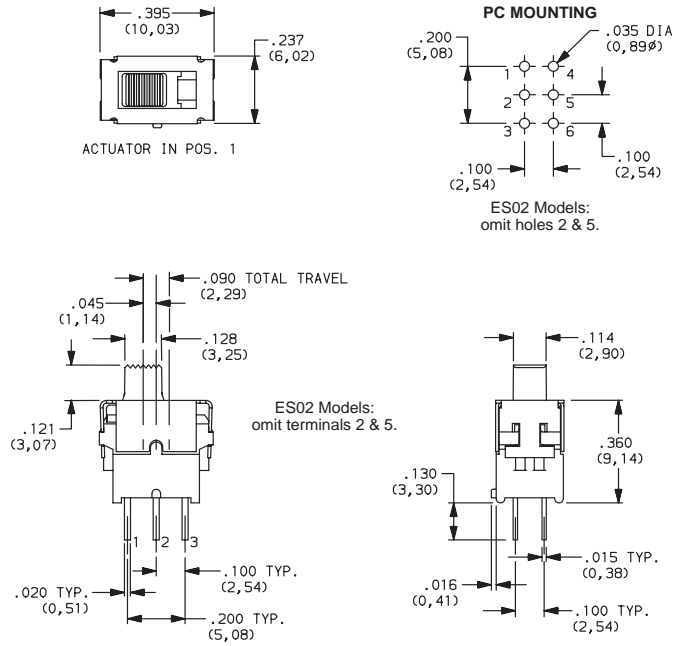
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



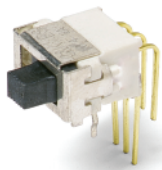
ES Series Sealed Tiny Slide Switches



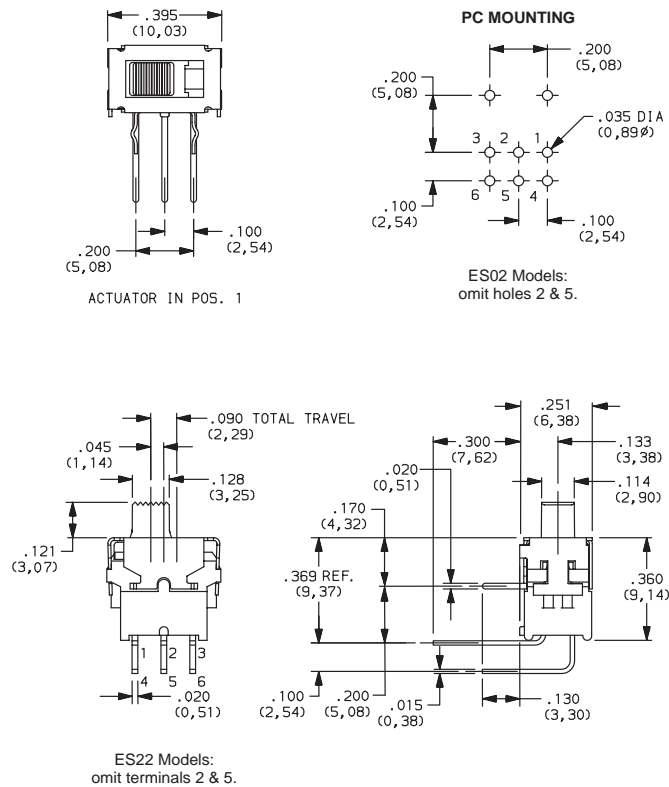
ES21MCBE
DPDT



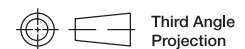
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 3	POS. 2
ES21MCBE	ON	NONE	ON
ES23MCBE	ON	OFF	ON
CONN. TERMINALS	2-3, 5-6	OPEN	2-1, 5-4
SCHEMATIC			
DPDT			
ES22MCBE	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1, 6-4
SCHEMATIC			
DPST			



ES21MABE
DPDT

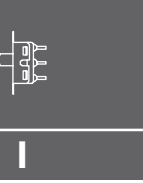


PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
ES21MABE	ON	NONE	ON
ES23MABE	ON	OFF	ON
CONN. TERMINALS	2-3, 5-6	OPEN	2-1, 5-4
SCHEMATIC			
DPDT			
ES22MABE	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
DPST			



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com

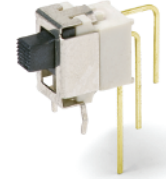
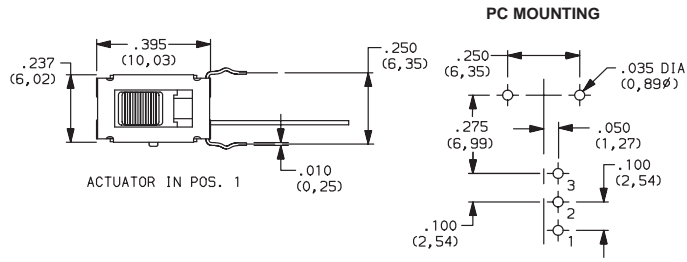


Slide

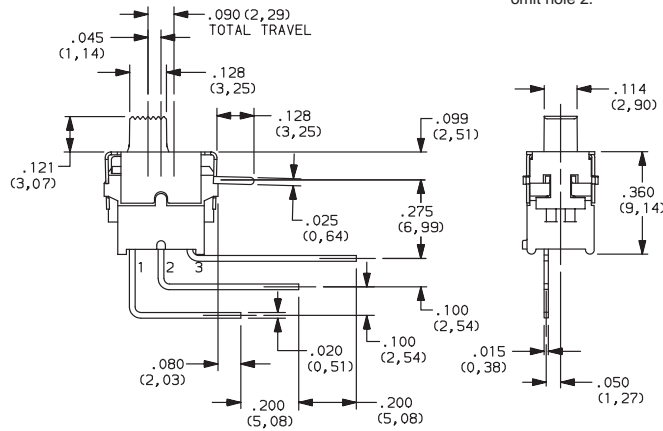
ES Series Sealed Tiny Slide Switches

Slide

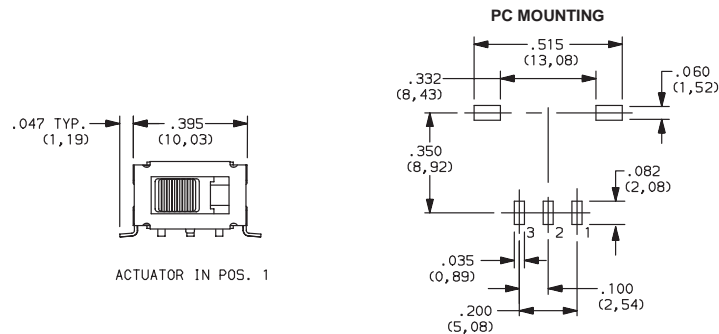
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
ES01MAVBE	ON	NONE	ON
ES03MAVBE	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			



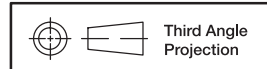
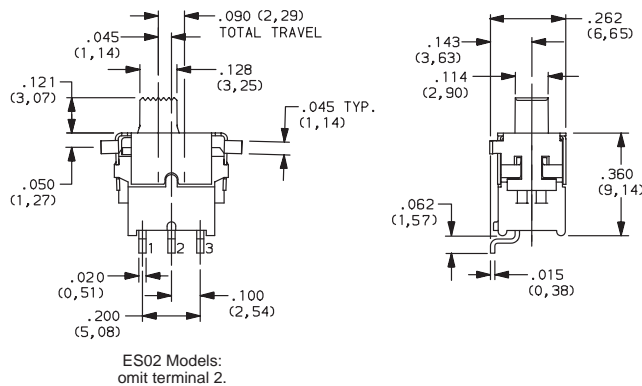
**ES01MAVBE
SPDT**



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
ES01MSABE	ON	NONE	ON
ES03MSABE	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			
SPDT			
ES02MSABE	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
SPST			



**ES01MSABE
Horizontal Actuation
SPDT**



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

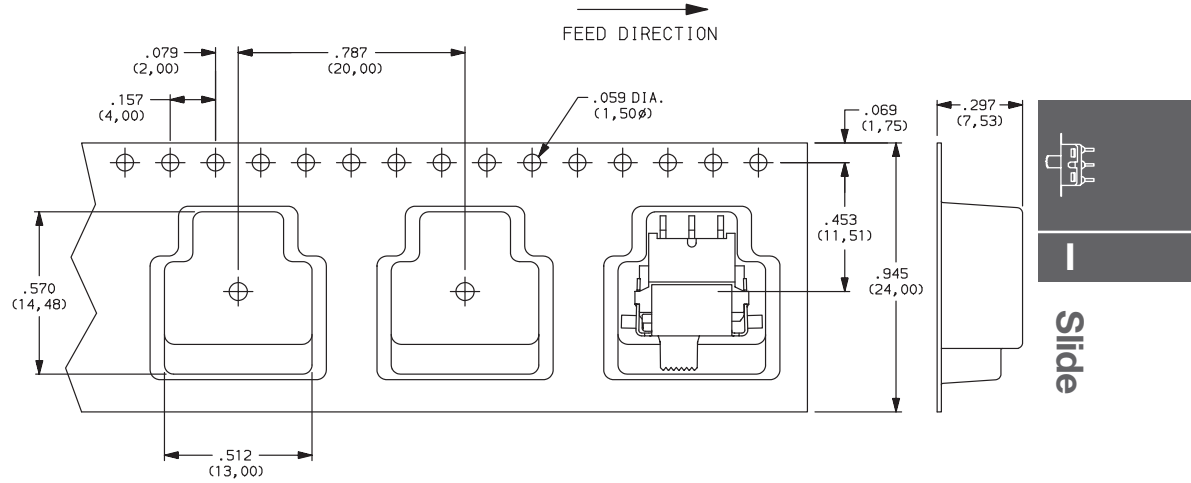


ES Series Sealed Tiny Slide Switches

TAPE & REEL

For part numbers ESXXMSABE

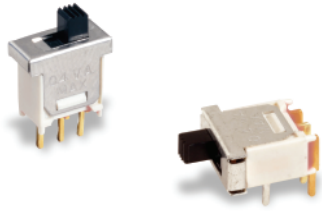
REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	300



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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TS Series Tiny Slide Switches



Models Available

Features/Benefits

- **Reliable contact design ensures long electrical life**
- **Ratings up to 3 AMPS**
- **Epoxy terminal-seal compatible with bottom wash cleaning**
- **RoHS compliant**

Typical Applications

- **Test & measurement equipment**
- **Computers & peripherals**
- **Telecommunications & networking equipment**

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material (TS01 Model): 3 AMPS @ 120 V AC or 28 V DC; (TS02, TS03 Models): 1 AMP @ 120 V AC or 28 V DC. See page I-10 for additional ratings.

ELECTRICAL LIFE:

TS01 MODELS: 60,000 make-and-break cycles at full load.
TS02, TS03 MODELS: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Materials

CASE: Glass filled nylon 4/6, flame retardant, heat stabilized.

ACTUATOR: Nylon, black standard.

HOUSING: Stainless steel or stainless steel, nickel plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page I-10 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page I-10 for additional contact materials.

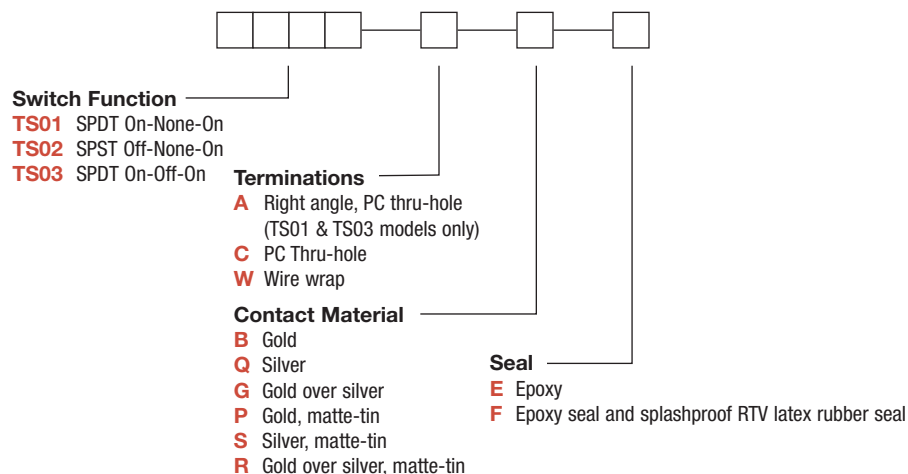
TERMINAL SEAL: Epoxy. Refer to Soldering and Cleaning in Technical Data chapter.

NOTE: Any models supplied with Q, B, G, P, S or R contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-9 and I-10. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TS Series Tiny Slide Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	TS01	ON	NONE	ON	1-2	OPEN	2-3	
	TS03	ON	OFF	ON				SPDT
	TS02	OFF	NONE	ON	OPEN	N/A	3-1	SPST

SPDT

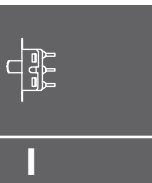
Part number shown: TS01CBE

TS02 models: Omit center terminal

Terminal Nos. For Reference Only

All models with all options when ordered with G, Q, R or S contact material.

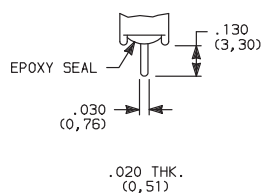
TS02 model not available with A terminations.



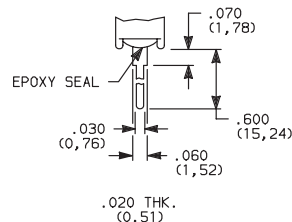
Slide

TERMINATIONS

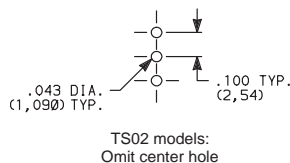
C PC THRU-HOLE



W WIRE WRAP



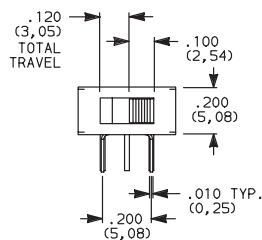
PC MOUNTING



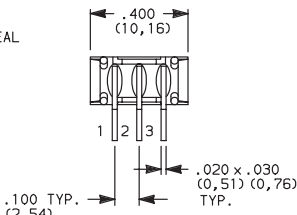
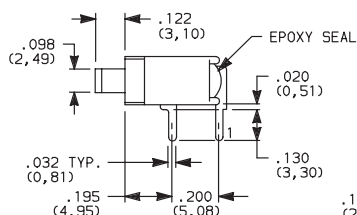
SPDT and SPST

SPDT and SPST

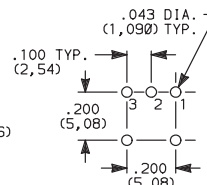
A RIGHT ANGLE, PC THRU-HOLE



Actuator shown in pos. 1



PC MOUNTING



TS01ABE
Horizontal Actuation
SPDT

Not available with TS02 model.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



TS Series Tiny Slide Switches

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ³	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	TS01 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. TS02, TS03 MODELS: 1 AMP @ 120 V AC OR 28 V DC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	TS01 MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. TS02, TS03 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.


² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate

All models  with all options when ordered with G, S or R contact material.

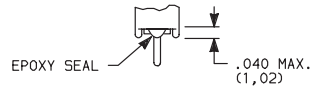
B contact material standard with A and W terminations.

Q contact material standard with C terminations.

NOTE: Any models supplied with Q, B, G, P, S or R contact material are RoHS compliant.

SEAL

E EPOXY SEAL



F EPOXY SEAL AND SPLASHPROOF RTV LATEX RUBBER SEAL



NOTE: RTV latex rubber seal peels off easily after installation. Epoxy terminal seal standard. Not available with A termination.

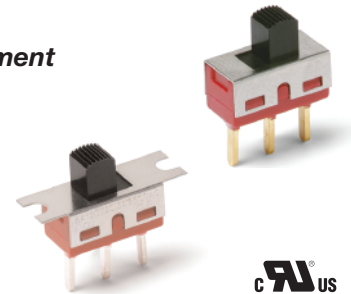
1000 Series Miniature Slide Switches

Features/Benefits

- Variety of actuators and terminations
- Panel mount tabs available
- Epoxy terminal seal—compatible with bottom-wash cleaning
- RoHS compliant

Typical Applications

- Test & measurement equipment
- Telecommunications
- Computer & peripherals



C&K US

Models Available

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 6 AMPS @ 120 V AC or 28 V DC, 3 AMPS @ 250 V AC. See page I-16 for additional ratings.

ELECTRICAL LIFE: 100,000 make-and-break cycles at full load on models with B, K or P contact material; 40,000 cycles on models with G, Q, L, M, S or R contact material.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Materials

CASE: diallyl phthalate (DAP), (UL 94V-0).

ACTUATOR: Nylon, black, standard.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page I-16 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page I-16 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to Soldering and Cleaning in Technical Data chapter

NOTE: Any models supplied with Q, B, G, P, S or R contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options.

For information on specific and custom switches, consult Customer Service Center.

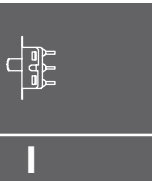
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-12 through I-16. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.

Switch Function									
1101 SP On-None-On									
1103 SP On-Off-On									
1108 SP Mom-None-On									
1201 DP On-None-On									
1203 DP On-Off-On									
Mounting Style									
M2 PC mount without tabs									
M1 Panel mount with tabs									
Actuator									
S3 .200" high									
S1 .040" high									
S2 .140" high									
S4 .285" high									
S5 .370" high									
S6 .485" high									
T3 .200" high									
Terminations									
A Right angle, PC thru-hole									
C PC Thru-hole									
AV2 Vertical right angle, PC thru-hole									
Z Solder lug									
V3 V-bracket									
V4 V-bracket									
W .750" long, wire wrap									
Z3 Quick connect									
Contact Material									
B Gold									
Q Silver									
G Gold over silver									
P Gold, matte-tin									
S Silver, matte-tin									
R Gold over silver, matte-tin									
Seal									
E Epoxy									
D No epoxy seal									
I Epoxy potted base									
Actuator Color									
2 Black									
1 White									
3 Red									



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Slide

1000 Series Miniature Slide Switches

SWITCH FUNCTION

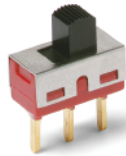
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	1101	ON	NONE	ON		N/A		
	1103	ON	OFF	ON	1-2	OPEN	2-3	
	1108	MOM.	NONE	ON		N/A		
<p>SPDT</p> <p>Part number shown: 1101M2S3CQE2</p> <p>Terminal Nos. For Reference Only</p>								
DP	1201	ON	NONE	ON	2-1,5-4	OPEN	2-3,5-6	
	1203	ON	OFF	ON				
<p>DPDT</p> <p>Part number shown: 1201M2S3CQE2</p> <p>Terminal Nos. For Reference Only</p>								

MOM. = Momentary

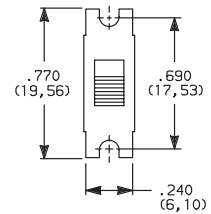
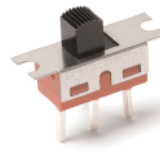
All models with all options when ordered with G, Q, S or R contact material.

MOUNTING STYLE

M2 PC MOUNTING WITHOUT TABS



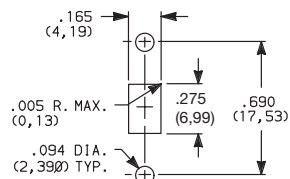
M1 PANEL MOUNTING WITH TABS



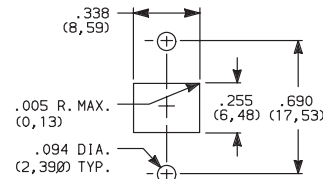
NOTE: Available with A, AV2, C, V3, V4, W terminations only.

NOTE: Available with C, W, Z, Z3 terminations only. No mounting hardware supplied.

PANEL MOUNTING



All actuators except T3.
Single pole



For T3 actuator only.
Double pole



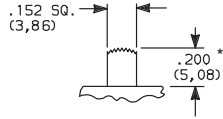
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



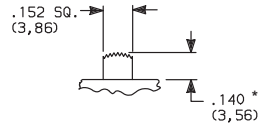
1000 Series Miniature Slide Switches



S3 .200" HIGH

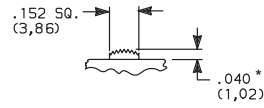


S2 .140" HIGH



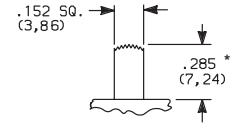
110X models only.

S1 .040" HIGH

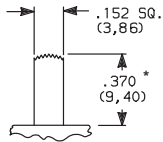


120X models only.

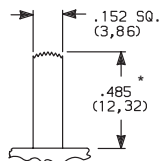
S4 .285" HIGH



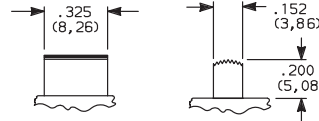
S5 .370" HIGH



S6 .485" HIGH



T3 .200" HIGH



120X models only.

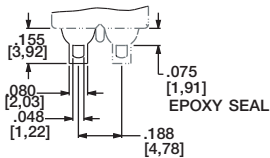
OPTION CODE	ACTUATOR COLOR
2	BLACK
1	WHITE
3	RED
7	BLUE
9	GRAY

Other colors available, consult Customer Service Center.

* Subtract .014 (0,36) from actuator height, all models with A, AV2 - 2 pole, V3, V4 terminations.



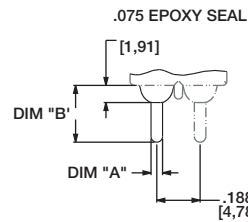
Z SOLDER LUG



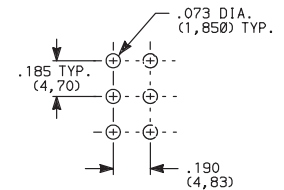
Not available with P, S or R contact materials.

SPDT & DPDT

C PC THRU-HOLE



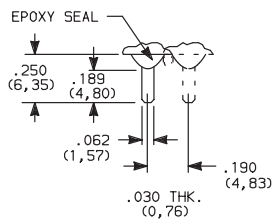
PC MOUNTING



OPTION	DIM "A"	DIM "B"
C	.050 [0,76]	.250 [6,35]

SPDT & DPDT

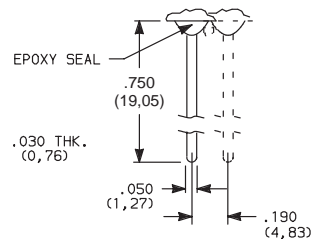
Z3 QUICK CONNECT



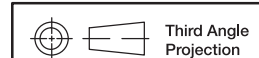
Not available with P, S or R contact materials. Mating quick connector available; order part number 530100000, page I-16.

SPDT & DPDT

W WIRE WRAP



SPDT & DPDT



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



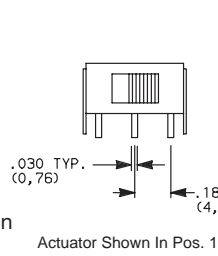
1000 Series Miniature Slide Switches

TERMINATIONS

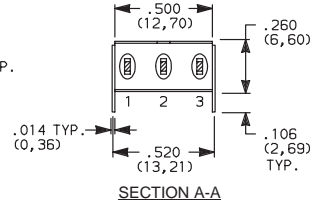
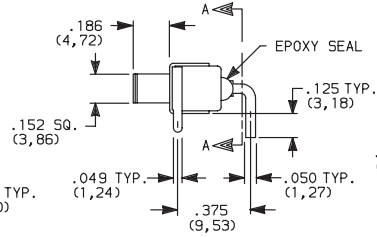
A RIGHT ANGLE, PC THRU-HOLE



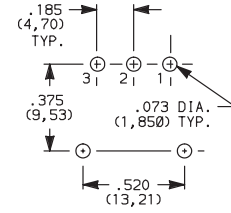
1101M2S3ABE2
Horizontal Actuation
SPDT



Actuator Shown In Pos. 1



PC MOUNTING

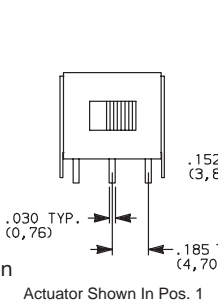


Not available with M1 mounting style, I seal option.
Terminal bend radii and lead-in manufacturing option.

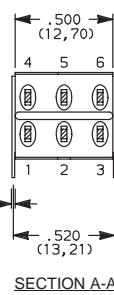
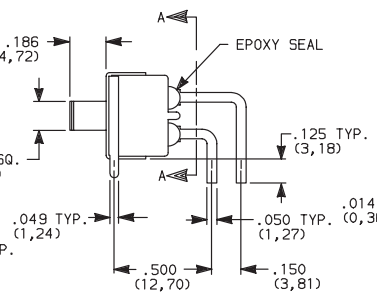
A RIGHT ANGLE, PC THRU-HOLE



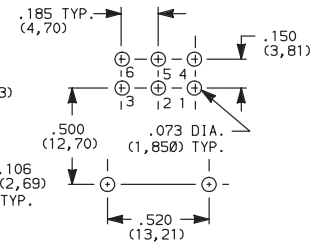
1201M2S3ABE2
Horizontal Actuation
DPDT



Actuator Shown In Pos. 1

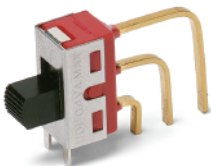


PC MOUNTING

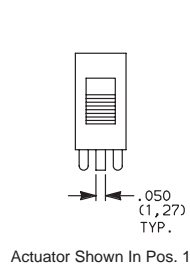


Not available with M1 mounting style, I seal option.
Terminal bend radii and lead-in manufacturing option.

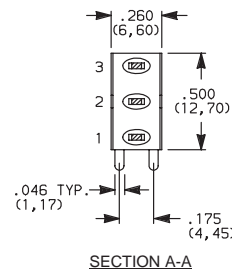
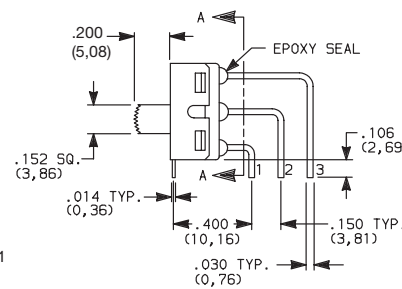
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



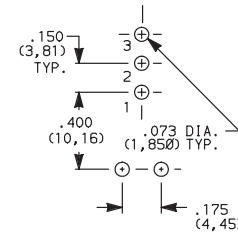
1101M2S3AV2BE2
Vertical Actuation
SPDT



Actuator Shown In Pos. 1

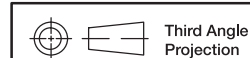


PC MOUNTING



Not available with M1 mounting style, I seal option.
Terminal bend radii and lead-in manufacturing option.

Slide

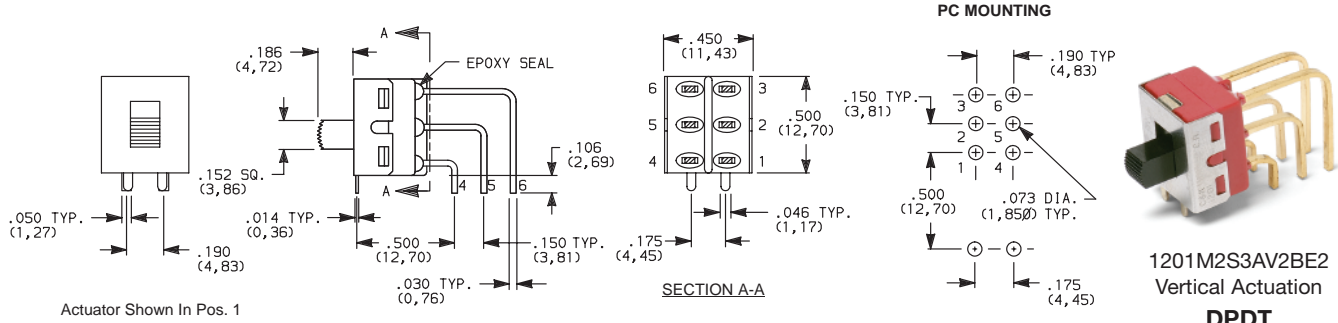


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

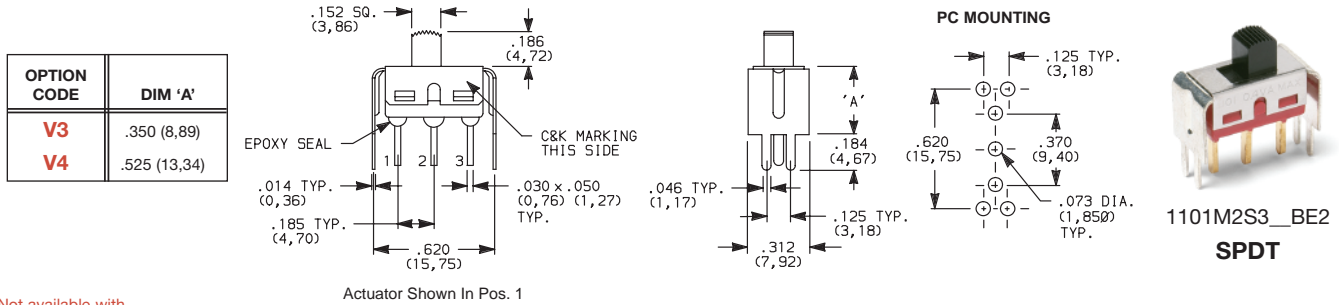
1000 Series Miniature Slide Switches

TERMINATIONS

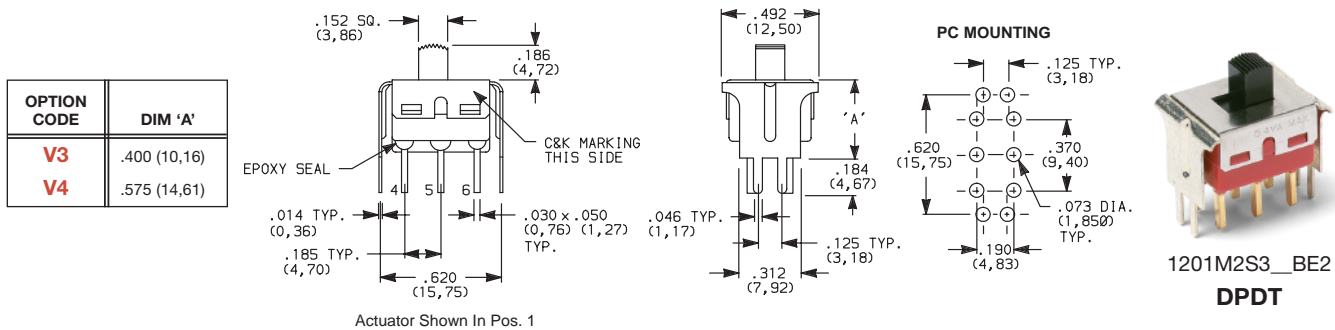
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



V3, V4 VERTICAL MOUNT,
V-BRACKET



V3, V4 VERTICAL MOUNT,
V-BRACKET



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

www.ck-components.com

1000 Series Miniature Slide Switches

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ³	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	GOLD ³	POWER	6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX OR 6 AMPS @ 120 V AC OR 0.4 MAX. 28 V DC; 3 AMPS @ 250 V AC.
R		MATTE-TIN ⁶		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

³ CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

All models **C** **AL** **US** with all options when ordered with G, Q, S or R contact material.

B contact material standard with all terminations except C, Z, Z3.

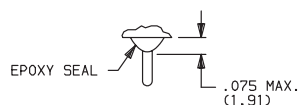
Q contact material standard with C, Z, Z3 terminations.

P, S or R contact materials not available with Z, Z3 terminations.

NOTE: Any models supplied with Q, B, G, P, S or R contact material are RoHS compliant.

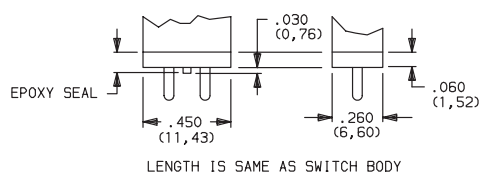
SEAL

E EPOXY SEAL



D NO EPOXY SEAL

I EPOXY POTTED BASE



NOTE: Available with C, W, W3, Z, Z3 terminations only.

AVAILABLE HARDWARE

Fits Z3 Termination
female connector



PART NO.
530100000

Available in loose pieces.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

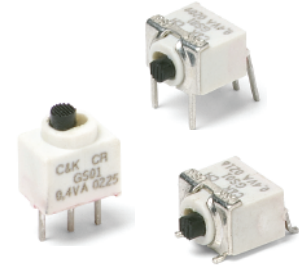
GS Series Sealed Ultraminiature Slide Switches

Features/Benefits

- Ultraminiature design saves PCB space
- Sealed construction, process compatible with most PCB wash processes
- Available in thru-hole and surface mount
- Long life contact design
- RoHS compliant

Typical Applications

- Computer peripherals & network products
- Test & measurement equipment
- Telephone & cable modems



Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.
 MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: Below 50 m Ω typ. initial @ 2-4 V DC, 100 mA.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.
 STORAGE & OPERATING TEMPERATURE: -40°C to 85°C.
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).
 PACKAGING: Switches available in embossed anti-static tape and reels per EIA 481A. Some models available on embossed anti-static tape and reels per EIA 481-3, consult Customer Service Center.

Materials

HOUSING & BASE: Glass filled 4/6, flame retardant, heat stabilized (UL 94V-0).
 ACTUATOR: Polyetherimide PEI (UL 94V-0), with standard internal seal.
 SWITCH SUPPORT: Brass, matte-tin plated.
 MOVABLE CONTACT: Copper with gold plate over nickel plate.
 STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.
 TERMINALS: Copper alloy, with gold plate over nickel plate.
 TERMINAL SEAL: Epoxy. All terminals insert molded.

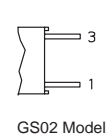
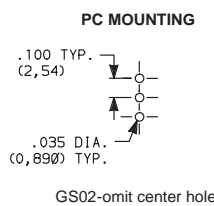
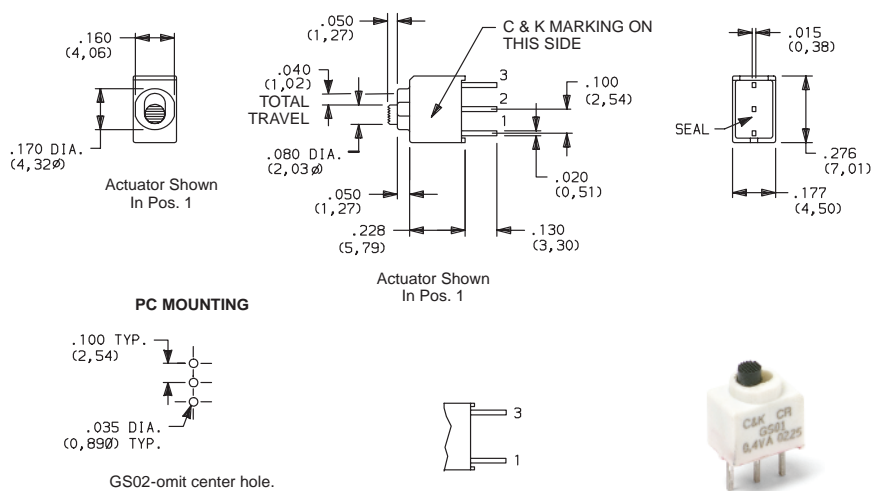
NOTE: All models are RoHS compliant and compatible with all options.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

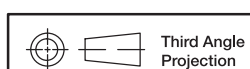
How To Order

Complete part numbers for GS Series Sealed Ultraminiature Slide Switches are shown below and on page I-18.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GS01MCBE	ON	ON	 1 ● 2 (COMM) ● 3 SPDT
Conn. Terms.	2-1	2-3	
GS02MCBE	OFF	ON	 1 ● 3 SPST
Conn. Terms.	OPEN	3-1	
GS04MCBE	ON	OFF	 1 ● 3 SPST
Conn. Terms.	1-3	OPEN	

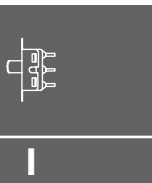


GS01MCBE
SPDT



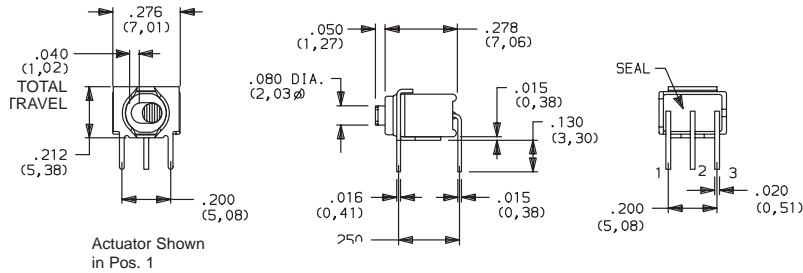
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

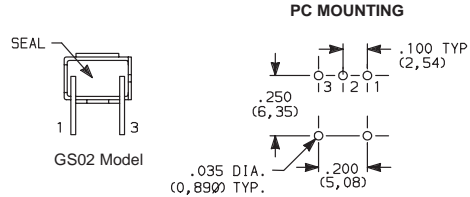


Slide

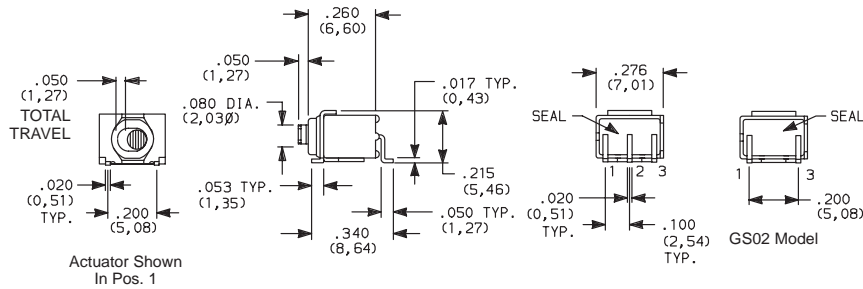
GS Series Sealed Ultraminiature Slide Switches



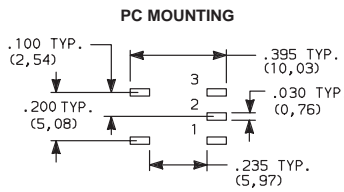
GS01MABE
Horizontal Actuation
SPDT



PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GS01MABE	ON	ON	
Conn. Terms.	2-1	2-3	
GS02MABE	OFF	ON	
Conn. Terms.	OPEN	3-1	
GS04MABE	ON	OFF	
Conn. Terms.	1-3	OPEN	



GS01MSABE
Horizontal Actuation
SPDT

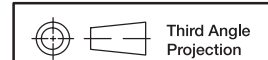
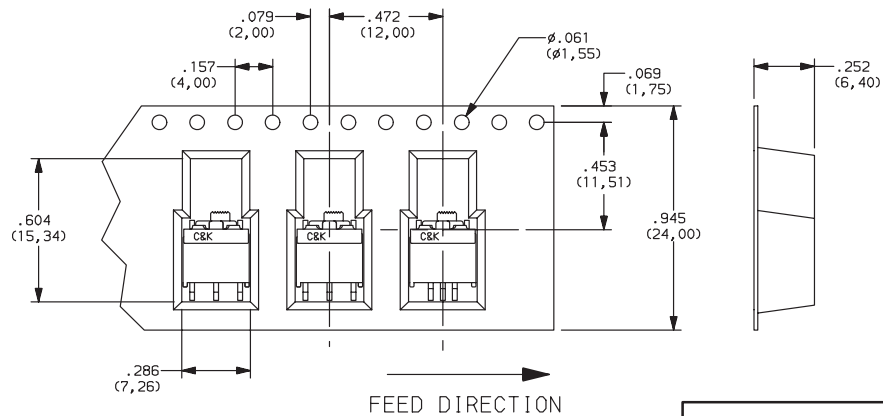


PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GS01MSABE	ON	ON	
Conn. Terms.	2-1	2-3	
GS02MSABE	OFF	ON	
Conn. Terms.	OPEN	3-1	
GS04MSABE	ON	OFF	
Conn. Terms.	1-3	OPEN	

TAPE & REEL

FOR PART NUMBERS GS01MSABE, GS02MSABE, GS04MSABE

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



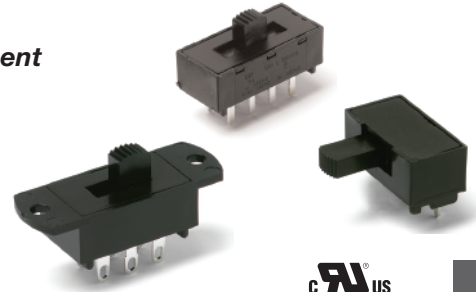
L Series Miniature Slide Switches

Features/Benefits

- Positive detent
- Enclosed housing
- Maintained and momentary functions
- PC and panel mounting
- RoHS compliant

Typical Applications

- Communications equipment
- Lighting devices



C&K US

Models Available

Specifications

CONTACT RATING: Q contact material (LX0X, LX1X Models): 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC (UL). See page I-23 for additional ratings.
 ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -30°C to +65°C
 STORAGE TEMPERATURE: -30°C to +85°C

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING: 6/6 nylon (UL94V-2), black.
 ACTUATOR: 6/6 nylon (UL94V-2), black. '13' actuator, natural (standard).
 CONTACTS: Q contact material: Copper, silver plated. See page I-23 for additional contact materials.
 TERMINALS: Q contact material: Copper, silver plated. See page I-23 for additional contact materials.
 CONTACT SPRING: Music wire or stainless steel.
 TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

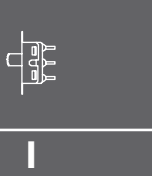
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-20 through I-24. For additional options not shown in catalog, consult Customer Service Center.

Switch Function		Actuator		Detent		Mounting Style		Terminations		Contact Material		Seal		Cap Color
L202 DPDT		01 .200" high		1 With detent		MS PC Thru-hole		02 PC Thru-hole		Q Silver		NONE No seal		2 Black
L203 DP3T		02 .335" high		2 Without detent		MA Right angle, PC thru-hole		03 Solder lug with notch		B Gold		E Epoxy seal		NONE No cap
L101 SPST		03 .375" high				ML Right angle, PC thru-hole		04 PC Thru-hole		G Gold over silver				
L102 SPDT		05 .312" high				MV Right angle, PC thru-hole		06 Wire wrap						
L103 SP3T		11 .100" high				SS Panel with mounting ears		12 PC Thru-hole						
L104 SP4T		12 Screwdriver slot				TS Panel with integral mounting ears								
L112 SPDT, mom.		13 Plunger without cap												
L113 SP3T, mom. to one end		14 Plunger with .200" dia. cap												
L123 SP3T, mom. to both ends		15 Plunger with .310" dia. cap												
L201 DPST		17 Plunger with .458" dia. cap												
L204 DP4T		19 Plunger with .590" dia. cap												
L212 DPDT, mom.														



Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



Slide

L Series Miniature Slide Switches

SWITCH AND LOCK FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
SP	L101	SPST		ML, MS, SS
	L102	SPDT		ML, MS, SS
	L112	SPDT-MOM.		ML, MS, MV, SS
	L103	SP3T		MA, MS, TS
	L113	SP3T-MOM. to one end		MA, MS, TS
	L123	SP3T-MOM. to both ends		MA, MS, TS
	L104	SP4T		MS

NO. POLES	MODEL NO.	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
DP	L201	DPST		MA, MS, SS
	L202	DPDT		MA, MS, SS
	L212	DPDT-MOM.		MV
	L203	DP3T		MS, TS
	L204	DP4T		MS

NOTE: and MOM. in table indicates momentary action.

All models with all options when ordered with 'G' or 'Q' contact material.

Contacts make on side actuator thrown.

ACTUATOR



ACTUATOR OPTIONS FOR 'MS, MA, ML, SS, & TS' MOUNTING STYLES

01 .200" HIGH
 02 .335" HIGH
 03 .375" HIGH
 05 .312" HIGH
 11 .100" HIGH
 12 SCREWDRIVER SLOT

NOTE: No actuator color option code is required. Standard actuator color is black, other colors and heights available, consult Customer Service Center. See pages I-20 and I-22 for available mounting styles.

ACTUATOR OPTIONS FOR 'MV' MOUNTING STYLE

13 PLUNGER WITHOUT CAP
 14 PLUNGER WITH CAP
 15 PLUNGER WITH CAP

17 PLUNGER WITH CAP
 19 PLUNGER WITH CAP

Cap part number 7089 Cap part number 8018

Cap part number 7982 Cap part number 8940

OPTION CODE	ACTUATOR CAP COLORS
2	BLACK
NONE	01-13 ACTUATORS

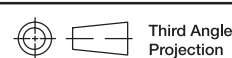
Other colors available, consult Customer Service Center.

ACTUATOR CAPS

Caps supplied are not installed standard. To order actuator options '14 thru 19,' select desired cap color from chart and place option code in last box of ordering format. Leave box empty for all other actuator options. Caps may also be ordered separately and user installed, see pages I-23 and I-24. Specify the four digit part number and desired cap color. For switches without caps, order '13' or '23' actuator option. Cap finish: gloss (excluding square cap part number 7982, finish: matte).

SPLASH CAPS

New protective splash caps for PC mounted slide switches are available separately and reusable. They provide splash protection during soldering and cleaning processes. To order specify correct part number, see page I-24.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



L Series Miniature Slide Switches

DETENT

1 WITH DETENT

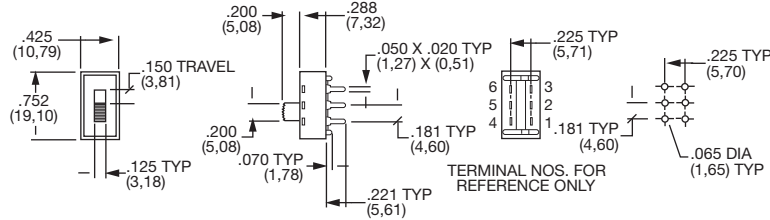
Standard with all maintained models: L101, L102, L103, L104, L113, L201, L202, L203 and L204.

2 WITHOUT DETENT

Standard with all momentary models: L112, L123, and L212.

MOUNTING STYLE

MS PC THRU-HOLE, 2 POSITION MODELS



AVAILABLE WITH:

Models: L101, L102, L112, L103, L113 L123, L201, L202, L203, L104 and L204

Terminations: 02, 06, 10 and 12

Actuators: 01, 02, 03, 05, 11 and 12

PC MOUNTING

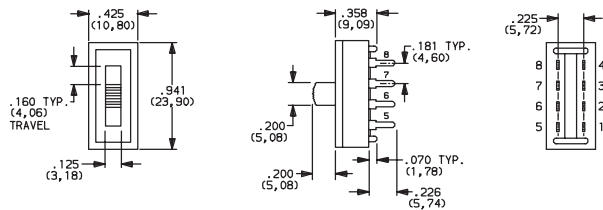
For mounting information, see TERMINATIONS section, page I-23.

Splash caps are available separately and reusable, see page I-24.

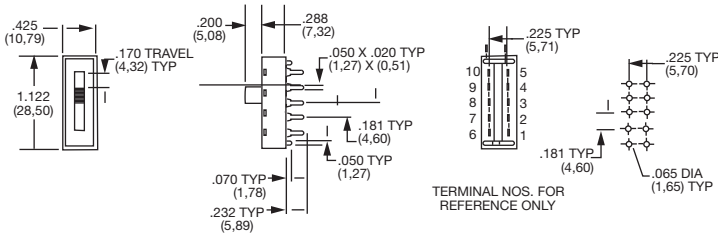


L203011MS02Q
DP3T

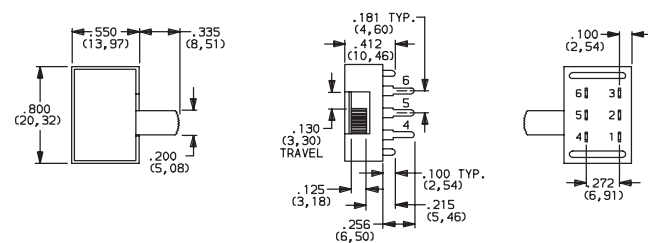
PC THRU-HOLE, 3 POSITION MODELS



PC THRU HOLE, 4 POSITION MODELS



MA RIGHT ANGLE, PC THRU-HOLE



AVAILABLE WITH:

Models: L103, L201, L202, L113 and L123

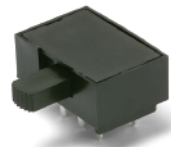
Terminations: 04

Actuators: 02 and 12

PC MOUNTING

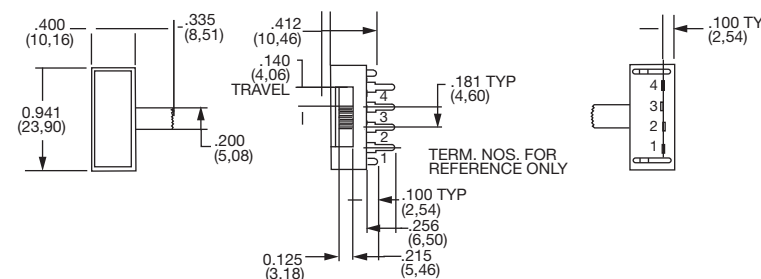
For mounting information, see TERMINATIONS section, page I-23.

Splash caps are available separately and reusable, see page I-24.



L202021MA04Q
Horizontal Actuation
DPDT

RIGHT ANGLE, PC, SP-3 POSITION MODELS

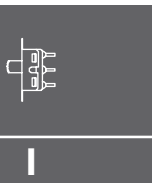


Third Angle
Projection

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

C&K



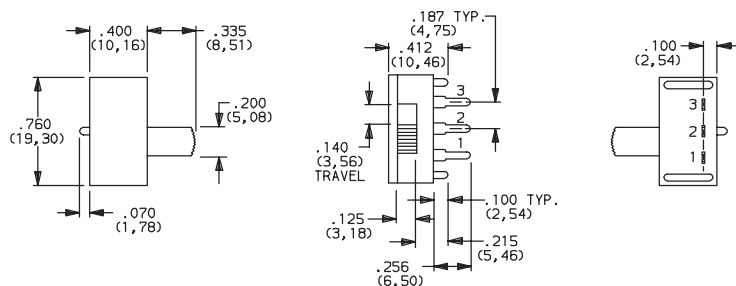
Slide

L Series Miniature Slide Switches

MOUNTING STYLE



ML RIGHT ANGLE, PC THRU-HOLE



AVAILABLE WITH:

Models: L101, L102, L112
Terminations: 04
Actuators: 01, 02, 05, 11 and 12
PC MOUNTING

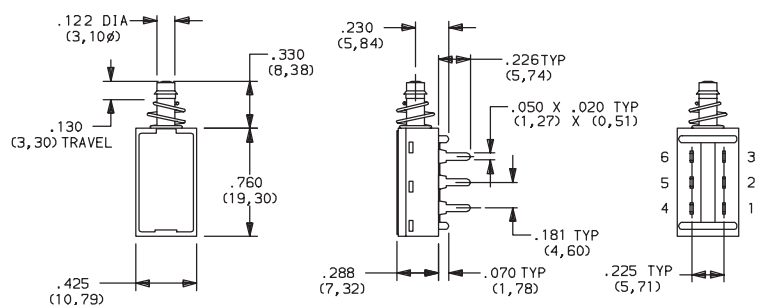
For mounting information, see TERMINATIONS section, page I-23.

Splash caps are available separately and reusable, see page I-24.



L102021ML04Q
Horizontal Actuation
SPDT

MV RIGHT ANGLE, PC THRU-HOLE



AVAILABLE WITH:

Models: L112 and L212
Terminations: 02, 06, 10 and 12
Actuators: 13 thru 19

PC MOUNTING

For mounting information, see TERMINATIONS section, page I-23.

Splash caps are available separately and reusable, see page I-24.

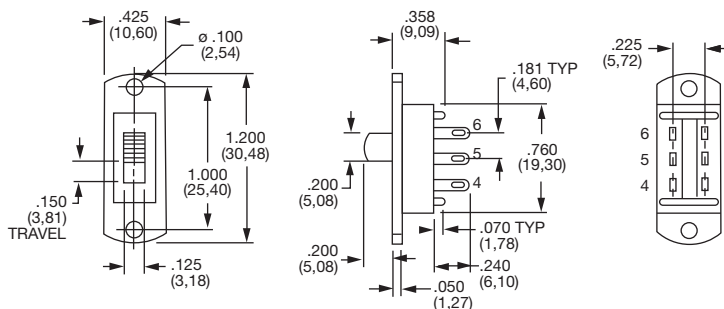


L212132MV02Q
DPDT

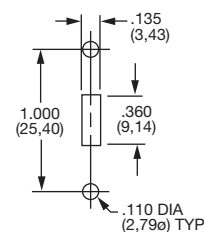
SS PANEL WITH MOUNTING EARS



L202011SS03Q
DPDT



PANEL MOUNTING



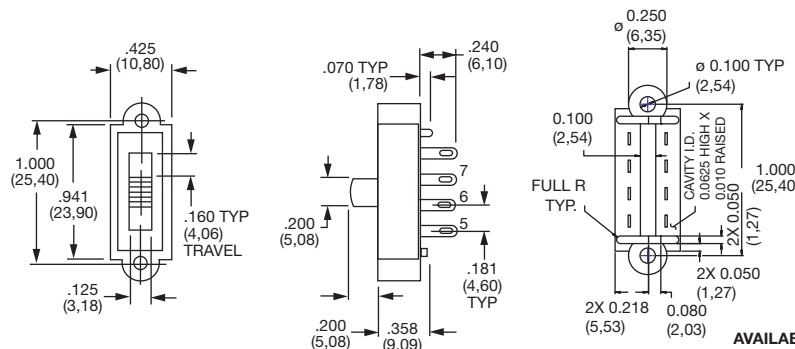
AVAILABLE WITH:

Models: L101, L102, L112, L201 and L202
Terminations: 01, 02, 03, 06, 10, 12
Actuators: 01, 02, 03, 05, 11 and 12

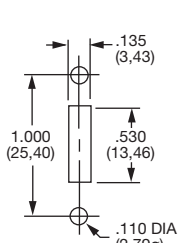
TS PANEL WITH INTEGRAL MOUNTING EARS



L203011TS03Q
DP3T



PANEL MOUNTING



AVAILABLE WITH:

Models: L103, L113, L123 and L203
Terminations: 01, 02, 03, 06, 10, 12
Actuators: 01, 02, 03, 05, 11 and 12



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

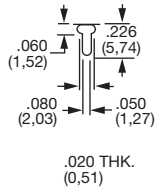


L Series Miniature Slide Switches

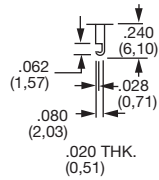
TERMINATIONS

'MS, MV, SS & TS' Mounting Styles Only

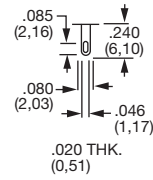
02 PC THRU-HOLE



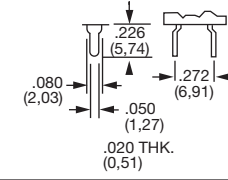
01 SOLDER LUG WITH NOTCH



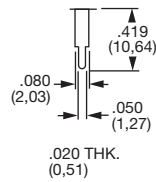
03 SOLDER LUG WITH HOLE



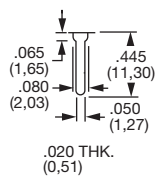
10 PC THRU-HOLE



12 PC THRU-HOLE

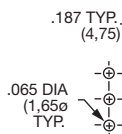
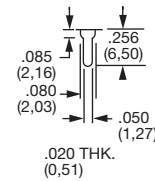


06 WIRE WRAP

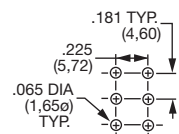


'MA & ML' Mounting Styles Only

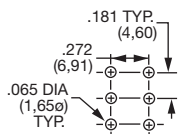
04 PC THRU-HOLE



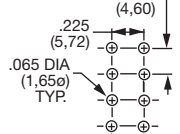
All models with '04' terminations and 'ML' mounting style.



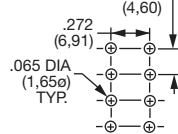
All 2 position models, except '04' and '10' terminations.



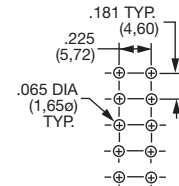
All 2 position models with '04' and '10' terminations.



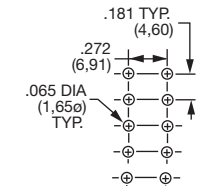
All 3 position models except '04' and '10' terminations.



All 3 position models, with '10' termination.



All 4 position models, except '04' and '10' terminations.



All 4 position models, with '10' terminations.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	RATINGS	
Q	SILVER ²	LOW LEVEL/DRY CIRCUIT	LX0X, LX1X MODELS: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC (UL). LX6X MODELS: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL).
B	GOLD ¹	POWER	0.4 VA MAX. @20 V AC OR DC max.
G	GOLD OVER SILVER ³	LOW LEVEL/DRY CIRCUIT OR POWER	LX0X, LX1X MODELS: 0.4 VA MAX. @ 20 V AC or DC MAX. or 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC (UL). LX6X MODELS: 0.4 VA MAX. @ 20 V AC or DC MAX. or 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL).

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

³ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

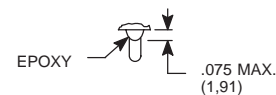
All models  with all options when ordered with 'G' or 'Q' contact material.

NOTE: 'G' contact material is equivalent to both 'B' and 'Q' contact materials.

SEAL

NONE NO SEAL

E EPOXY SEAL



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

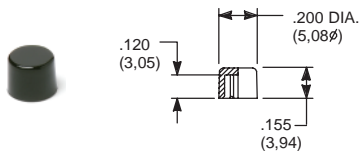


Slide

L Series Miniature Slide Switches

AVAILABLE HARDWARE

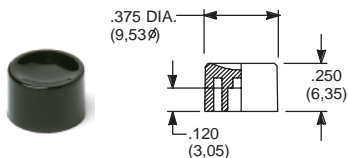
Cap
Compatible with 13-19 actuators



PART NO.
708902000 BLACK
708903000 RED

Material: Nylon
Finish: Gloss

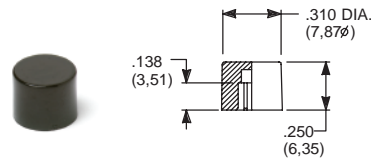
Cap
Compatible with 13-19 actuators



PART NO.
752702000 BLACK
752703000 RED

Material: Nylon
Finish: Gloss

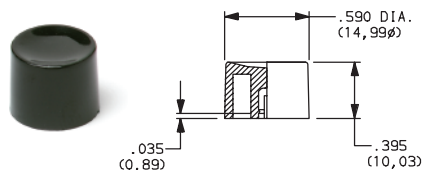
Cap
Compatible with 13-19 actuators



PART NO.
801802000 BLACK
801803000 RED

Material: Nylon
Finish: Gloss

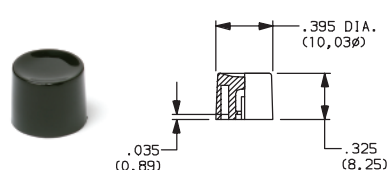
Cap
Compatible with 13-19 actuators



PART NO.
452D02000 BLACK
452D03000 RED

Material: Nylon
Finish: Gloss

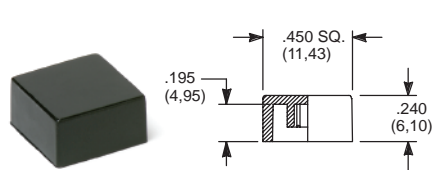
Cap
Compatible with 13-19 actuators



PART NO.
894102000 BLACK
894103000 RED

Material: Nylon
Finish: Gloss

Cap
Compatible with 13-19 actuators



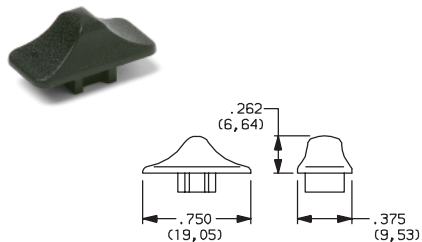
PART NO.
484602000 BLACK
484603000 RED

PART NO.
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Gloss

Material: Nylon
Finish: Matte

Cap
Compatible with 01-05 actuators



PART NO.
120100602 BLACK

Material: Nylon
Finish: Matte

Splash Cap



Fits 'MS' mounting style,
LXX1 & LXX2 models only.

PART NO.
120100200

Material: Nylon

Splash Cap



Fits 'MV' mounting style,
LX1X models only.

PART NO.
120100300

Material: Nylon

Splash Cap



Fits 'MA' mounting style,
LXX3 models only.

PART NO.
120100400

Material: Nylon

NOTE: Other colors available,
consult Customer Service Center.



Third Angle
Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

LP Series Miniature Snap-in Slide Switches

Features/Benefits

- 6 to 11 AMPS available
- Easy assembly—Snap-in mounting
- Contamination resistant—extended actuator
- Positive detent
- RoHS compliant

Typical Applications

- Small appliances
- Outdoor appliances
- Portable tools



C&K US
Models Available

Specifications

CONTACT RATING: Q contact material (LP0X, LP2X Models: 6 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC (UL/CSA). (LP7X, LP8X Models): 11 AMPS @ 125/250 V AC (UL/CSA). See page I-27 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

OPERATING TEMPERATURE: -30°C to +65°C

STORAGE TEMPERATURE: -30°C to +85°C

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING: 6/6 nylon (UL94V-2), black.

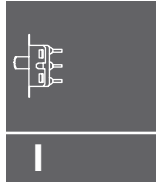
ACTUATOR: Glass filled acetal, UV and petroleum resistant, black.

CONTACTS: Q contact material: Copper, silver plated. See page I-27 for additional contact materials.

TERMINALS: Q contact material: Copper, silver plated. See page I-27 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

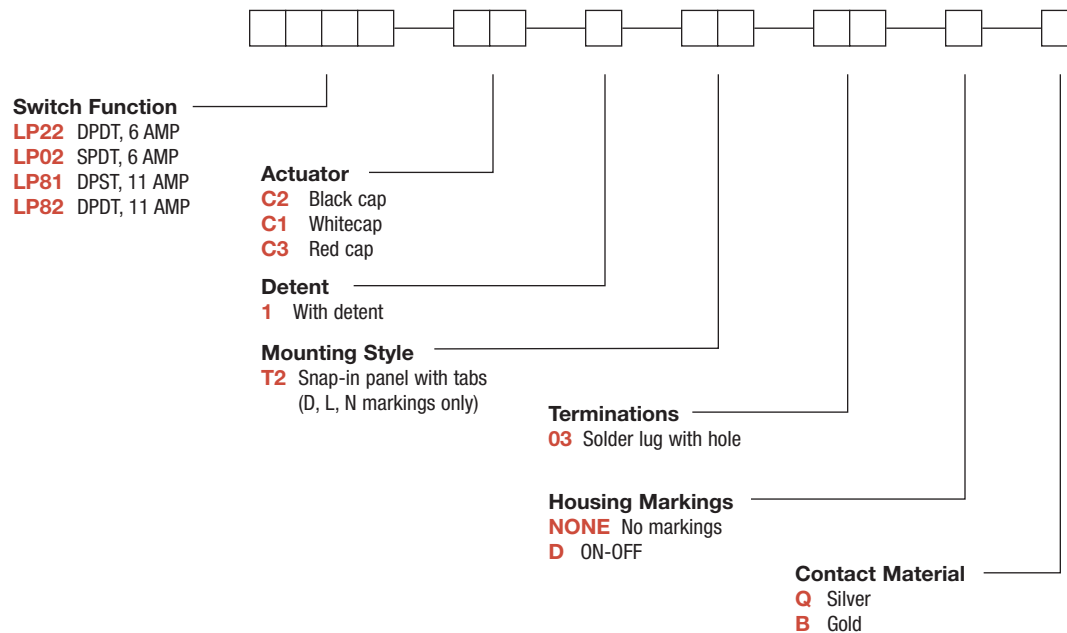
TERMINAL SEAL: Epoxy.



Side

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-26 and I-27. For additional options not shown in catalog, consult Customer Service Center.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K

LP Series Miniature Snap-in Slide Switches

SWITCH FUNCTION

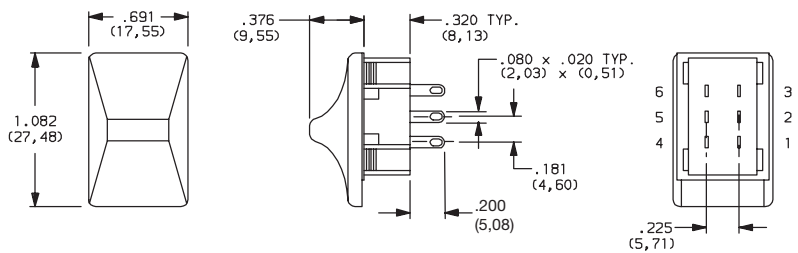
NO. POLES	MODEL NO.	AMP RATING*	SWITCH FUNCTION	SCHEMATIC
SP	LP02	6	SPDT	

NO. POLES	MODEL NO.	AMP RATING*	SWITCH FUNCTION	SCHEMATIC
DP	LP22	6	DPDT	
	LP81	11	DPST	
	LP82	11	DPDT	

All models **C&K** US with all options when ordered with 'Q' contact material.
Contacts make on side actuator thrown.

* For complete contact ratings, see CONTACT MATERIALS Section, page I-27.

Slide

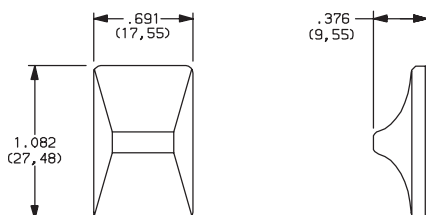


Part number shown: LP22C21S203Q

Terminal Nos.
For Reference Only

ACTUATOR

C1; C2; C3



OPTION CODE2	ACTUATOR CAP COLOR
C2	BLACK
C1	WHITE
C3	RED

NOTE: Actuator finish: gloss.
Other colors available,
consult Customer Service Center.

DETENT

1 WITH DETENT

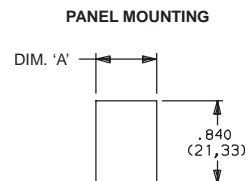
MOUNTING STYLE

T2 SNAP-IN PANEL WITH TABS



Mounting style T2 suitable for markings.
See HOUSING MARKINGS options.

PANEL THICKNESS	DIM 'A'
.030-.045 (0,76) (1,14)	.578 (14,68)
.046-.059 (1,17) (1,50)	.585 (14,86)
.060-.089 (1,52) (2,26)	.598 (15,19)
.090-.120 (2,29) (3,05)	.610 (15,49)



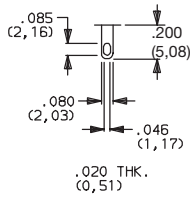
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



LP Series Miniature Snap-in Slide Switches

TERMINATIONS

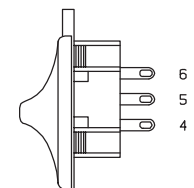
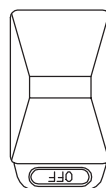
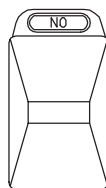
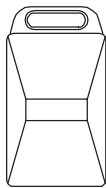
03 SOLDER LUG WITH HOLE



HOUSING MARKINGS

NONE NO MARKINGS

D ON-OFF



NOTE: Housing markings are available with 'T2' mounting style only. The marking color on all housings with marking options 'D' is white, standard. Other marking colors are available, consult Customer Service Center.

Orientation of actuator and terminals.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	RATINGS	
Q	SILVER ²	POWER	LP0X, LP2X MODELS: 6 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC (UL/CSA). LP7X, LP8X MODELS: 11 AMPS @ 125/250 V AC (UL/CSA).
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @20 V AC OR DC MAX.


* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

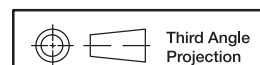
¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

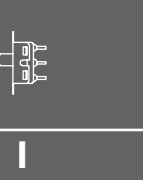
³ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

All models  with all when ordered with 'Q' contact material.

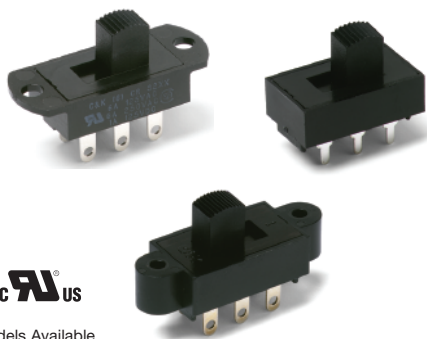


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Slide

S Series Slide Switches



Models Available

Features/Benefits

- 6 to 15 AMPS
- Enclosed housing
- PC and Snap-in panel mounting
- Reversing option
- RoHS compliant

Typical Applications

- Portable tools
- Small appliances
- Floor care products

Specifications

CONTACT RATING: Q contact material (S1XX, S2XX Models): 6 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC . (S5XX, S6XX Models): 12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC . (S7XX, S8XX Models): 15 AMPS @ 125 V AC; 6 AMPS @ 250 V AC . See page I-32 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to +65°C

STORAGE TEMPERATURE: -30°C to +85°C

Materials

HOUSING: 6/6 nylon (UL94V-2), black.

TOP PLATE: 6/6 nylon (UL94V-2), black.

ACTUATOR: 6/6 nylon (UL94V-2), black (standard).

CONTACTS: Q contact material: Copper, silver plated. See page I-32 for additional contact materials.

TERMINALS: Q contact material: Copper, silver plated. See page I-32 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-29 through I-32. For additional options not shown in catalog, consult Customer Service Center.

<p>Switch Function</p> <p>S101 SPST, 6 AMPS</p> <p>S202 (DPDT, 6 AMPS</p> <p>S802 DPDT, 15 AMPS</p> <p>S102 SPDT, 6AMPS</p> <p>S112 SPDT, mom., 6 AMPS</p> <p>S201 DPST, 6 AMPS</p> <p>S602 DPDT, 12 AMPS</p> <p>S701 SPST, 15 AMPS</p> <p>S702 SPDT, 15 AMPS</p>	<p>Actuator</p> <p>03 .335" high</p> <p>04 .500" high</p> <p>09 .250" high</p> <p>12 Screwdriver slot (with marking)</p> <p>13 Screwdriver slot (without marking)</p> <p>C2 Black cap</p> <p>C3 Red cap</p> <p>C5 Yellow cap</p>	<p>Detent</p> <p>1 With detent</p> <p>2 Without detent</p>	<p>Mounting Style</p> <p>SS Panel with mounting ears</p> <p>MS PC thru-hole</p> <p>S2 Snap-in panel with blacktop plate</p> <p>TS Panel with mounting ears</p>	<p>Terminations</p> <p>03 Solder lug with hole</p> <p>02 PC Thru-hole</p> <p>04 PC Thru-hole</p> <p>07 Quick connect</p> <p>08 PC Thru-hole</p> <p>WC Wire lead</p>	<p>Housing Markings</p> <p>NONE No markings</p> <p>D ON-OFF</p> <p>L ON</p> <p>M ON-OFF</p> <p>N Red rectangle on one end</p>	<p>Contact Material</p> <p>Q Silver</p> <p>B Gold</p> <p>G Gold over silver</p>	<p>Seal</p> <p>NONE No seal</p> <p>E Epoxy seal</p>
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Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

S Series Slide Switches

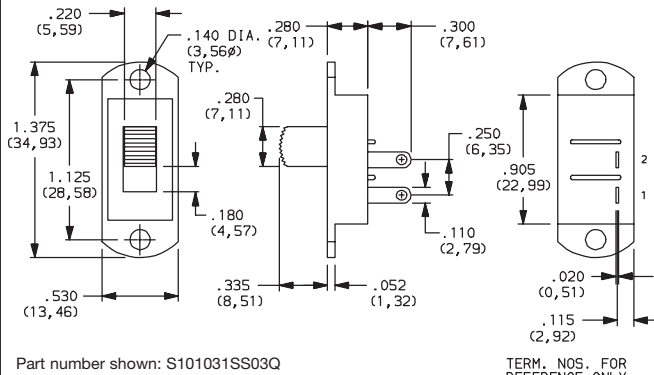
SWITCH FUNCTION



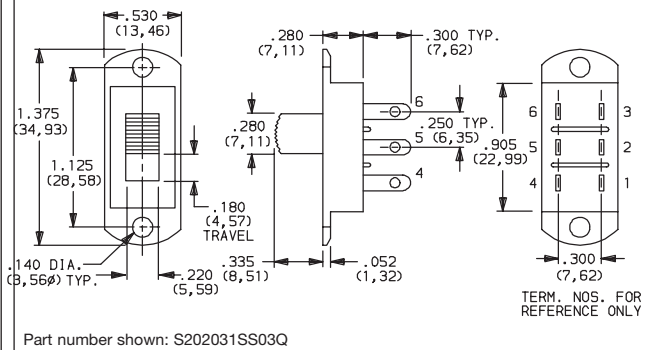
NO. POLES	MODEL NO.	AMP RATING	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
SP	S101	6	SPST		SS
	S102	6	SPDT		MS,SS
	S112	6	SPDT-MOM.		MS,SS
	S701	15	SPST		S1,S2,S3,ST
	S702	15	SPDT		S1,S2,S3,ST

NO. POLES	MODEL NO.	AMP RATING	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
DP	S201	6	DPST		MS,SS,TS
	S202	6	DPDT		MS,SS,TS
	S602	12	DPDT		MS,SS,TS
	S802	15	DPDT		S1,S2,S3,ST

SPST



DPDT



NOTE: and MOM. in table indicates momentary action.

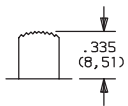
All models with all options when ordered with 'G' or 'Q' contact material.

Contacts make on side actuator throw.

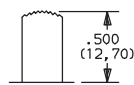
ACTUATOR



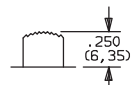
03 .335" HIGH



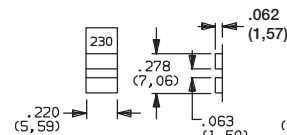
04 .500" HIGH



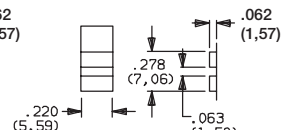
09 .250" HIGH



12 SCREWDRIVER SLOT (WITH MARKING)

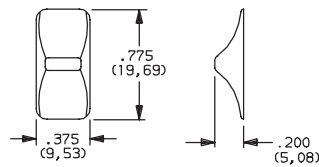


13 SCREWDRIVER SLOT (WITHOUT MARKING)



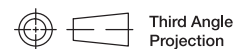
NOTE: Standard actuator color is black, other colors available, consult Customer Service Center. Alternate heights are available with '03, 04 and 09' actuators, consult Customer Service Center. Models with S2 mounting style, subtract .090 (2,29). Actuators '12' and '13' are available with DPST and DPDT models only.

C2; C3; C5 SNAP-ON CAP



OPTION CODE2	C1-CT CAP COLOR
C2	BLACK
C3	RED
C5	YELLOW

NOTE: Actuator finish: matte. If no color is specified, black will be supplied. Colored actuator caps may also be ordered separately and user installed, see page I-32.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change



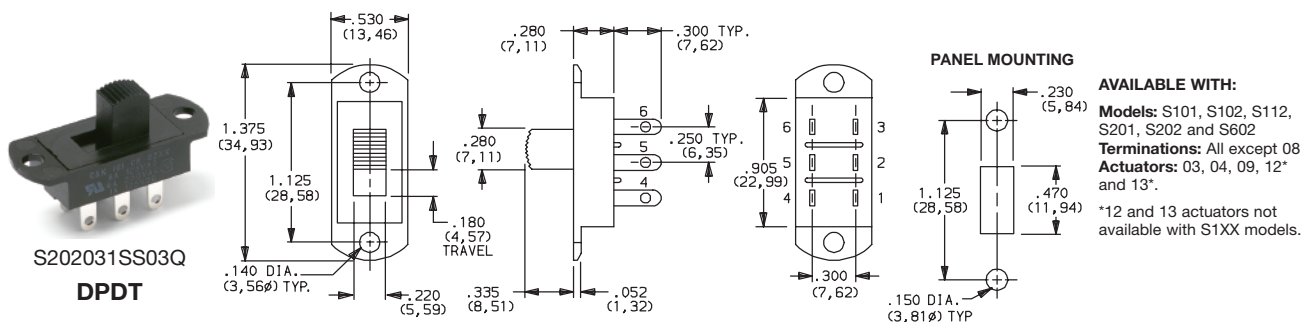
S Series Slide Switches

DETENT

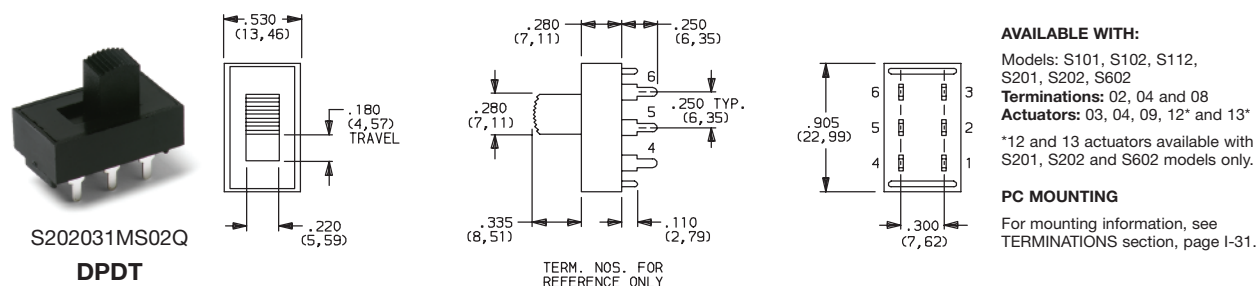
- 1 WITH DETENT**
Standard with all maintained models: S101, S102, S201, S202, S602, S701, S702, and S802.
- 2 WITHOUT DETENT**
Standard with all momentary models: S112.

MOUNTING STYLE

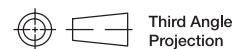
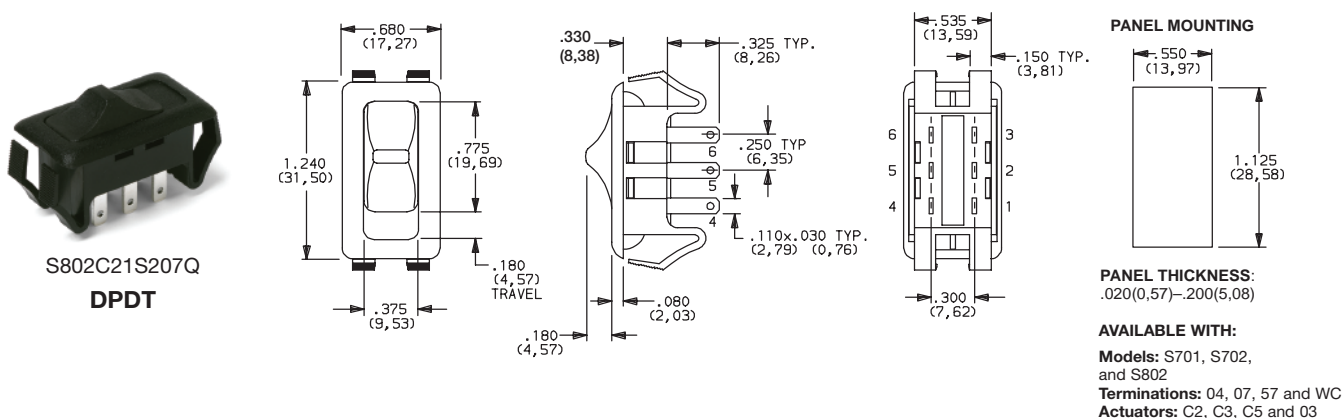
SS PANEL WITH MOUNTING EARS



MS PC THRU-HOLE



S2 SNAP-IN PANEL



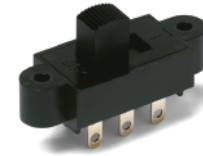
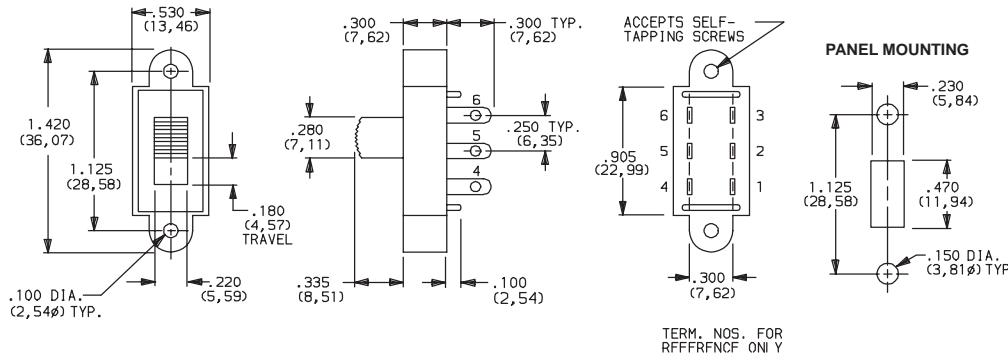
Third Angle Projection
 Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



S Series Slide Switches

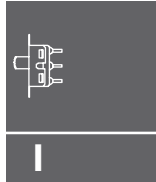
MOUNTING STYLE

TS PANEL WITH MOUNTING EARS



S202031TS03Q
DPDT

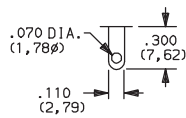
AVAILABLE WITH:
Models: S201, S202, and S602
Terminations: All
Actuators: 03, 04 and 12.



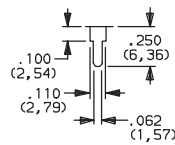
Slide

TERMINATIONS

03 SOLDER LUG WITH HOLE

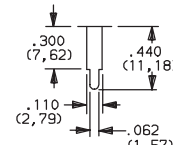


02 PC THRU-HOLE



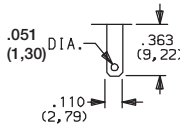
Recommended with 'MS' mounting style only.

04 PC THRU-HOLE

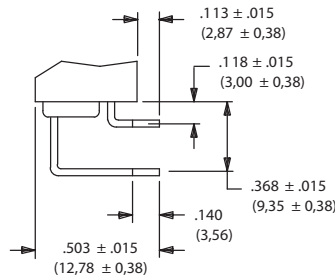


Recommended with double pole models only.

07 QUICK CONNECT

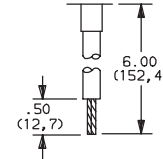


08 PC THRU-HOLE



MS mounting style only.

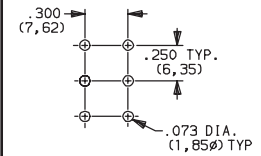
WC WIRE LEAD



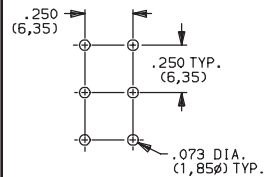
18 AWG wire for S1XX and S2XX models. 16 AWG wire for all other models. Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

PC MOUNTING

02 & 04 terminations



08 terminations with MS mounting style.



NOTE: All terminals on S1XX, S2XX and S6XX models are .020 (0,51) thick; all terminals on S7XX and S8XX models are .031 (0,79) thick.



Third Angle Projection

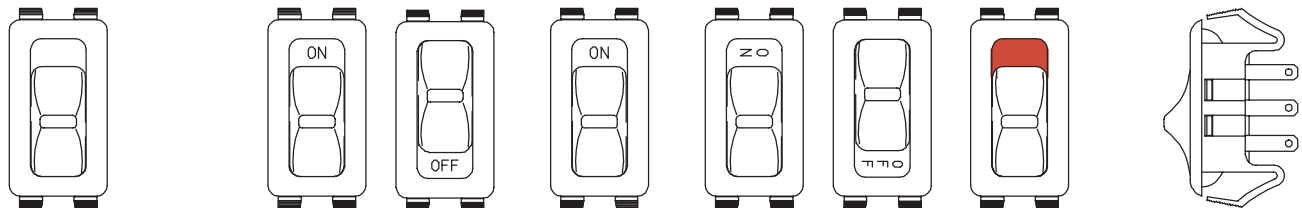


Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

S Series Slide Switches

TOP PLATE MARKINGS

NONE NO MARKINGS **D** ON-OFF **L** ON **M** ON-OFF **N** RED RECTANGLE ON ONE END



NOTE: Top plate markings are available with 'S2' mounting style only. The marking color on all top plates with marking options 'D, L and M' is white, standard. (except white top plates: marking color is black, standard). The marking color on all top plates with 'N' marking option is red, standard. Other marking colors are available, consult Customer Service Center.

Note: Orientation of actuator markings and terminals.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	RATINGS	
Q	SILVER ²	POWER	S1XX, S2XX MODELS: 6 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC S S6XX MODELS: 12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC S S7XX, S8XX MODELS: 15 AMPS @ 125 V AC; 6 AMPS @ 250 V AC S
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC max.
G	GOLD OVER SILVER ³	LOW LEVEL/DRY CIRCUIT OR POWER	S1XX, S2XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 6 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC S S6XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC S S7XX, S8XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 15 AMPS @ 125 V AC; 6 AMPS @ 250 V AC S

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

³ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.

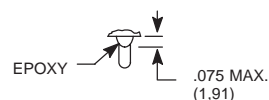
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant. All models S with all options when ordered with 'G' or 'Q' contact material.

NOTE: 'G' contact material is equivalent to both 'B' and 'Q' contact materials.

SEAL

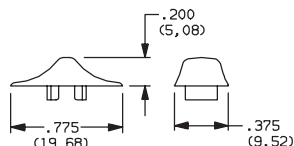
NONE NO SEAL

E EPOXY SEAL



AVAILABLE HARDWARE

Cap, C2; C3 actuators

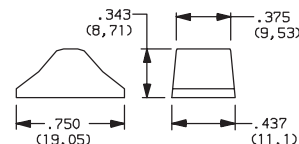


PART NO.

121160100 WHITE
121160200 BLACK
121160300 RED

Material: 6/6 Nylon
Finish: Matte

Cap, 03 actuator



PART NO.

121000101 WHITE
121000102 BLACK
121000103 RED

Material: 6/6 Nylon
Finish: Gloss

NOTE: Other cap colors available, consult Customer Service Center.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



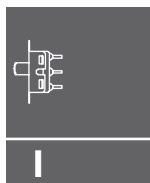
V Series Power & Line Voltage Select Slide Switches

Features/Benefits

- Ratings up to 10 AMPS
- Snap-in panel and PC mounting
- Actuators with screwdriver slot
- Quick connect terminals available
- RoHS compliant

Typical Applications

- Appliances



Side

Specifications

CONTACT RATING: 10 GPA @ 125 V AC 50/60 Hz T85;
5 GPA @ 250 V AC 50/60 Hz T85;
2 (0.5)A @ 250 VAC 50/60 Hz T85;
4RA @ 30 VDC T85

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial
@ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to +85°C.

Materials

HOUSING: 6/6 nylon (UL94V-2), black.

TOP PLATE: 6/6 nylon (UL94V-2), black.

ACTUATOR: Glass filled polyester (UL94V-0), '01 and 02' styles, black (standard); '12, 13 and 14' styles, red (standard).

CONTACTS: Copper, silver plated.

TERMINALS: Copper, silver plated.

CONTACT SPRING: Music wire or stainless steel.

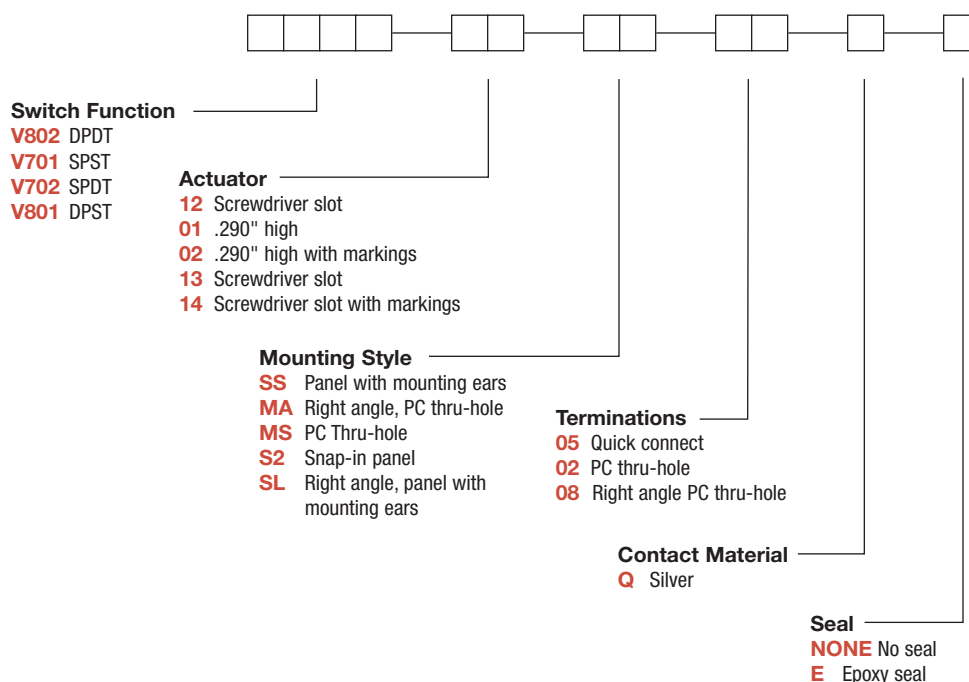
TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages I-34 through I-36. For additional options not shown in catalog, consult Customer Service Center.



V Series Power & Line Voltage Select Slide Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
SP	V701	SPST		ALL
	V702	SPDT		ALL

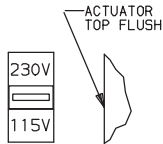
All models with all options.

Contacts make on side actuator throw.

NO. POLES	MODEL NO.	SWITCH FUNCTION	SCHEMATIC	AVAILABLE MOUNTING STYLES
DP	V801	DPST		ALL
	V802	DPDT		ALL

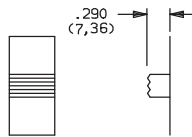
ACTUATOR

12 SCREWDRIVER SLOT WITH MARKING



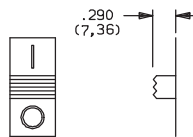
Actuator color is red with white 115V-230V markings (std.).

01 .290" HIGH



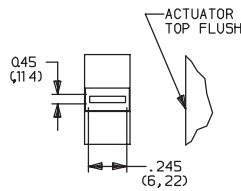
Actuator color is black.

02 .290" HIGH WITH MARKINGS



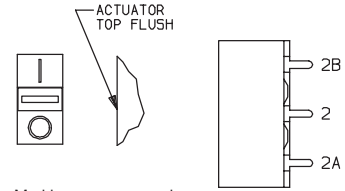
markings are reversed on V702 and V802 models. Actuator color is black with white markings (std.).

13 SCREWDRIVER SLOT NO MARKING



Actuator color is red.

14 SCREWDRIVER SLOT WITH MARKINGS



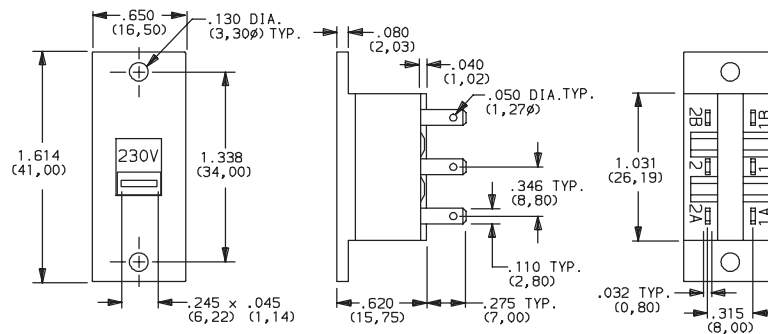
Markings are reversed on V702 and V802 models. Actuator color is red with white markings (std.). **Note:** Orientation of actuator markings and terminals.

MOUNTING STYLE

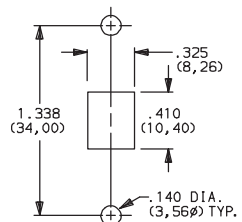
SS PANEL WITH MOUNTING EARS



V80212SS05Q
DPDT



PANEL MOUNTING

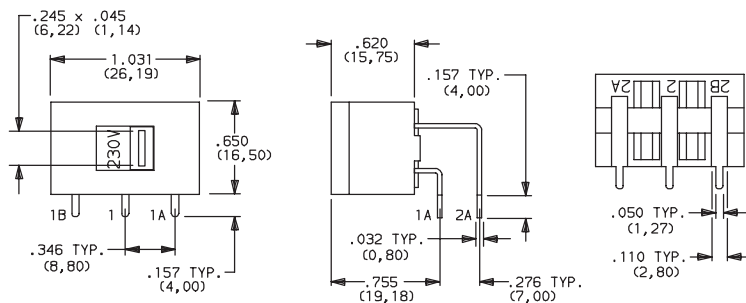


AVAILABLE WITH:
Models: All.
Terminations: 02 and 05

MA RIGHT ANGLE, PC THRU-HOLE



V80212MA08Q
Horizontal Actuation
DPDT



AVAILABLE WITH:

Models: All
Terminations: 08

PC MOUNTING

PC mount, side actuated.
For mounting information, see TERMINATIONS section, page I-36.



Third Angle Projection

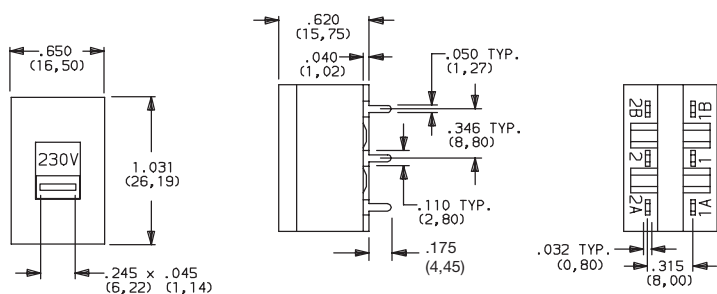
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



V Series Power & Line Voltage Select Slide Switches

MOUNTING STYLE

MS PC THRU-HOLE



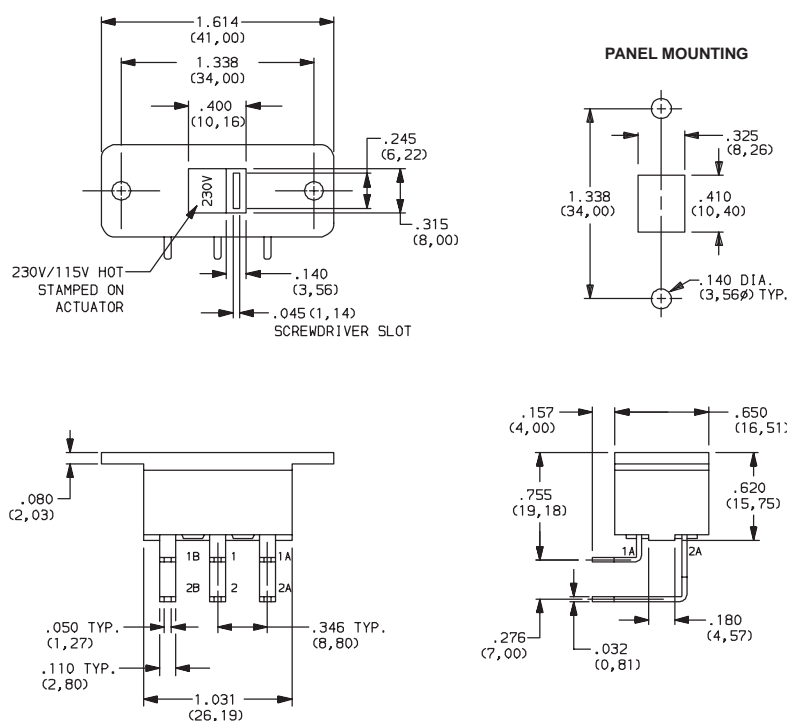
AVAILABLE WITH:
All models with 02 terminations

PC MOUNTING
PC mount, top actuated.
For mounting information,
see TERMINATIONS section, page I-36.



V80212MS02Q
DPDT

SL RIGHT ANGLE PANEL WITH MOUNTING EARS

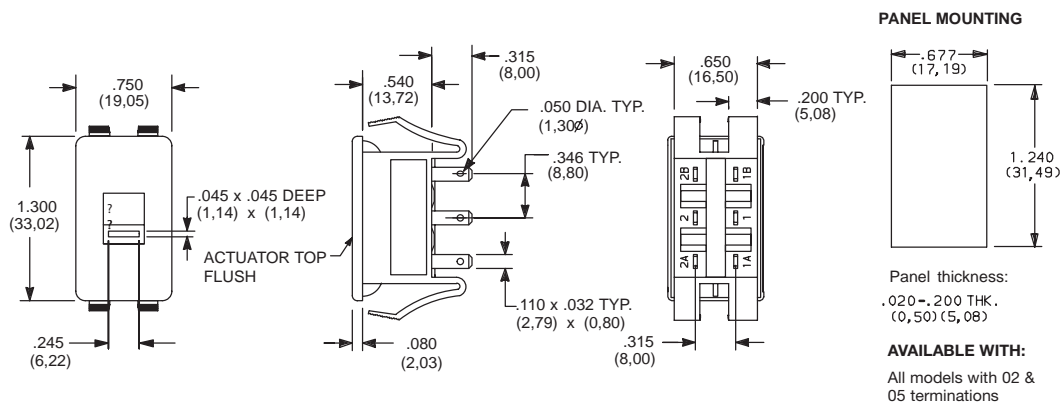


AVAILABLE WITH:
All models with 08 terminations



V80213SL08Q
Horizontal Actuation
DPDT

S2 SNAP-IN PANEL MOUNT



PANEL MOUNTING

Panel thickness:
.020-.200 THK.
(0,50) (5,08)

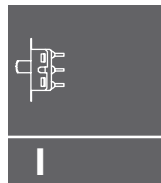
AVAILABLE WITH:
All models with 02 &
05 terminations



V80212S205Q
DPDT



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

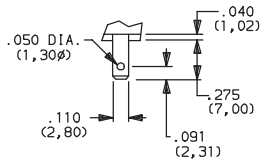


Slide

V Series Power & Line Voltage Select Slide Switches

TERMINATIONS

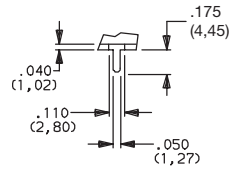
05 QUICK CONNECT



.032 THK.
(0,80)

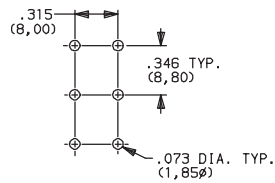
Fits .110 in. quick connector.

02 PC THRU-HOLE



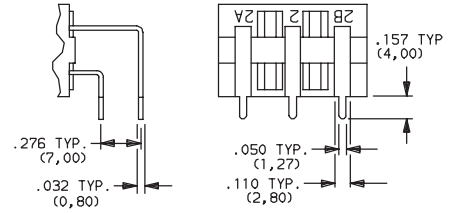
.032 THK.
(0,80)

PC MOUNTING



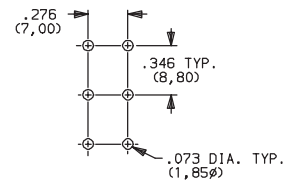
MS, SS Mounting Styles.

08 PC THRU-HOLE



Not available with 'MS, SS or S2' mounting styles.

PC MOUNTING



MA, SL Mounting Styles.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	RATINGS	
Q	SILVER ¹	POWER	10 GPA @ 125 V AC 50/60 Hz T85; 5 GPA @ 250 V AC 50/60 Hz T85; 2 (0.5)A @ 250 VAC 50/60 Hz T85; 4RA @ 30 VDC T85

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

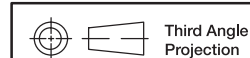
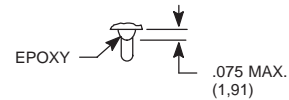
All models   ¹⁵ with all options.

NOTE: Any models supplied with Q contact material are RoHS compliant.

SEAL

NONE NO SEAL

E EPOXY SEAL



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

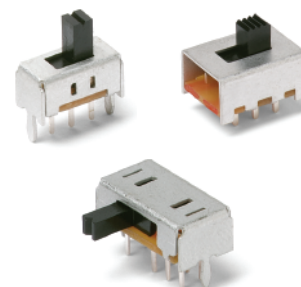
OS Series Miniature Slide Switches

Features/Benefits

- Variety of actuators & terminations
- PC and panel mounting
- Shorting or non-shorting contacts
- RoHS compliant
- Halogen free material

Typical Applications

- Test & measurement equipment
- Computer peripherals & network products
- Consumer products



Specifications

CONTACT RATING: See individual parts.
 MECHANICAL & ELECTRICAL LIFE: 10,000 cycles.
 CONTACT RESISTANCE: 20 mΩ or less.
 INSULATION RESISTANCE: 100 MΩ min. at 500 VDC.
 DIELECTRIC STRENGTH: 500 VAC for 1 minute.
 OPERATING TEMPERATURE: -30°C to +70°C.
 PACKAGING: Bulk

* For RoHS compatible switches contact customer service.

Materials

BASE: Phenolic resin.
 ACTUATOR: Standard: POM, Black.
 High Temperature Option: PA46, Black.
 HOUSING PLATE: Non-compatible; SPCC Sn plated.
 Compatible; SPCC Ni plated.
 MOVABLE CONTACT: Copper alloy, silver plated.
 STATIONARY CONTACTS: Brass, silver plated.
 TERMINALS: Brass, silver plated.
 TERMINAL SEALED.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

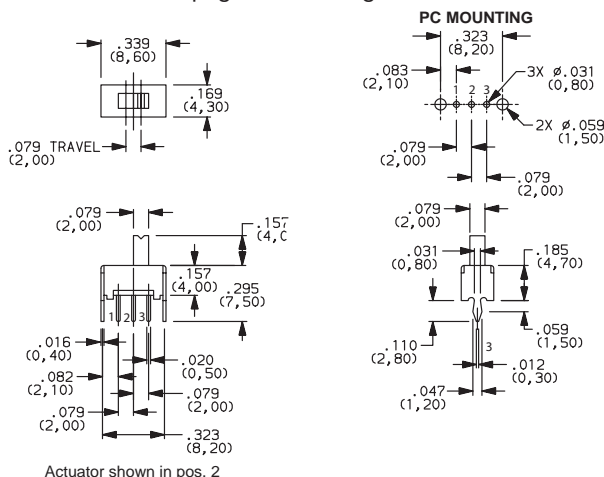
How To Order

Complete part numbers for OS Series Slide Switches are shown on pages I-37 through I-43.

PART NUMBER			SWITCH FUNCTION	
	RoHS Compliant	RoHS Compatible	POS.1	POS.2
OS102011MS2QN1 (non-shorting)	YES	NO	ON	ON
OS102011MS2QN1C* (non-shorting)	YES	YES	ON	ON
OS102011MS2QS1 (shorting)	YES	NO	ON	ON
OS102011MS2QS1C* (shorting)	YES	YES	ON	ON
CONN. TERMINALS			1-2	2-3
SCHMATIC				
SPDT				

CONTACT RATING: 0.1A @ 12 VDC

* "C" option at the end of part number designates high temperature actuators



Actuator shown in pos. 2

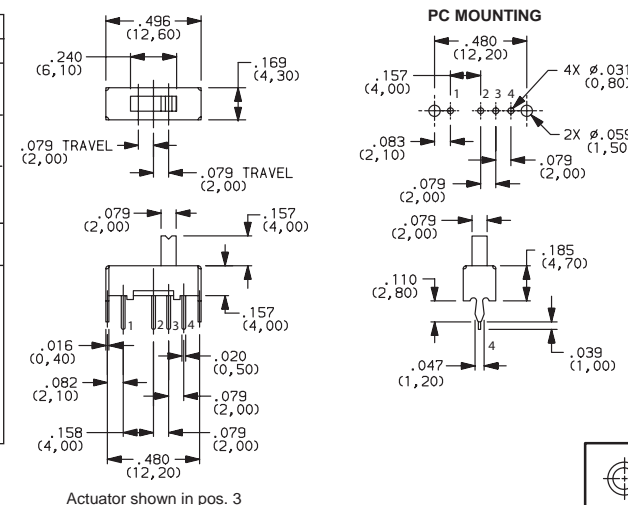


OS102011MS2QN1
SPDT

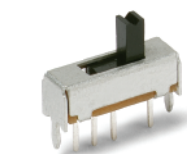
PART NUMBER			SWITCH FUNCTION		
	ROHS Compliant	ROHS Compatible	POS.1	POS.2	POS.3
OS103011MS8QP1 (Non-specified)	YES	NO	ON	ON	ON
OS103011MS8QP1C* (Non-specified)	YES	YES	ON	ON	ON
CONN. TERMINALS			1-2	2-3	2-4
SCHMATIC					
SP3T					

CONTACT RATING: 0.1A @ 12 VDC

* "C" option at the end of part number designates high temperature actuators



Actuator shown in pos. 3



OS103011MS8QP1
SP3T

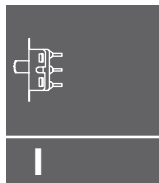


Third Angle Projection

Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

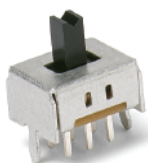


8 aug 17

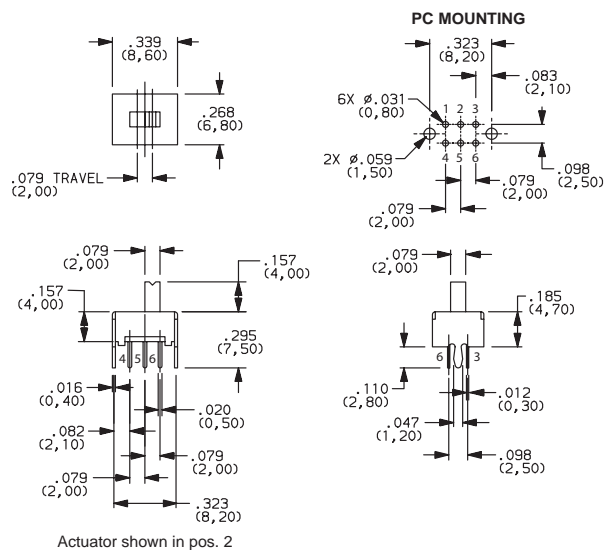


Slide

OS Series Miniature Slide Switches

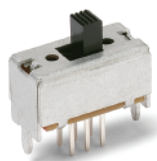


OS202011MS2QS1
DPDT

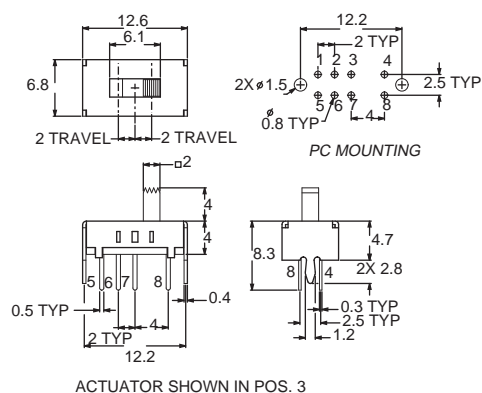


PART NUMBER	RoHS Compliant	RoHS Compatible	SWITCH FUNCTION	
			POS.1	POS.2
OS202011MS2QS1 (Shorting)	YES	NO	ON	ON
OS202011MS2QN1 (Non-shorting)	YES	NO	ON	ON
CONN. TERMINALS			1-2, 4-5	2-3, 5-6
SCHEMATIC				
DPDT				

CONTACT RATING: 0.1A @ 12 VDC

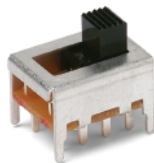


OS203011MS1QP1
DP3T

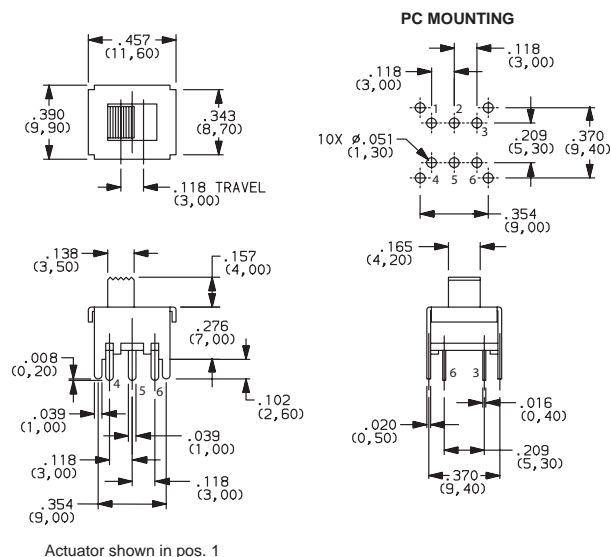


PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS203011MS1QP1 (Non-specified)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-3, 5-7	2-3, 6-7	3-4, 7-8
SCHEMATIC					
DP3T					

CONTACT RATING: 0.3A @ 30 VDC



OS202013MT5QN1
DPDT



PART NUMBER	RoHS Compliant	RoHS Compatible	SWITCH FUNCTION	
			POS.1	POS.2
OS202013MT5QN1 (Non-shorting)	YES	NO	ON	ON
CONN. TERMINALS			1-2, 4-5	2-3, 5-6
SCHEMATIC				
DPDT				

CONTACT RATING: 0.3A @ 30 VDC



Third Angle Projection

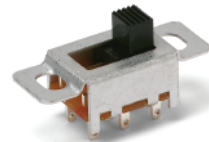
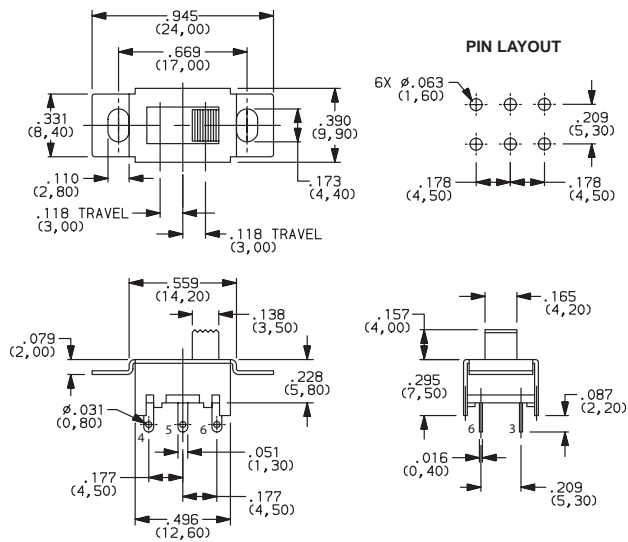
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



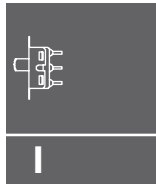
OS Series Miniature Slide Switches

PART NUMBER	ROHS		SWITCH FUNCTION		
	Compliant	Compatible	POS.1	POS.2	POS.3
OS203013MT7QN1 (Non-shorting)	YES	NO	ON	OFF	ON
CONN. TERMINALS			1-2, 4-5		2-3, 5-6
SCHEMATIC					
DP3T					

CONTACT RATING: 0.3A @ 30 VDC



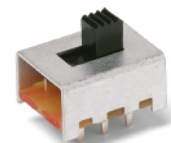
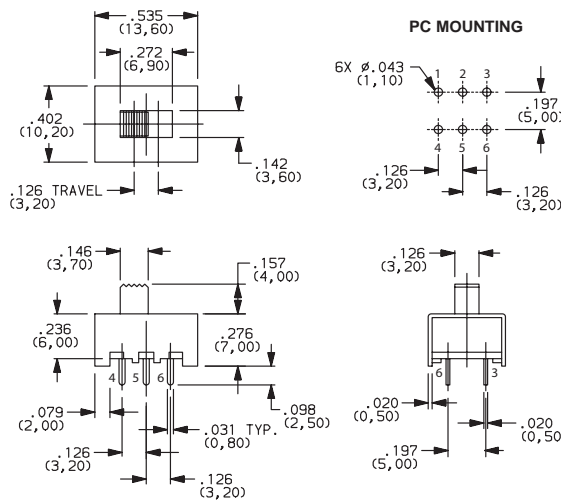
OS203013MT7QN1
DP3T



Slide

PART NUMBER	ROHS		SWITCH FUNCTION	
	Compliant	Compatible	POS.1	POS.2
OS202013MT8QN1 (Non-shorting)	YES	NO	ON	ON
CONN. TERMINALS			1-2, 4-5	2-3, 5-6
SCHEMATIC				
DPDT				

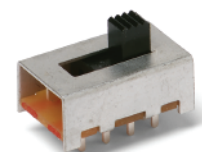
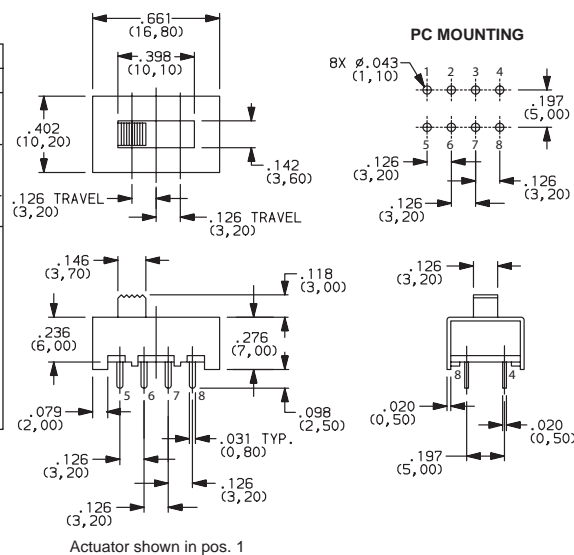
CONTACT RATING: 0.3A @ 30 VDC



OS202013MT8QN1
DPDT

PART NUMBER	ROHS		SWITCH FUNCTION		
	Compliant	Compatible	POS.1	POS.2	POS.3
OS203013MT8QN1 (Non-shorting)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2, 5-6	2-3, 6-7	3-4, 7-8
SCHEMATIC					
DP3T					

CONTACT RATING: 0.3A @ 30 VDC



OS203013MT8QN1
DP3T

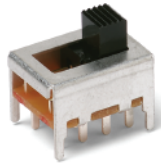


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

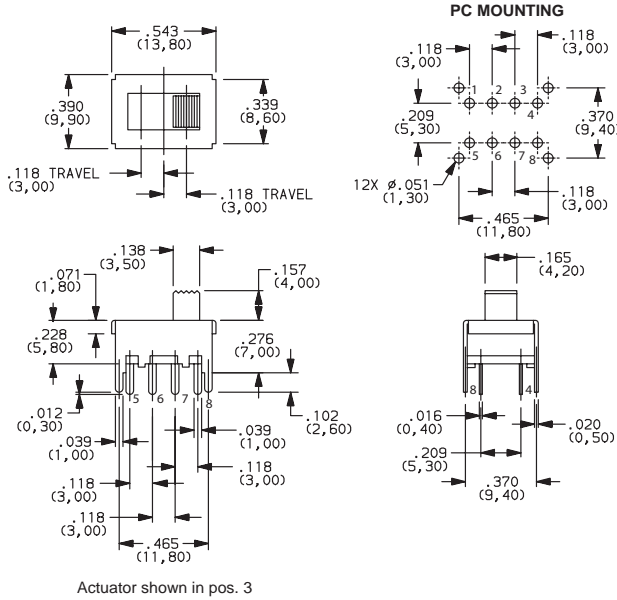


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OS Series Miniature Slide Switches

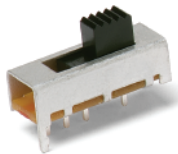


OS203013MT6QN1
DP3T

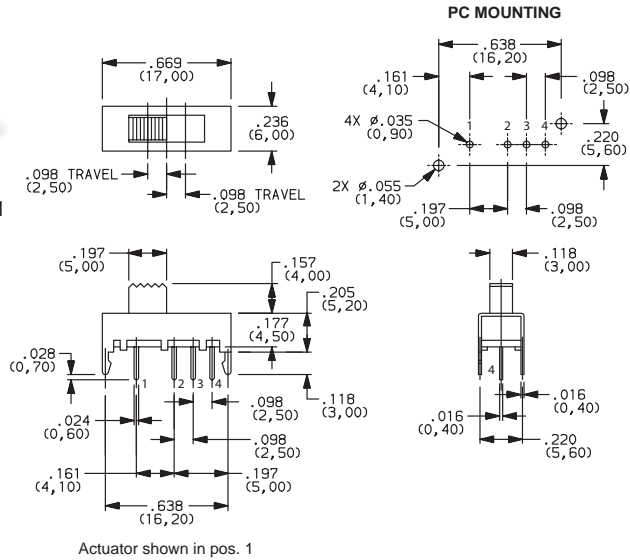


PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS203013MT6QN1 (Non-shorting)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2, 5-6	2-3, 6-7	3-4, 7-8
SCHEMATIC					
DP3T					

CONTACT RATING: 0.2A @ 30 VDC

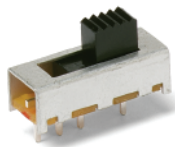


OS103012MU1QP1
SP3T

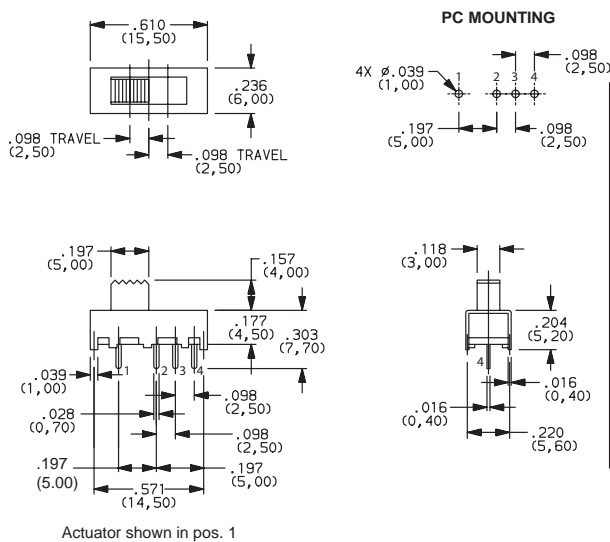


PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS103012MU1QP1 (Non-shorting)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2	2-3	2-4
SCHEMATIC					
SP3T					

CONTACT RATING: 0.2A @ 30 VDC



OS103012MU2QP1
SP3T



PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS103012MU2QP1 (Non-shorting)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2	2-3	2-4
SCHEMATIC					
SP3T					

CONTACT RATING: 0.2A @ 30 VDC



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

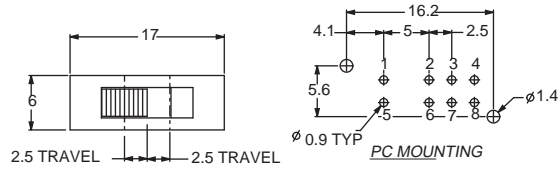


Slide

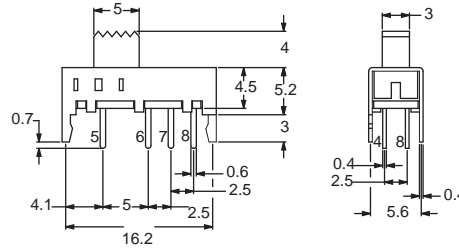
OS Series Miniature Slide Switches

PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS203012MU5QP1 (Non-specified)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2, 5-6	2-3, 6-7	2-4, 6-8
SCHEMATIC					
DP3T					

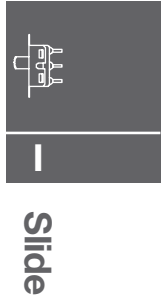
CONTACT RATING: 0.1A @ 30 VDC



OS203012MU5QP1
DP3T

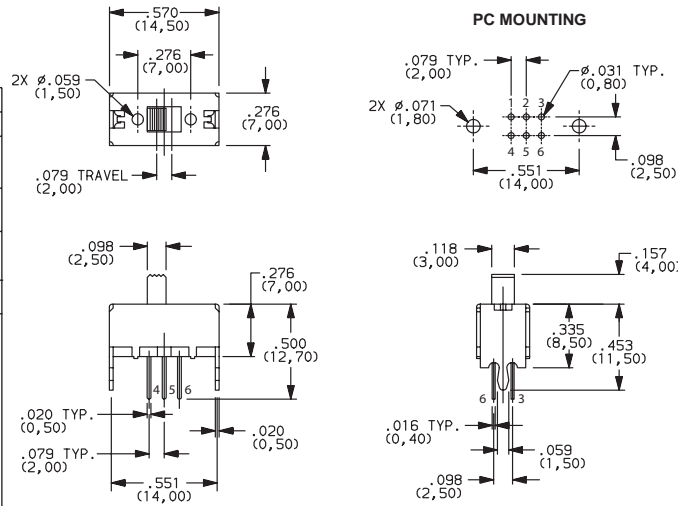


ACTUATOR SHOWN IN POS. 1

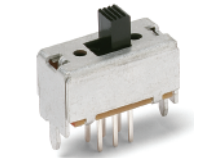


PART NUMBER	RoHS Compliant	RoHS Compatible	SWITCH FUNCTION	
			POS.1	POS.2
OS202011MV4QN1 (Non-shorting)	YES	NO	ON	ON
OS202011MV4QS1 (Shorting)	YES	NO	ON	ON
CONN. TERMINALS			1-2, 4-5	2-3, 5-6
SCHEMATIC				
DPDT				

CONTACT RATING: 0.1A @ 30 VDC



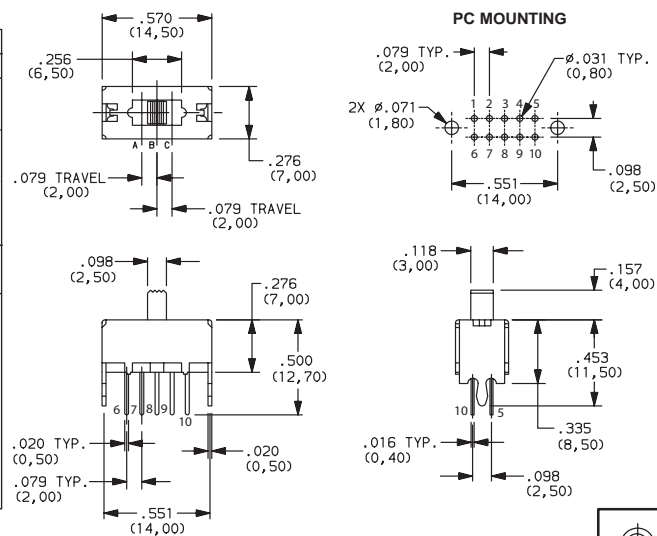
Actuator shown in pos. 1



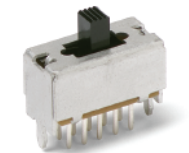
OS202011MV4QN1
DPDT

PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
OS203011MV9QS1 (Shorting)	YES	NO	ON	ON	ON
OS203011MV9QN1 (Non-Shorting)	YES	NO	ON	ON	ON
CONN. TERMINALS			1-2-5 6-7-10	1-3-5 6-8-10	1-4-5 6-9-10
SCHEMATIC					
DP3T					

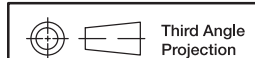
CONTACT RATING: 0.1A @ 30 VDC



Actuator shown in pos. 2(A)



OS203011MV9QS1
DP3T



Third Angle Projection

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

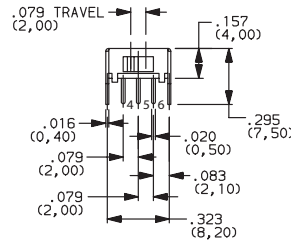
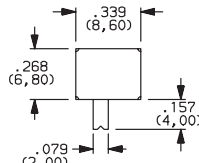


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OS Series Miniature Slide Switches

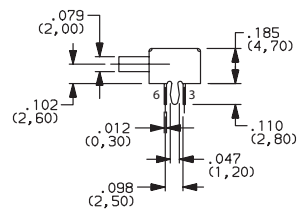
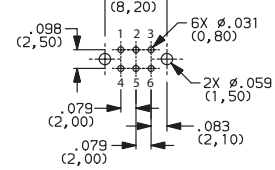
PART NUMBER	RoHS Compliant	RoHS Compatible	SWITCH FUNCTION	
			POS.1	POS.2
OS202011MA0QN1 (Non-shorting)	YES	NO	ON	ON
OS202011MA0QS1 (Shorting)	YES	NO	ON	ON
CONN. TERMINALS			1-2, 4-5	2-3, 5-6
SCHEMATIC				
DPDT				

CONTACT RATING: 0.1A @ 12 VDC

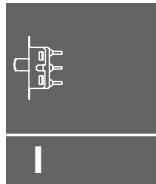


Actuator shown in pos. 1

PC MOUNTING

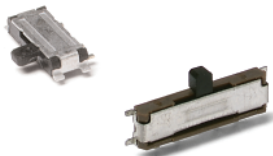


OS202011MA0QN1
DPDT



Slide

PCM Series Ultraminiature Surface Mount Slide Switches



Features/Benefits

- Ultraminiature surface mount
- Low profile
- SPDT & SP3T models
- RoHS compliant

Typical Applications

- Computer peripherals & network products
- Telecommunication products
- Test & measurement equipment

Specifications

CONTACT RATING: 0.3A @ 6 VDC.
 MECHANICAL LIFE: 10,000 cycles.
 CONTACT RESISTANCE: 70 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500V.
 DIELECTRIC STRENGTH: 500 VAC min.
 OPERATING TEMPERATURE: -20°C to +85°C.
 SOLDERABILITY: 255C max. solder temperature.
 PACKAGING: Tape & reel.

Materials

CASE: PA6T
 COVER: Stainless steel.
 SLIDER: Nylon 4/6
 BRUSH: Copper alloy silver clad.
 TERMINALS: Copper alloy, silver plated.

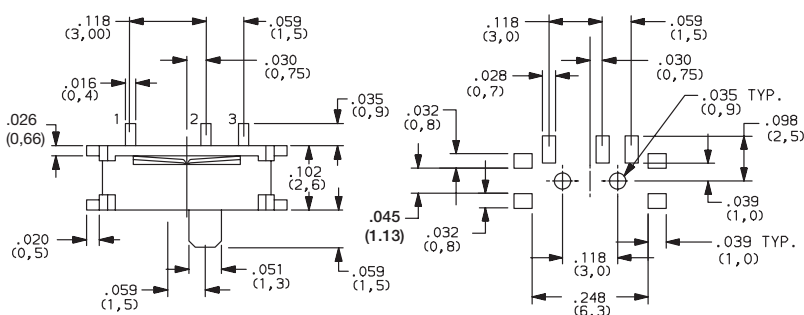
NOTE: All models RoHS compliant and compatible with all options.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

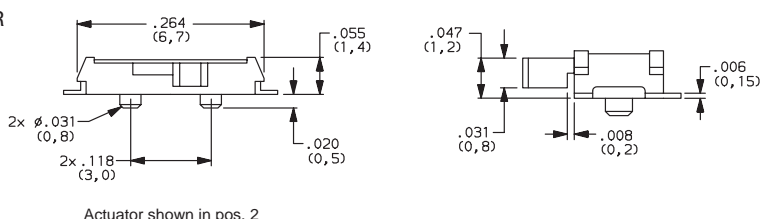
How To Order

Complete part numbers for PCM Series Ultraminiature Surface Mount Slide Switches are shown below and on page I-45.

PC MOUNTING



PCM12SMTR
SPDT

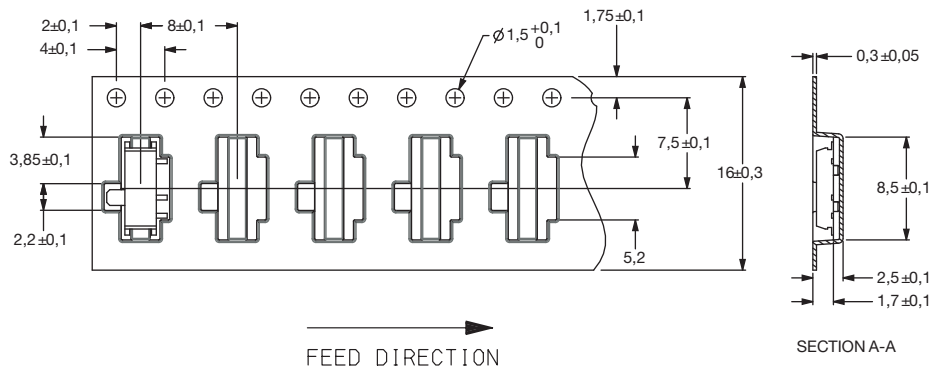


PART NUMBER	SWITCH FUNCTION	
	POS. 1	POS. 2
PCM12SMTR	ON	ON
CONN. TERMINALS	1-2	2-3
SCHEMATIC		
SPDT		

TAPE & REEL

For part number PCM12SMTR

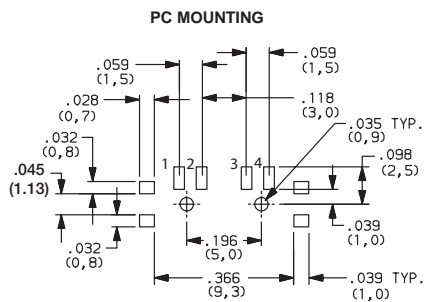
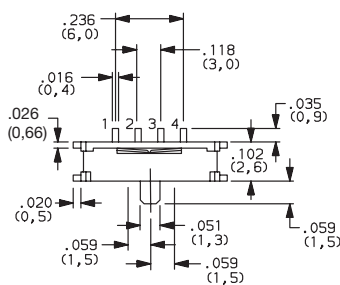
Quantity per reel 3500



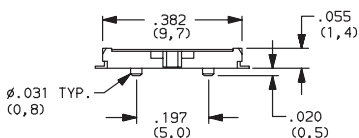
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

PCM Series Ultraminiature Surface Mount Slide Switches

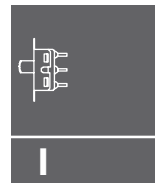
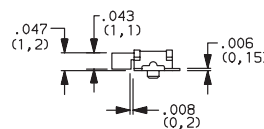
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
PCM13SMTR	ON	ON	ON
CONN. TERMINALS	1-3	2-3	3-4
SCHEMATIC			
SP3T			



PCM13SMTR
SP3T



Actuator shown in pos. 2

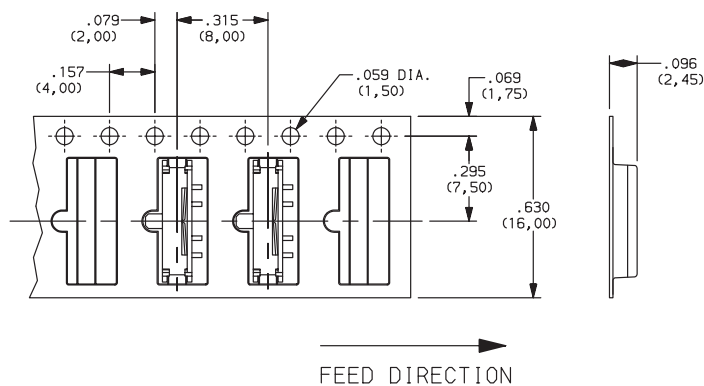


Slide

TAPE & REEL

For part number PCM13SMTR

Quantity per reel 3500



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

AYZ Series Miniature Slide Switches



Features/Benefits

- Low profile
- Single & double pole models
- Double & triple throw models
- RoHS compatible

Typical Applications

- Computer peripherals & network products
- Telecommunication products
- Test & measurement equipment

Specifications

MAX. SWITCHING POWER: 1.2 VA
 MAX. SWITCHING VOLTAGE: 12 VDC
 MAX. SWITCHING CURRENT: 100 mA
 MECHANICAL LIFE: 10,000 operations.
 CONTACT RESISTANCE: <math><80\text{m}\Omega</math>
 INSULATION RESISTANCE: >10 Ω
 DIELECTRIC STRENGTH: 0.1 kV at 50 Hz/1 min.
 OPERATING TEMPERATURE: -10°C to +60°C
 PACKAGING: Tape & reel, see page I-47.

Materials

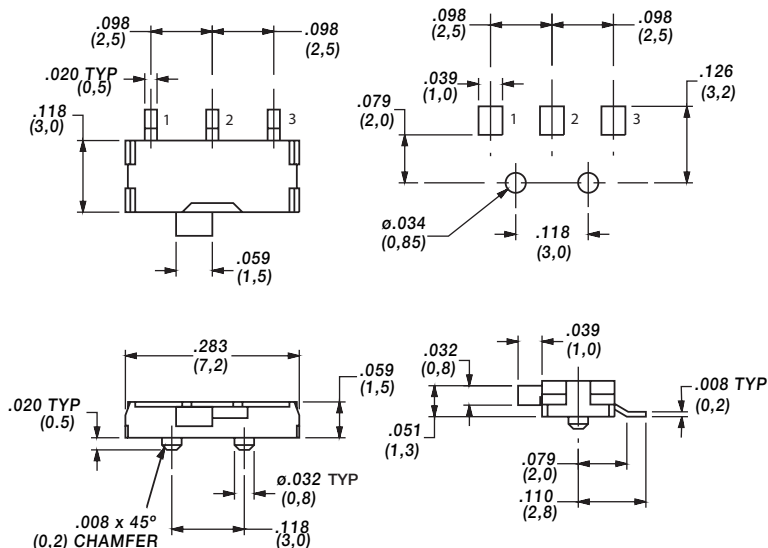
HOUSING: Glass filled nylon 4/6 (UL 94V-0).
 ACTUATOR: Glass filled nylon 6/6 (UL 94V-0), except options ending in C which are glass filled nylon 4/6 (UL94V-0).
 COVER: Nickel silver.
 MOVABLE CONTACT: Copper alloy, silver plated.
 FIXED CONTACT: Brass, silver plated.
 CONTACT SPRING: Contact bronze.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Complete part numbers for AYZ Series Miniature Slide Switches are shown on pages I-46 through I-48.

PC MOUNTING



SWITCH SHOWN IN POSITION 1

PART NUMBER	RoHS		SWITCH FUNCTION	
	Compliant	Compatible	POS.1	POS.2
AYZ0102AGRLC	YES	YES		
CONN. TERMINALS			1-2	2-3
SCHEMATIC				
SPDT				

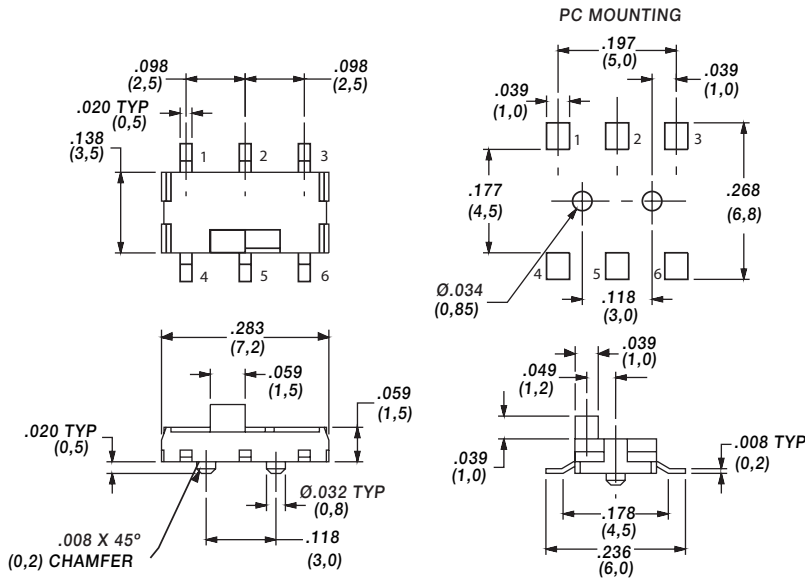


Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



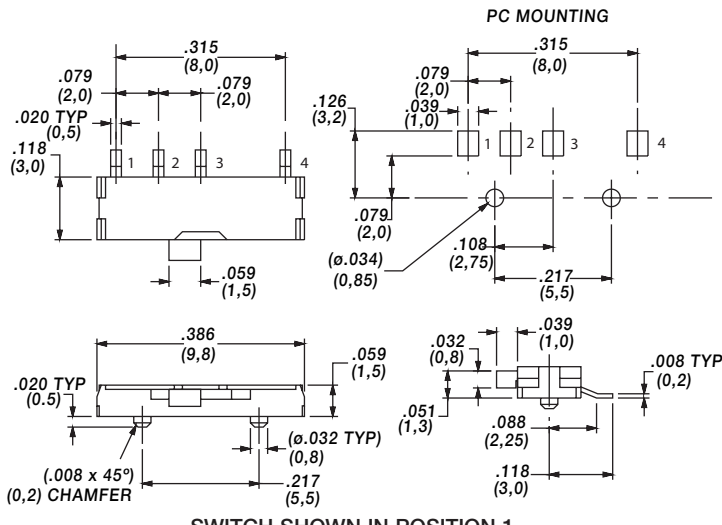
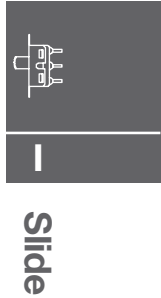
Slide

AYZ Series Miniature Slide Switches



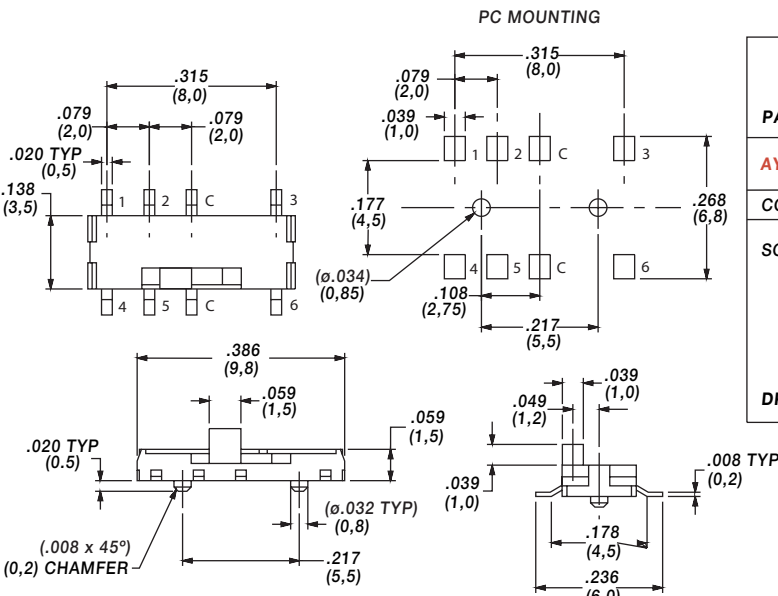
SWITCH SHOWN IN POSITION 1

PART NUMBER	RoHS Compliant	RoHS Compatible	SWITCH FUNCTION	
			POS.1	POS.2
AYZ0202AGRLC	YES	YES	ON	ON
CONN. TERMINALS			1-2,4-5	2-3,5-6
SCHEMATIC				
DPDT				



SWITCH SHOWN IN POSITION 1

PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
AYZ0103AGRLC	YES	YES	ON	ON	ON
CONN. TERMINALS			1-3	2-C	3-4
SCHEMATIC					
SP3T					



SWITCH SHOWN IN POSITION 1

PART NUMBER	ROHS Compliant	ROHS Compatible	SWITCH FUNCTION		
			POS.1	POS.2	POS.3
AYZ0203AGRLC	YES	YES	ON	ON	ON
CONN. TERMINALS			1-C,4-C	2-C,5-C	3-C,6-C
SCHEMATIC					
DP3T					



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

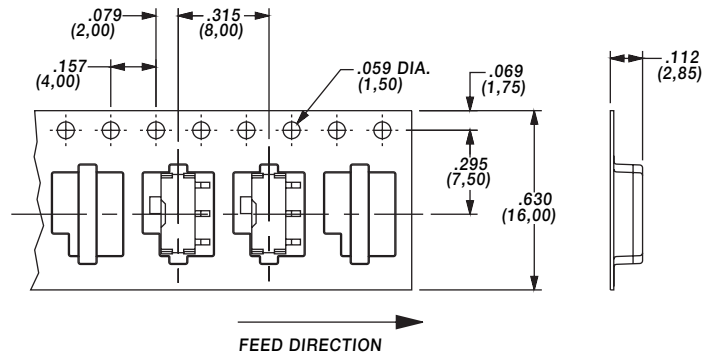


AYZ Series Miniature Slide Switches

TAPE & REEL

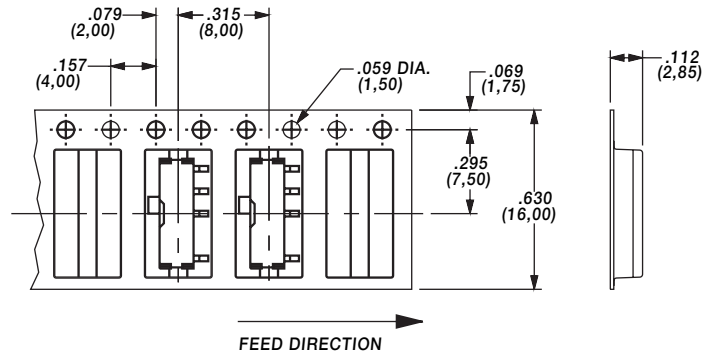
For part number AYZ0102AGRLC

Quantity per reel 4000



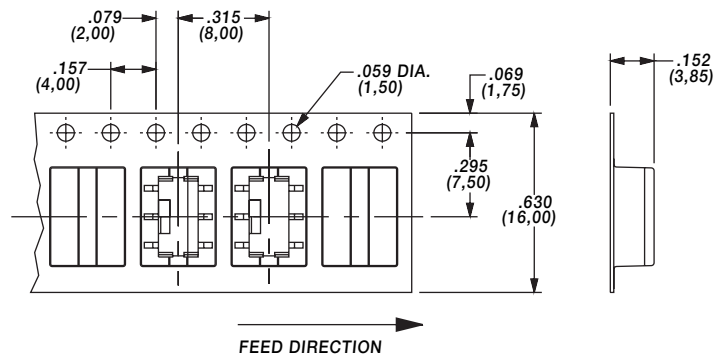
For part number AYZ0103AGRLC

Quantity per reel 4000



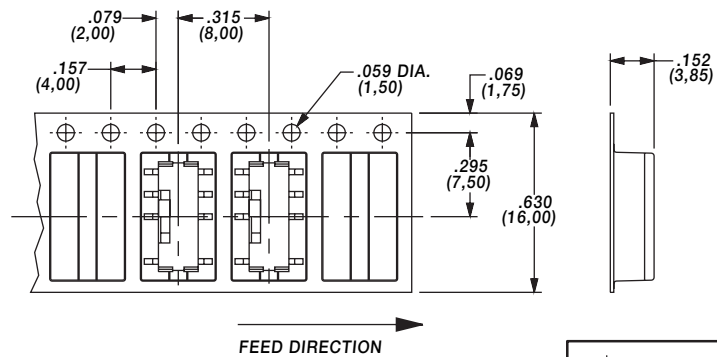
For part number AYZ0202AGRLC

Quantity per reel 3000



For part number AYZ0203AGRLC

Quantity per reel 3000



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



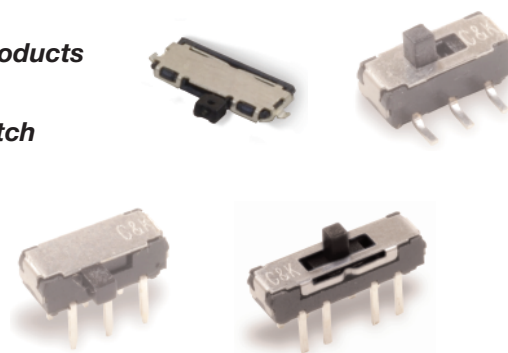
JS Series Sub-Miniature Slide Switches

Features/Benefits

- Positive detent
- Low profile
- IR reflow to 260° solder profile
- Surface and thru hole mounting
- SPDT, DPDT, DP3T models
- RoHS compliant

Typical Applications

- Telecommunication products
- Computer peripherals
- Thermostat select switch
- Instrumentations



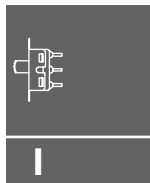
Specifications

CONTACT RATING: 6 VDC @ 0.3A
 ELECTRICAL LIFE: 5,000 make-and-break cycles
 CONTACT RESISTANCE: 70 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500V.
 DIELECTRIC STRENGTH: 500 VAC min. @ sea level.
 OPERATING TEMPERATURE: -40°C to +85°C
 STORAGE TEMPERATURE: -40°C to +85°C

NOTE: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

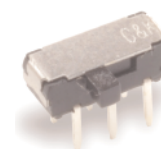
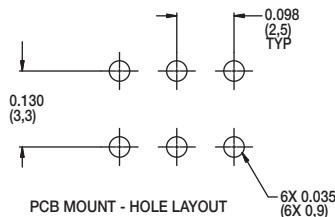
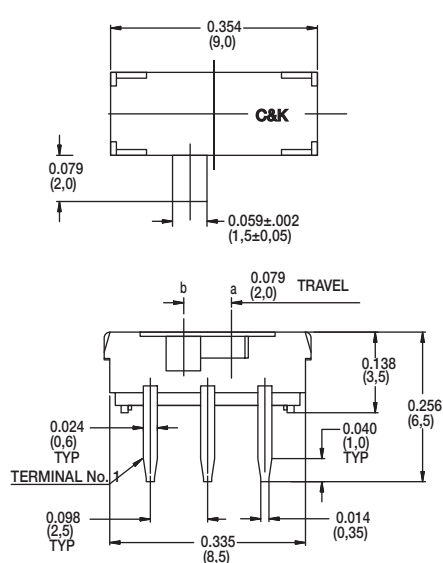
Materials

HOUSING: 4/6 nylon (UL94V-2), black.
 ACTUATOR: 4/6 nylon (UL94V-2), black (some options white).
 CONTACTS: Copper alloy, silver plated.
 TERMINALS: Brass, silver plated



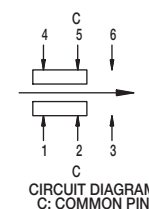
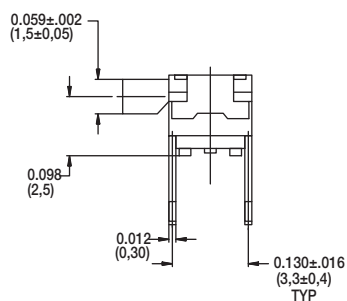
Slide

RIGHT ANGLE, PC THRU-HOLE



Part Number
JS202011AQN
DPDT

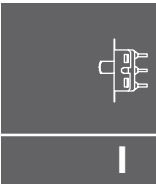
Shown in position b



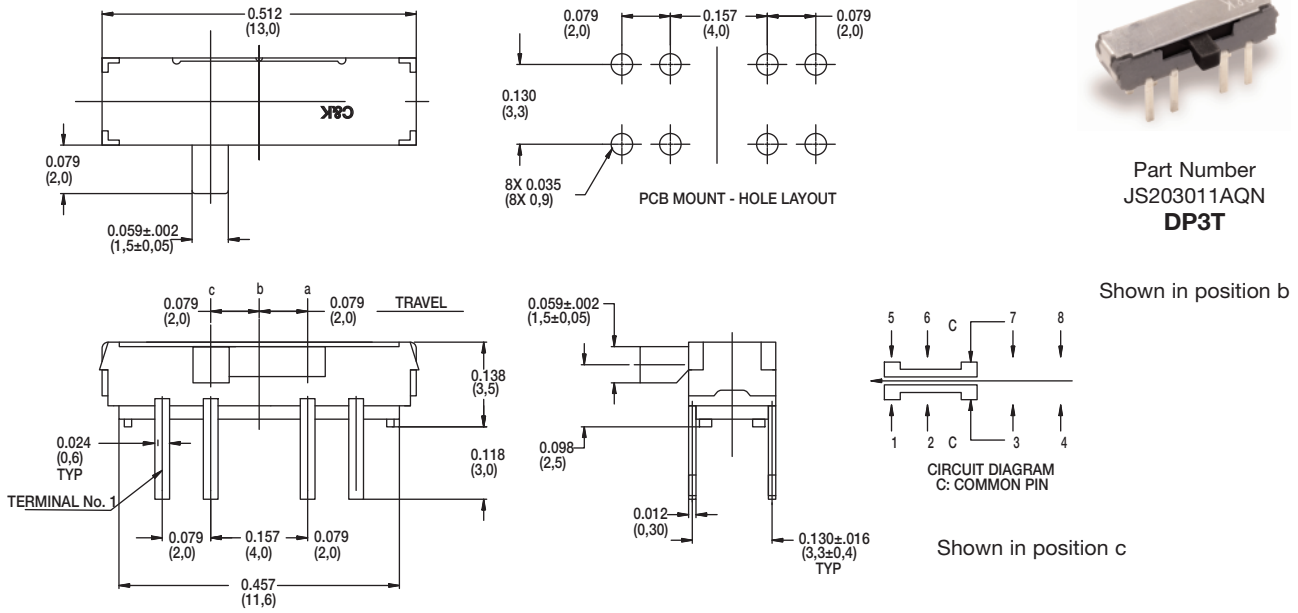
Shown in position b

JS Series Sub-Miniature Slide Switches

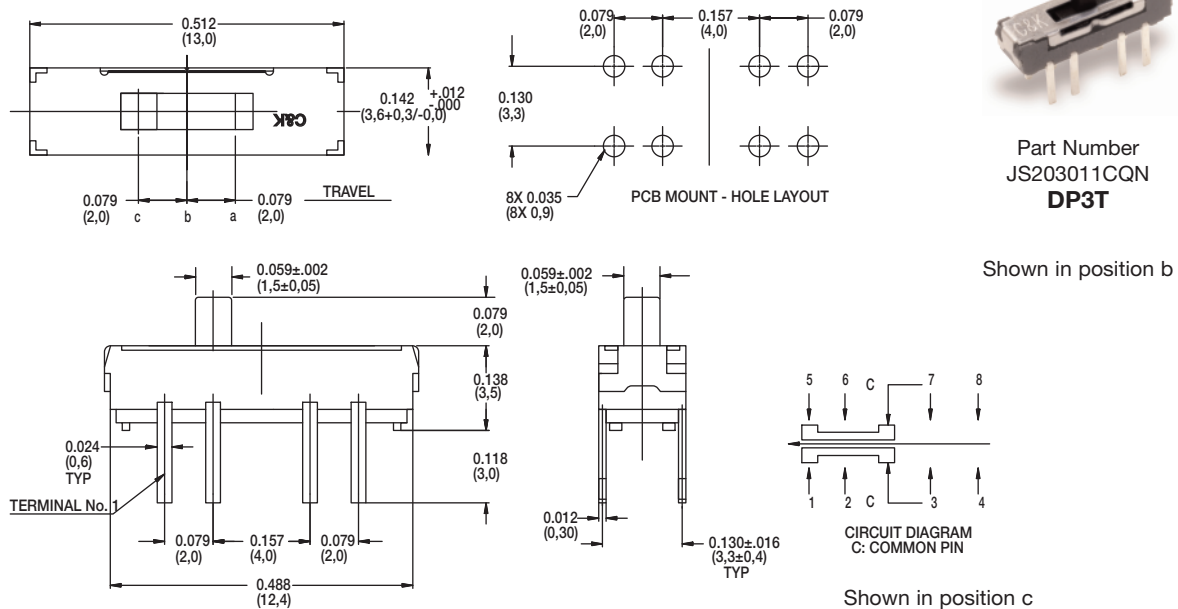
RIGHT ANGLE, PC THRU-HOLE



Slide

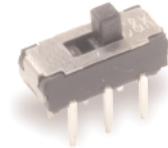
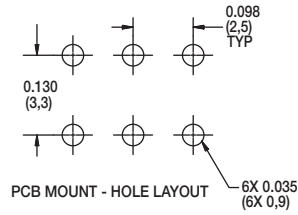
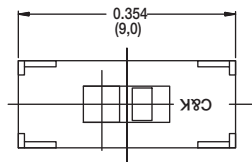


PC THRU-HOLE



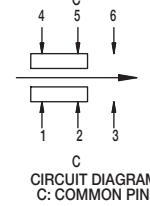
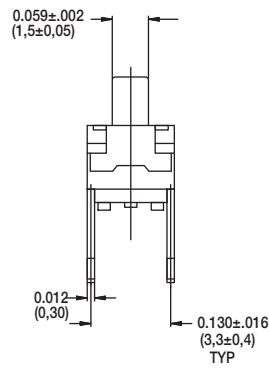
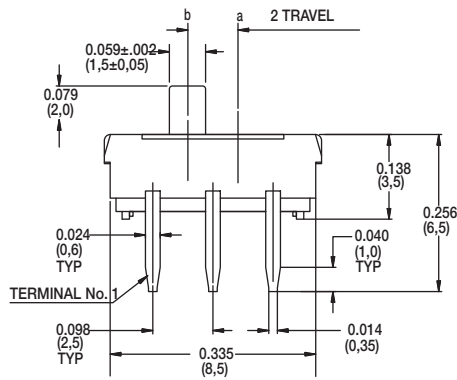
JS Series Sub-Miniature Slide Switches

PC THRU-HOLE

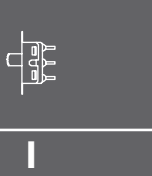


Part Number
JS202011CQN
DPDT

Shown in position a



Shown in position b



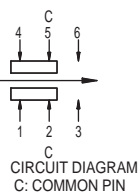
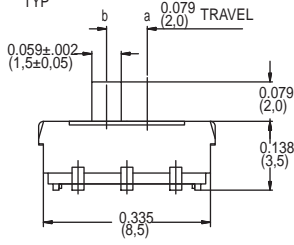
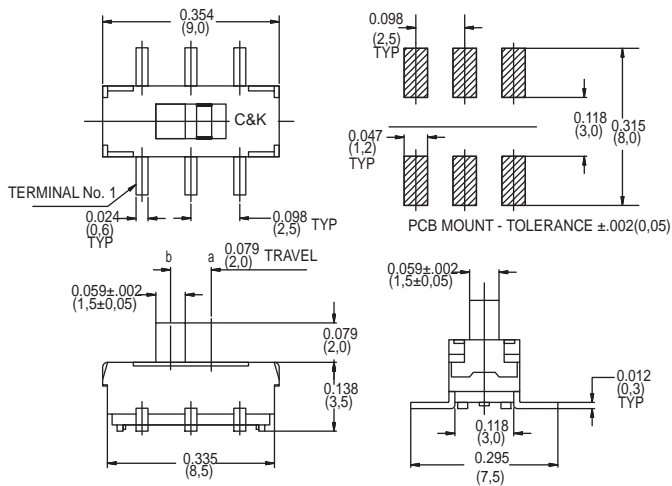
Slide

SURFACE MOUNT



Part number
JS203011SCQN
DP3T

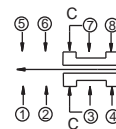
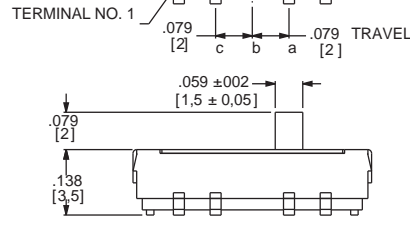
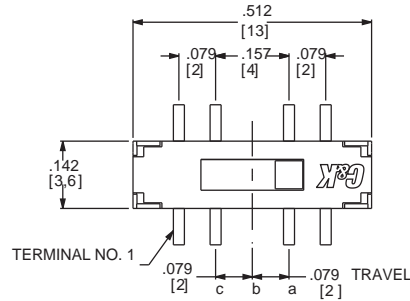
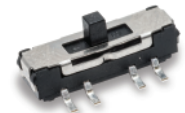
Shown in position b. Quantity per reel 1000
Available in tape & reel only, see page I-58



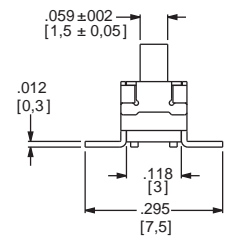
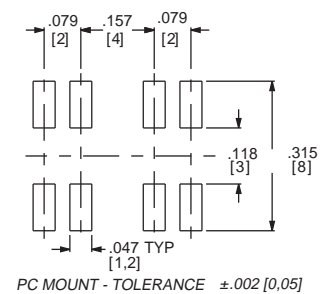
Shown in position b

Part number
JS203011SCQN
DP3T

Quantity per reel 900
Available in tape & reel only, see page I-60



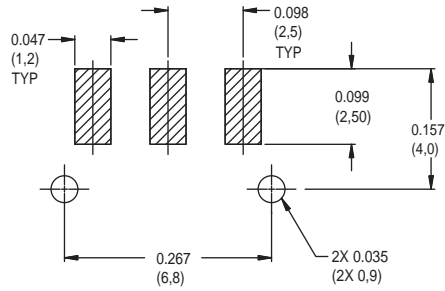
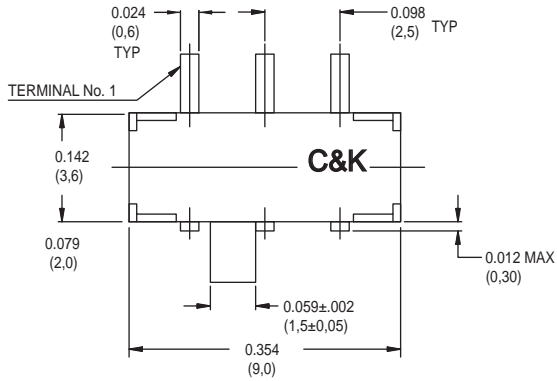
Shown in position a



Third Angle
Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

JS Series Sub-Miniature Slide Switches

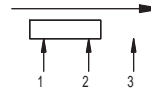
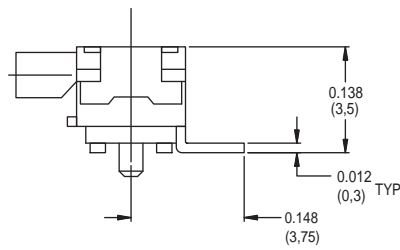
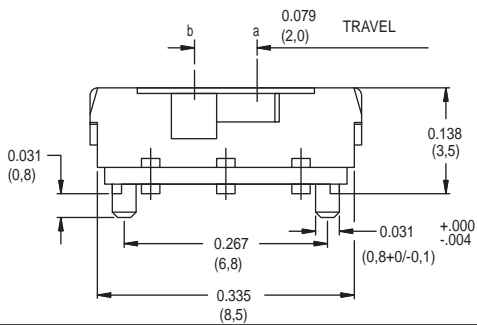
RIGHT ANGLE SURFACE MOUNT



Part Number
JS102011SAQN
SPDT

Shown in position a

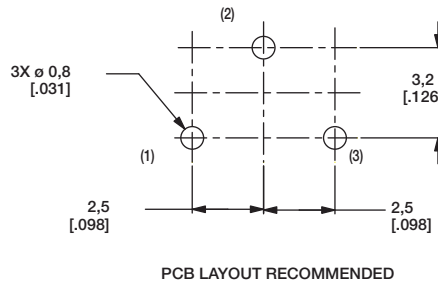
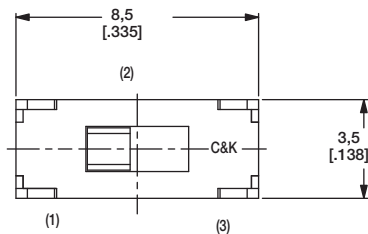
Available in tape & reel only, see page I-59



Shown in position b

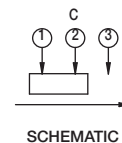
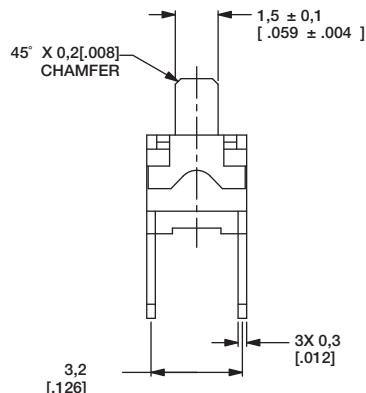
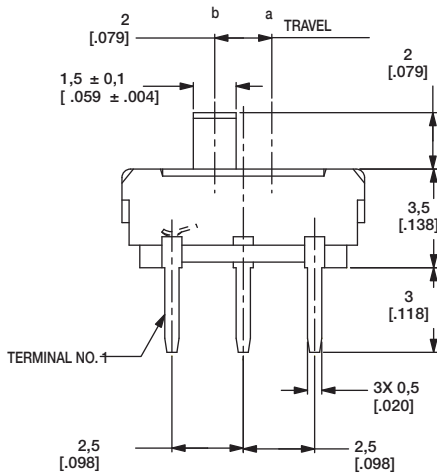
Slide

PC THRU-HOLE



Part Number
JS102011CQN
SPDT

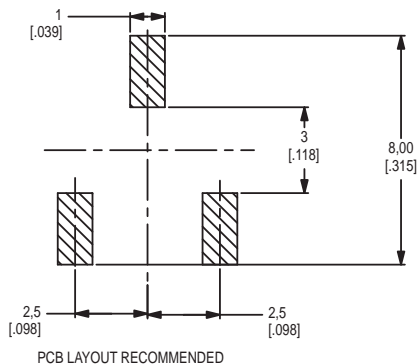
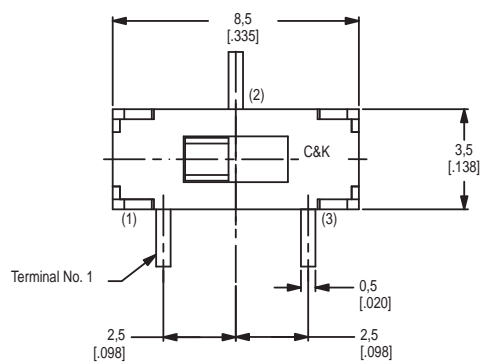
Shown in position a



Shown in position b

JS Series Sub-Miniature Slide Switches

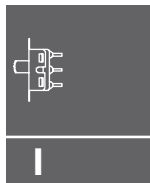
SURFACE MOUNT



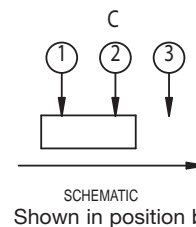
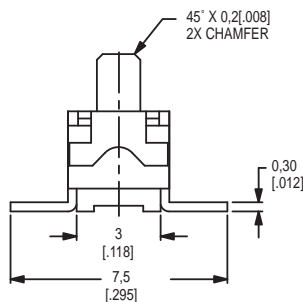
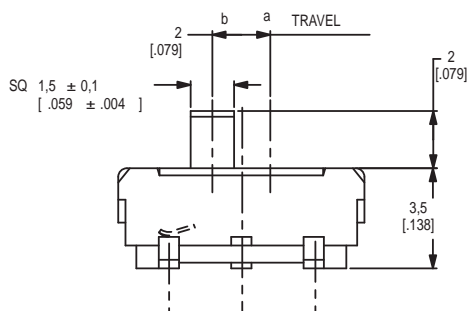
Part Number
JS102011SCQN
SPDT

Shown in position a

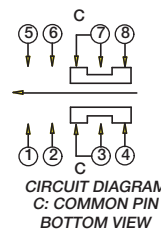
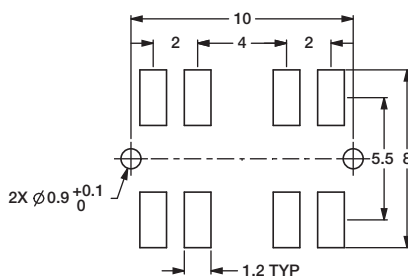
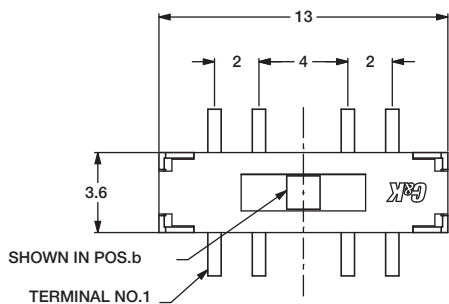
Available in tape & reel
only, see page I-59



Slide



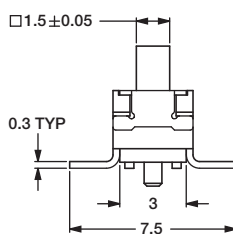
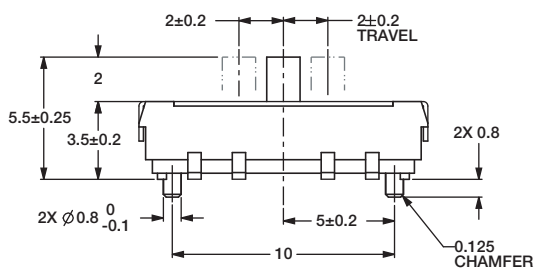
SURFACE MOUNT



Part Number
JS207011SCQNR
DP3T

Shown in position b

Available in tape & reel
only, see page I-58



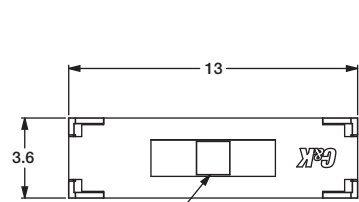
SWITCH FUNCTION		
POS.c	POS.b	POS.a
C&K (MOM)	C&K ON	C&K ON
CONNECTED TERMINALS		
1-3,5-7	2-3,6-7	3-4,7-8



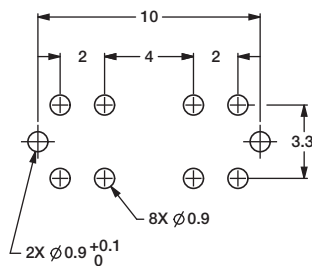
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

JS Series Sub-Miniature Slide Switches

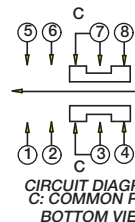
PC THRU-HOLE



SHOWN IN POS.b



PC MOUNT - TOLERANCE $\pm .05$



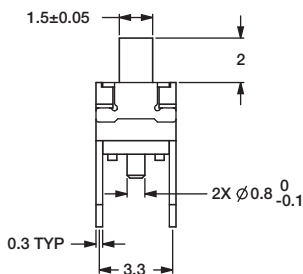
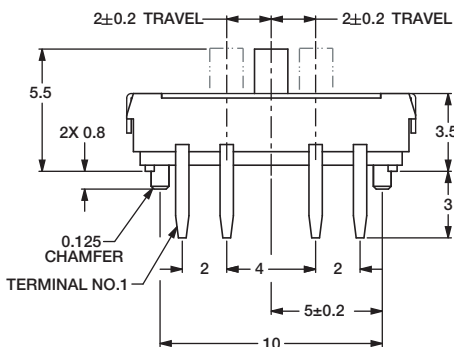
CIRCUIT DIAGRAM
C: COMMON PIN
BOTTOM VIEW

SWITCH FUNCTION		
POS.c	POS.b	POS.a
(MOM)	ON	ON
CONNECTED TERMINALS		
1-3,5-7	2-3,6-7	3-4,7-8



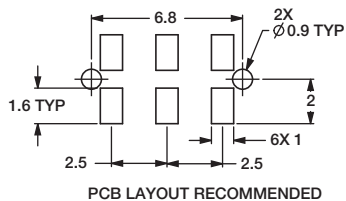
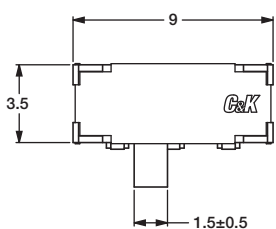
Part Number
JS207011CQNR
DP3T

Shown in position b

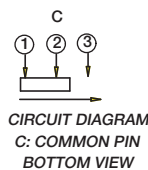


Slide

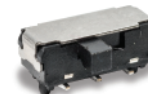
RIGHT ANGLE SURFACE MOUNT



PCB LAYOUT RECOMMENDED



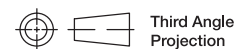
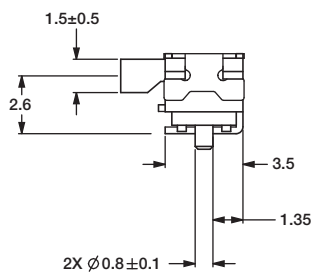
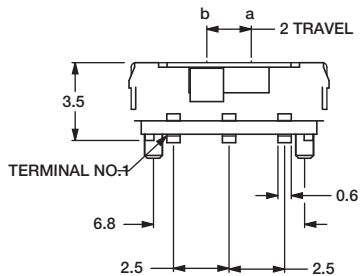
CIRCUIT DIAGRAM
C: COMMON PIN
BOTTOM VIEW



Part Number
JS102011JAQN
SPDT

Shown in position

Available in tape & reel
only, see page I-59



Third Angle
Projection

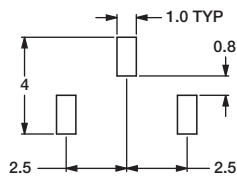
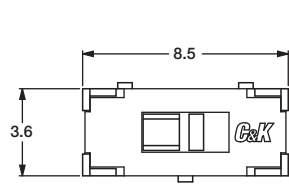
Dimensions are shown: mm
Specifications and dimensions subject to change



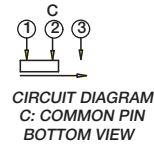
29 jun 16

JS Series Sub-Miniature Slide Switches

VERTICAL MOUNT SMT - J BEND

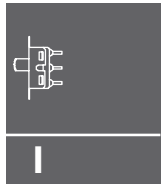


PCB LAYOUT RECOMMENDED

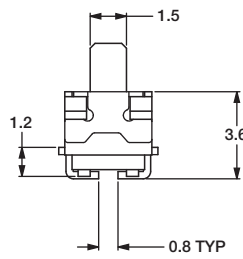
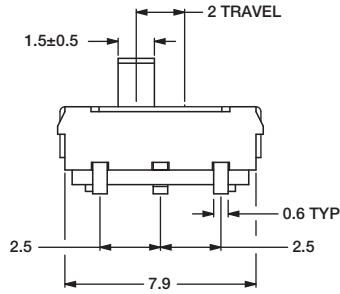


NEW
Part Number
JS102011JCQN
SPDT

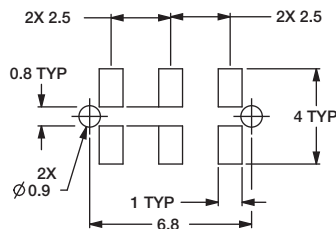
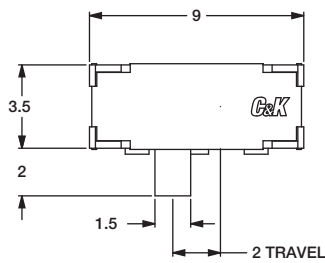
Available in tape & reel
only, see page I-59



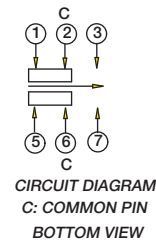
Slide



RIGHT ANGLE SURFACE MOUNT



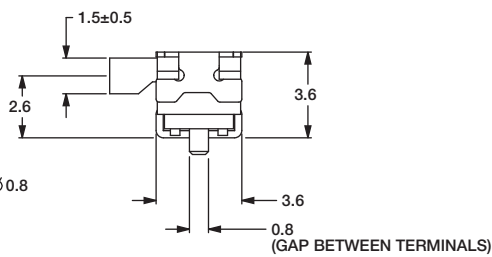
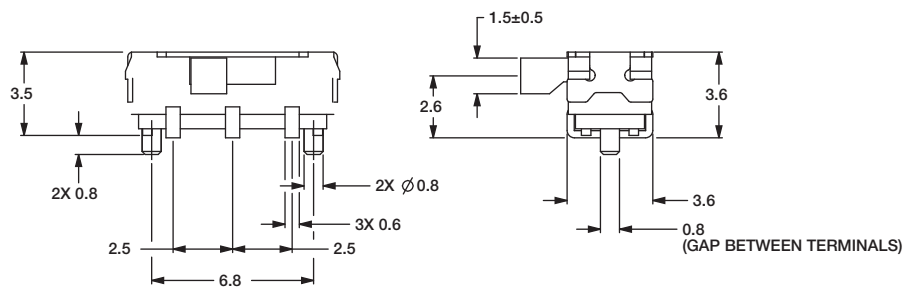
PCB LAYOUT RECOMMENDED



NEW
Part Number
JS202011JAQN
DPDT

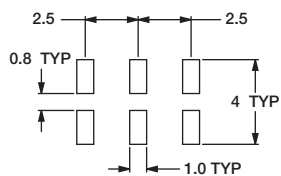
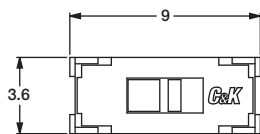
Shown in position

Available in tape & reel
only, see page I-61

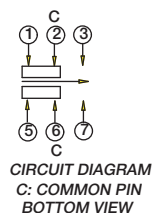


JS Series Sub-Miniature Slide Switches

VERTICAL MOUNT SMT - J BEND



PCB LAYOUT RECOMMENDED



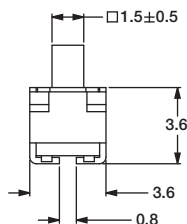
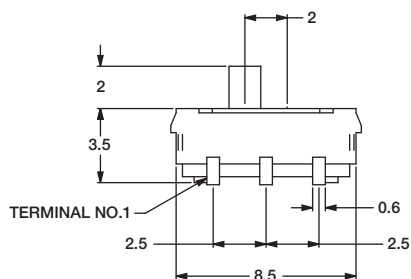
NEW

Part Number
JS202011JCQN

DPDT

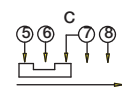
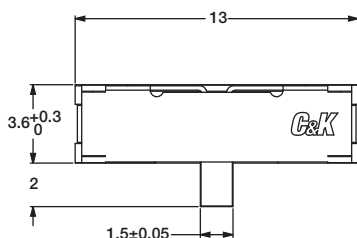
Shown in position

Available in tape & reel
only, see page I-61



Slide

RIGHT ANGLE MOUNT SMT - J BEND



SCHEMATIC
C: COMMON PIN



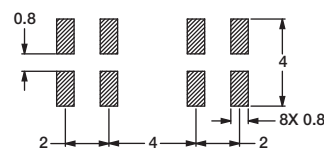
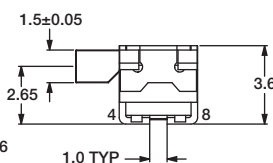
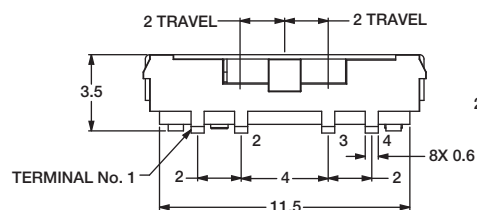
NEW

Part Number
JS203011JAQN

DP3T

Shown in position

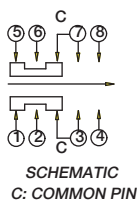
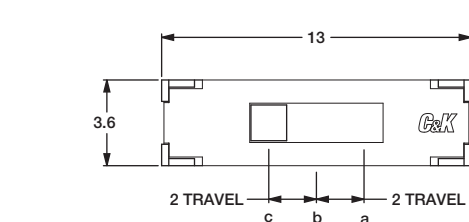
Available in tape & reel
only, see page I-60



PCB LAYOUT RECOMMENDED

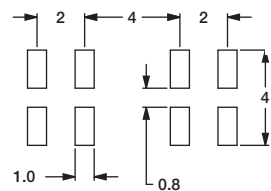
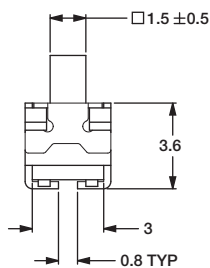
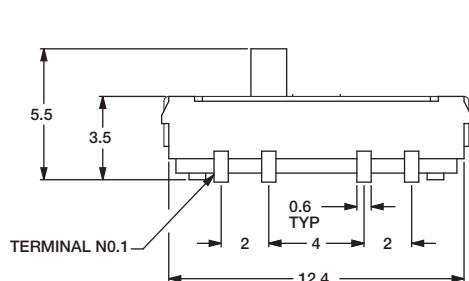
JS Series Sub-Miniature Slide Switches

VERTICAL MOUNT SMT - J BEND

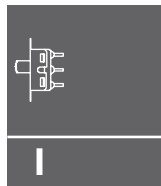


Part Number
JS203011JCQN
DP3T

Available in tape & reel
only, see page I-60

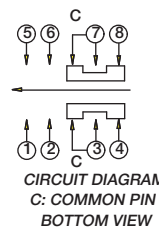
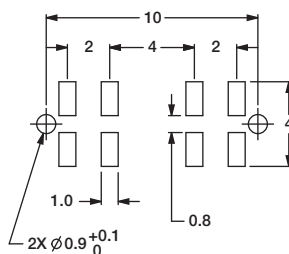
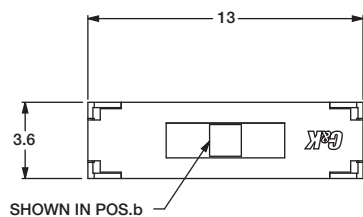


PCB LAYOUT RECOMMENDED



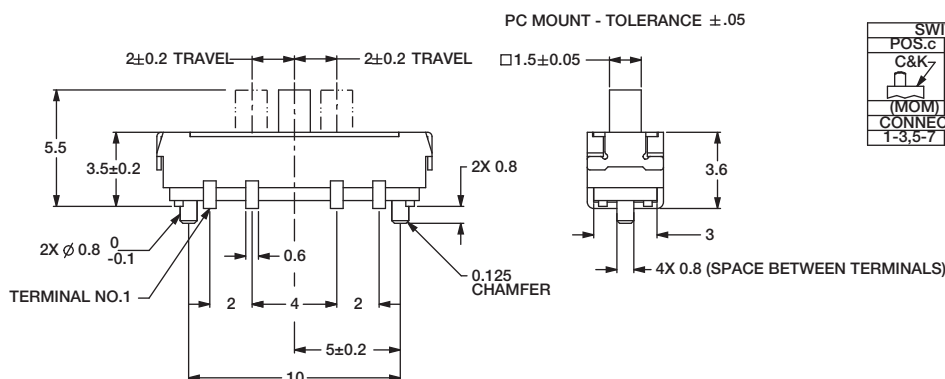
Slide

SURFACE MOUNT - J BEND



Part Number
JS207011JCQNR
SP3T

Available in tape & reel
only, see page I-58



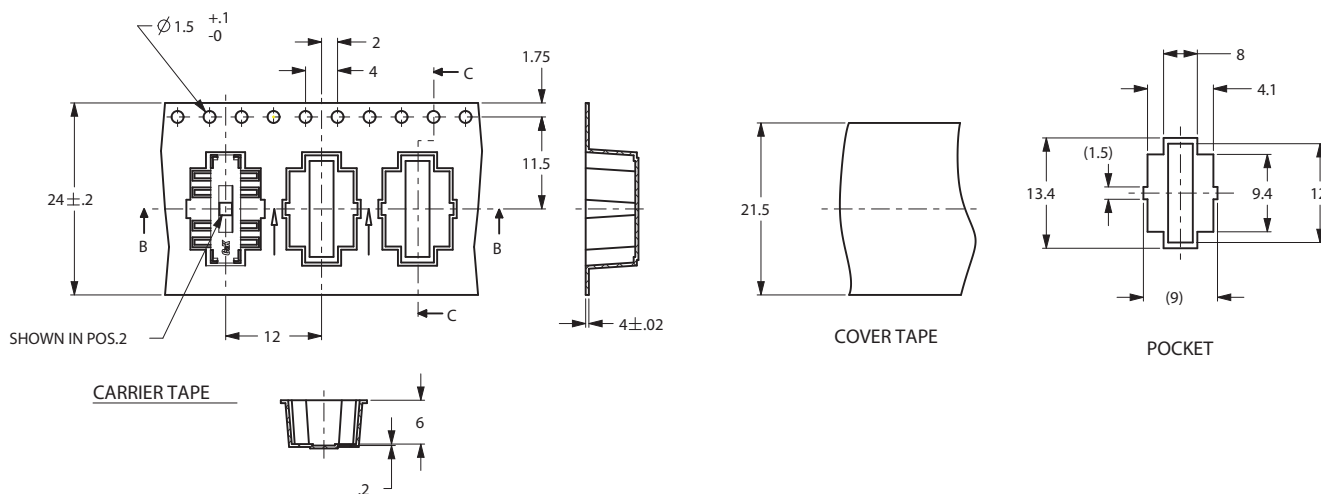
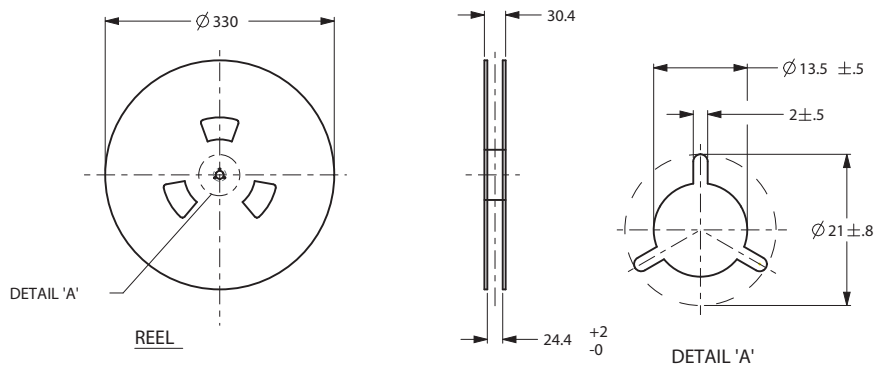
SWITCH FUNCTION		
POS.c	POS.b	POS.a
(MOM)	ON	ON
CONNECTED TERMINALS	1-3,5-7	2-3,6-7
	3-4,7-8	

JS Series Sub-Miniature Slide Switches

TAPE AND REEL FOR PART NUMBER JS207011SCQNR, JS207011JCQNR

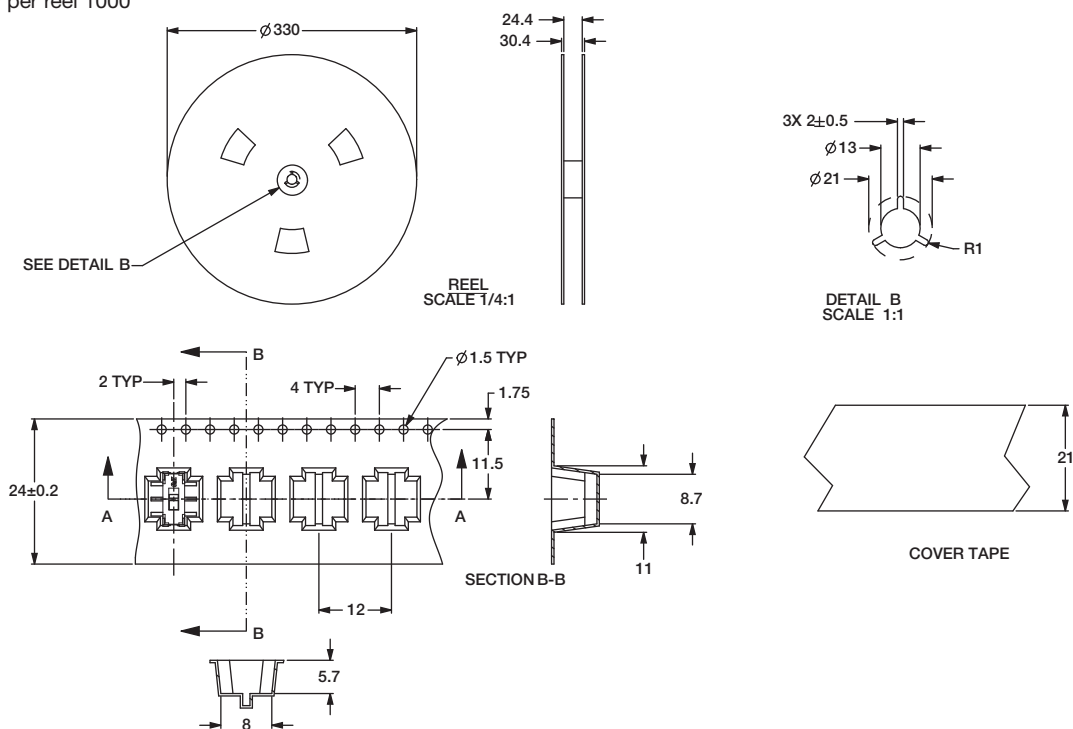
Quantity per reel 800

PACKING DETAIL 800 PCS



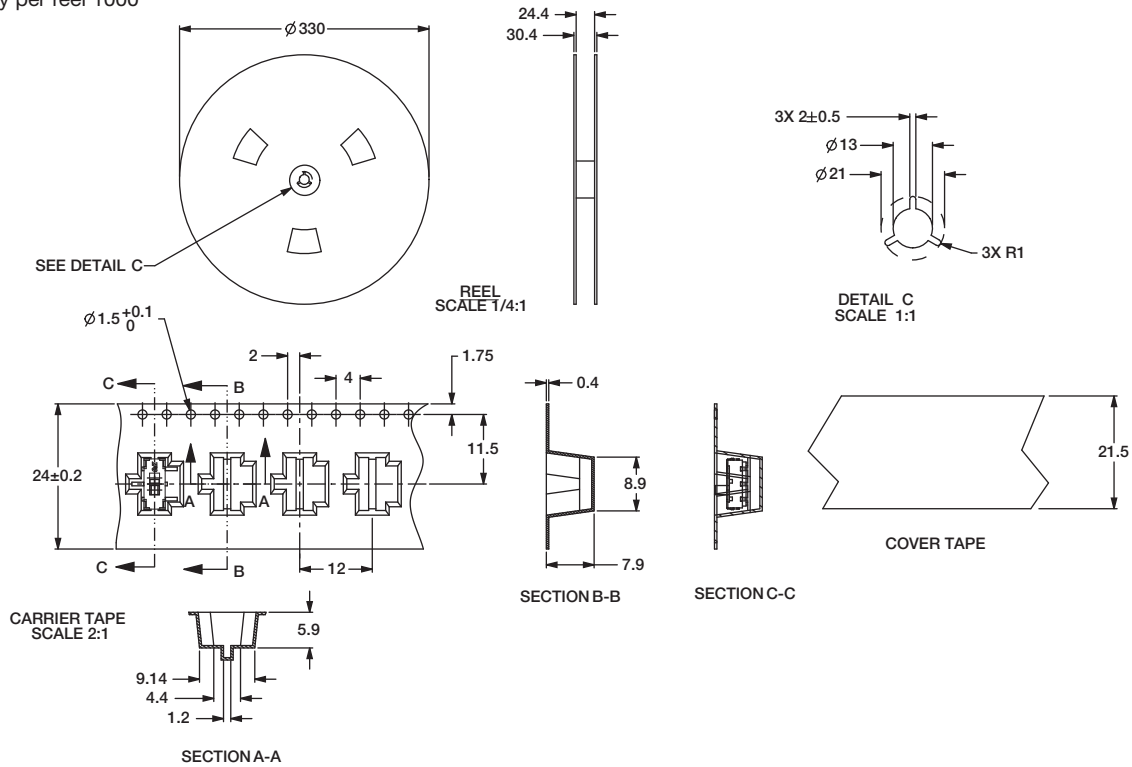
TAPE AND REEL FOR PART NUMBER JS202011SCQN

Quantity per reel 1000



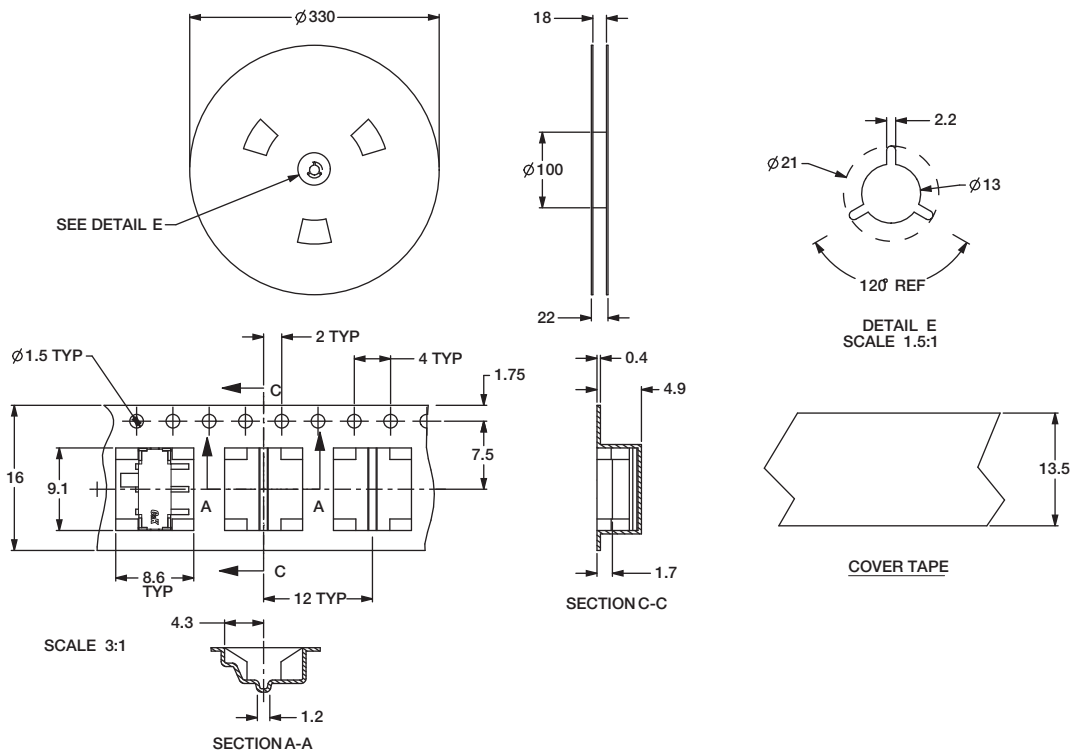
JS Series Sub-Miniature Slide Switches

TAPE AND REEL FOR
PART NUMBER JS102011SCQN, JS102011JCQN
 Quantity per reel 1000



TAPE AND REEL FOR PART NUMBER JS102011SAQN, JS102011JAQN

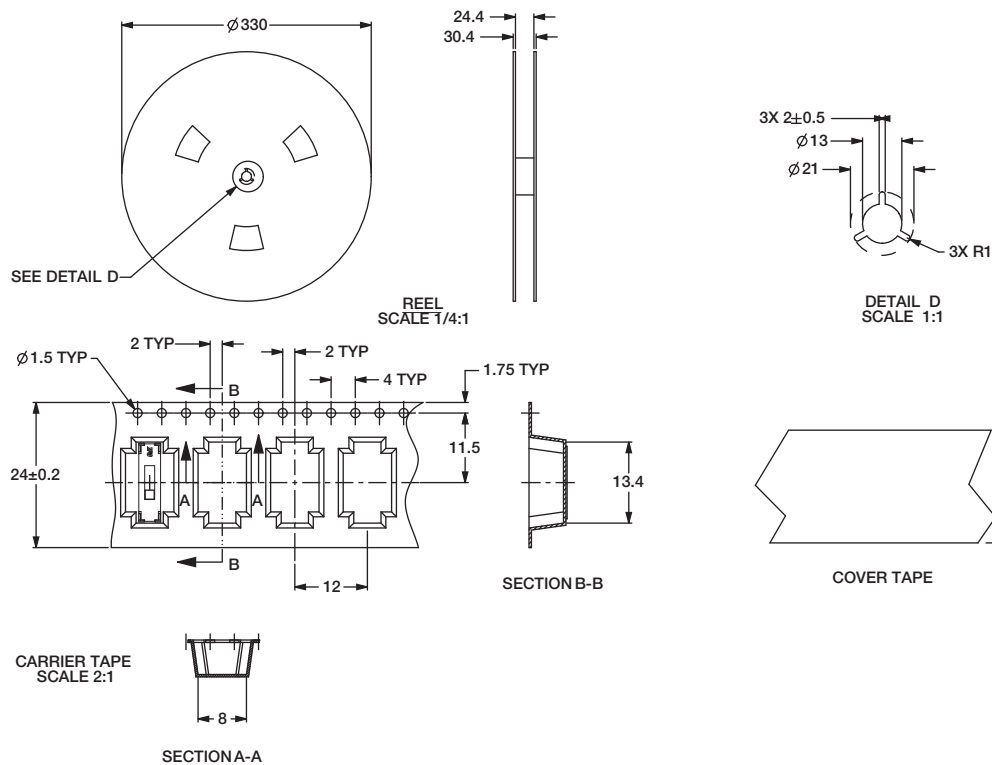
Quantity per reel 1000



Dimensions are shown: mm
 Specifications and dimensions subject to change

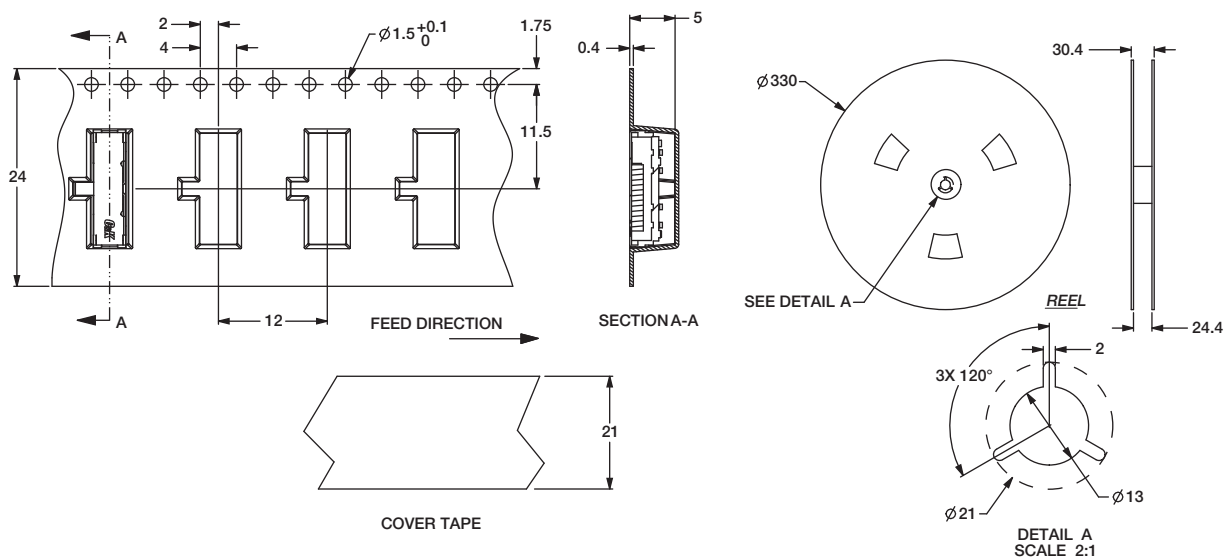
JS Series Sub-Miniature Slide Switches

TAPE AND REEL FOR PART NUMBER JS203011SCQN, JS203011JCQN
Quantity per reel 900



TAPE AND REEL FOR PART NUMBER JS203011JAQN

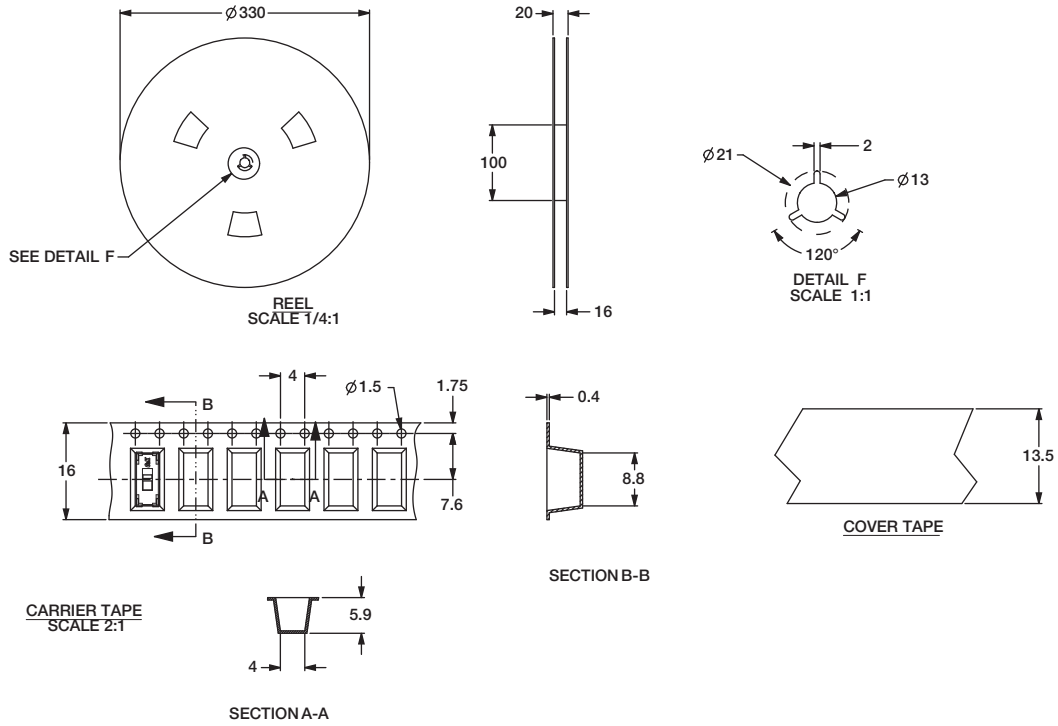
Quantity per reel 1000



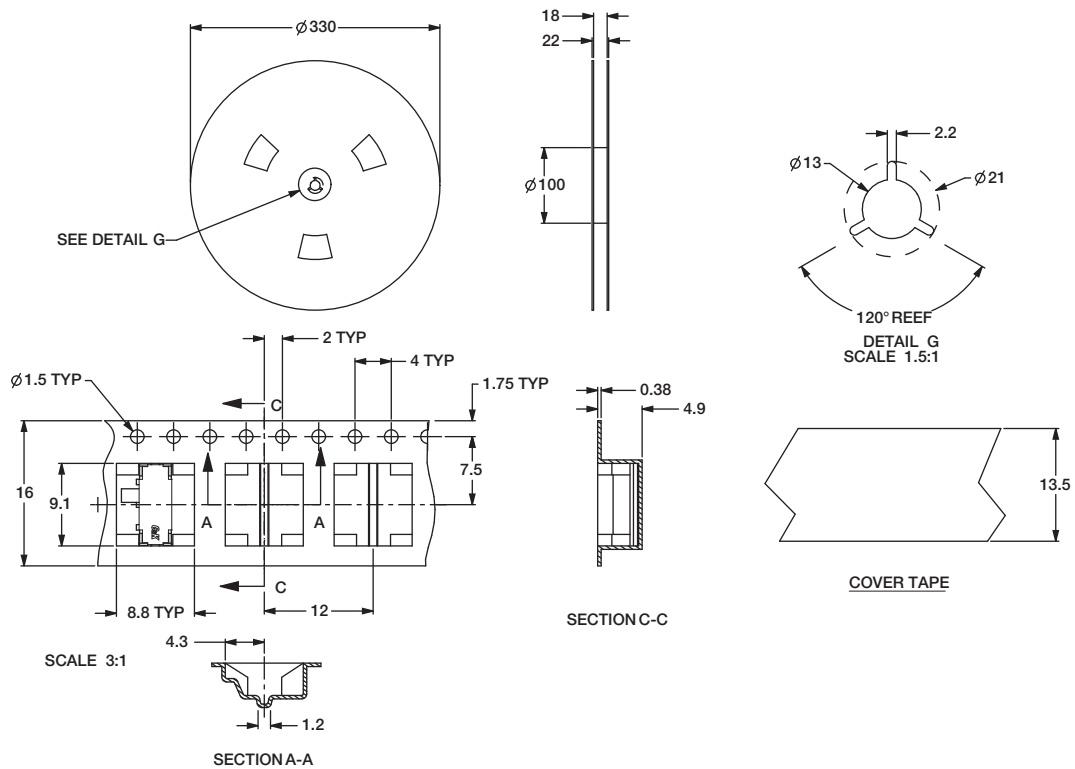
Dimensions are shown: mm
Specifications and dimensions subject to change

JS Series Sub-Miniature Slide Switches

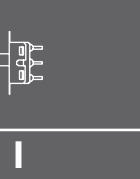
TAPE AND REEL FOR
PART NUMBER JS202011JCQN
Quantity per reel 1300



TAPE AND REEL FOR PART NUMBER JS202011JAQN
Quantity per reel 1000



Dimensions are shown: mm
Specifications and dimensions subject to change



Slide

JS Series Sub-Miniature Slide Switches

RIGHT ANGLE SURFACE MOUNT

LOW PROFILE .028±.004 (0.7±0.1) HIGH



Part Number
JS102000SAQN
SPDT

Specifications

CONTACT RATING: 5 VDC @ 1MA

ELECTRICAL LIFE: 15,000 cycles.

CONTACT RESISTANCE: <100 m ohms (initial) <200 m ohms (after processing).

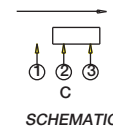
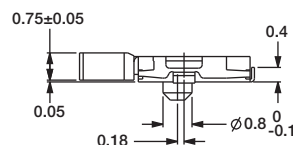
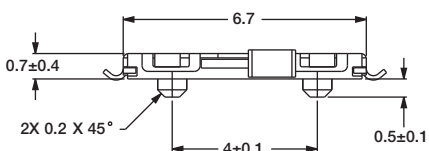
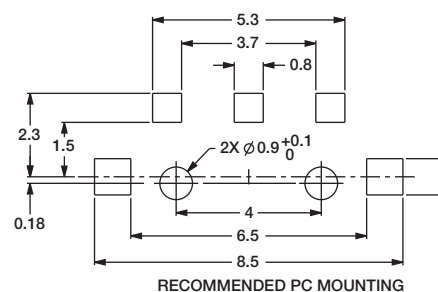
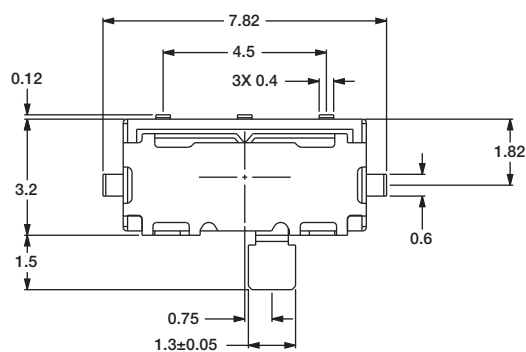
INSULATION RESISTANCE: 100 m ohms @500 VDC.

DIELECTRIC STRENGTH: 250 VAC.

OPERATING TEMPERATURE: -40°C to +85°C

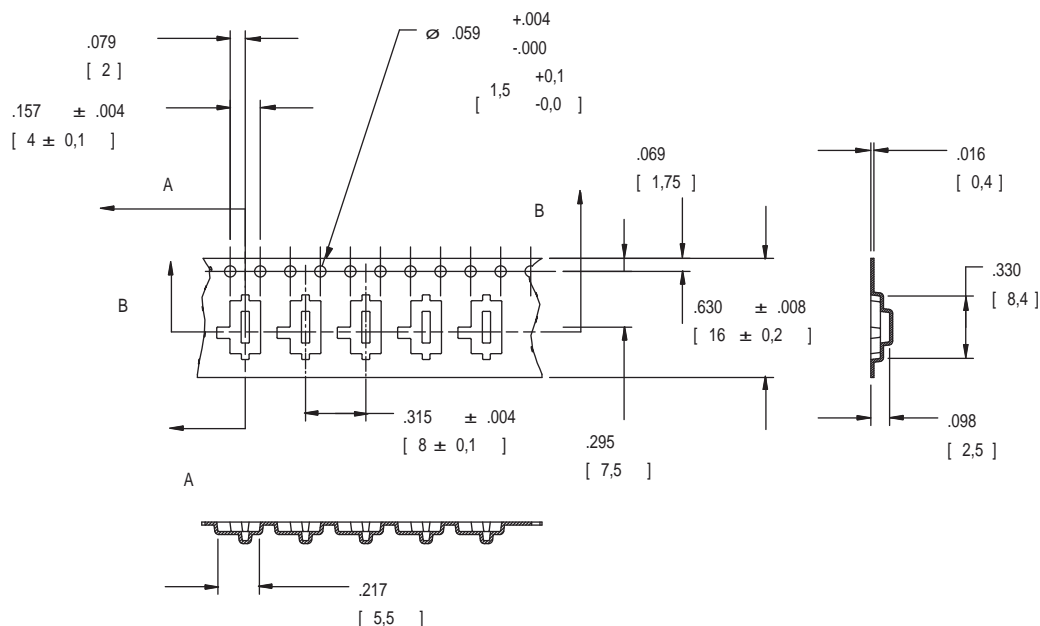


Slide



TAPE AND REEL FOR PART NUMBER JS102000SAQN

Quantity per reel 4000



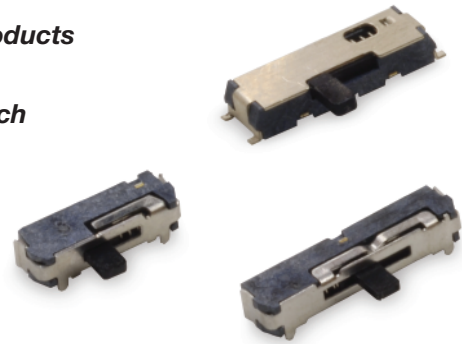
JSM Series Sub-Miniature Slide Switches

Features/Benefits

- RoHS compliant and meets all requirements of RoHS directive 2002/95EC, Halogen Free
- Positive detent
- Low profile
- IR reflow to 260° solder profile
- Surface and thru hole mounting
- Maintained and momentary functions
- SPDT, SP3T models

Typical Applications

- Telecommunication products
- Computer peripherals
- Thermostat select switch
- Instrumentations



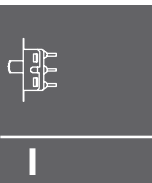
Specifications

CONTACT RATING: 4 VDC @ 0.3A
 ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: 70 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500V.
 DIELECTRIC STRENGTH: 100 VAC min. @ sea level.
 OPERATING TEMPERATURE: -10°C to +60°C
 STORAGE TEMPERATURE: -30°C to +85°C

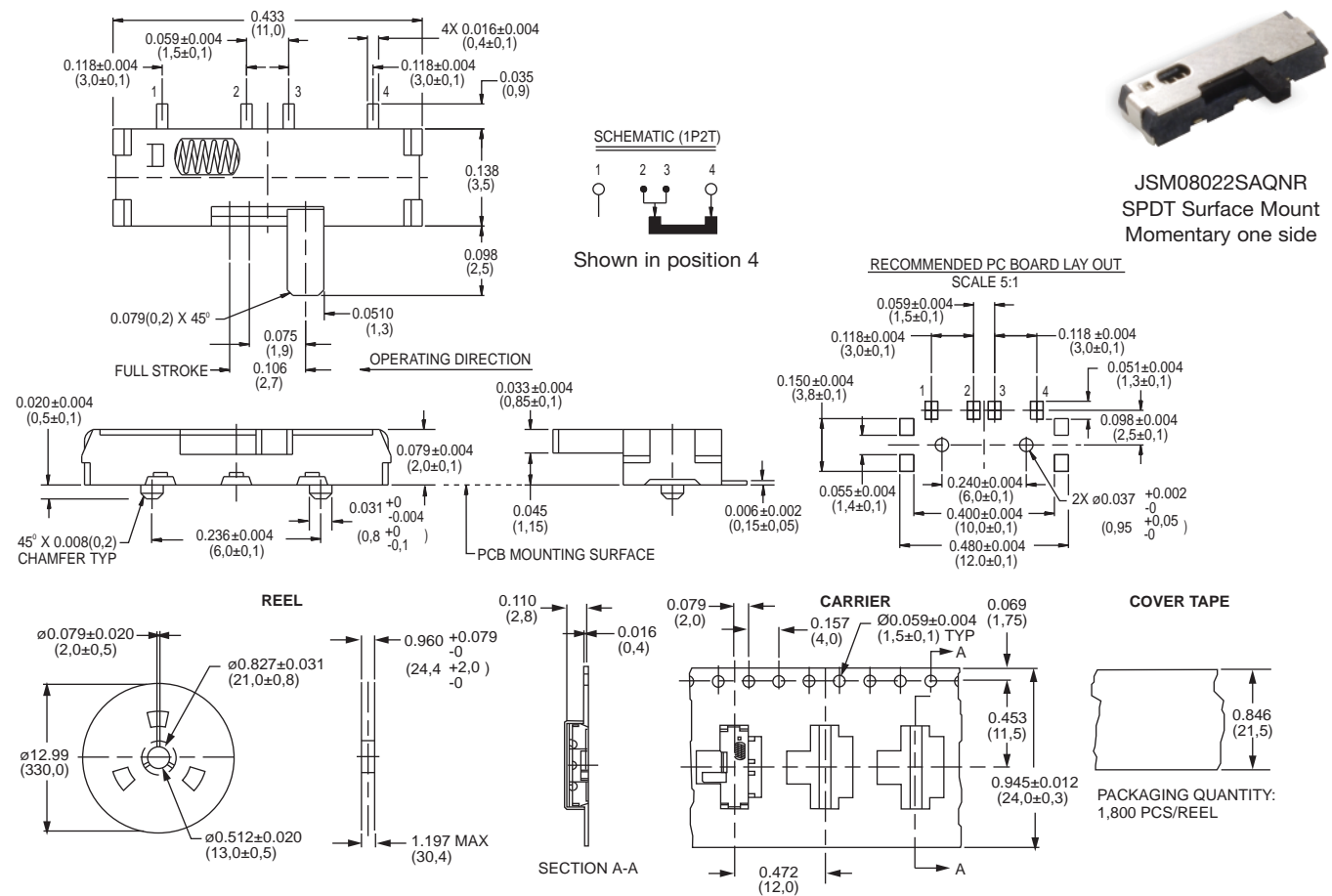
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING: LCP, Glass filled (Halogen free)
 ACTUATOR: 4/6 nylon (UL94V-2), black.
 CONTACTS: Beryllium copper, silver plated.
 TERMINALS: Brass, silver plated.
 COVER: Stainless steel
 RETURN SPRING: Stainless steel



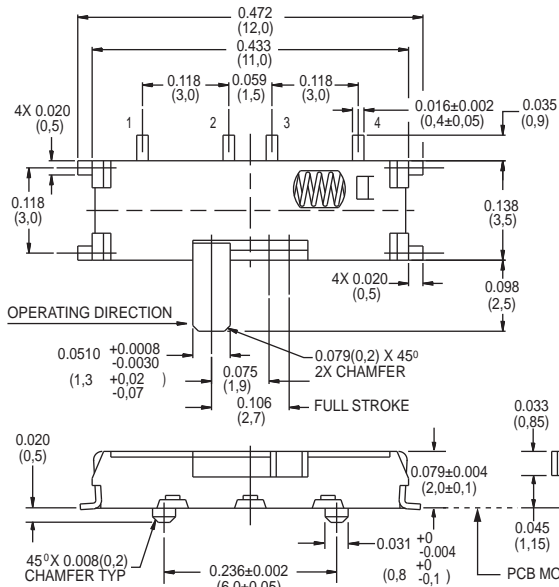
Side



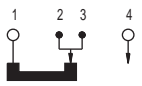
Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

www.ck-components.com

JSM Series Sub-Miniature Slide Switches

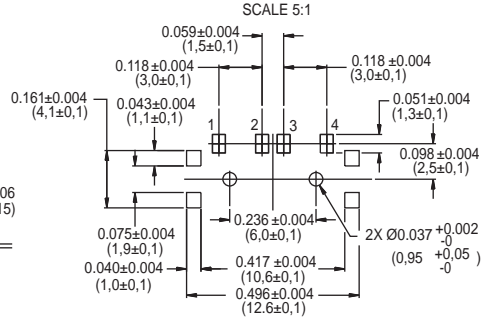


SCHEMATIC (1P2T)

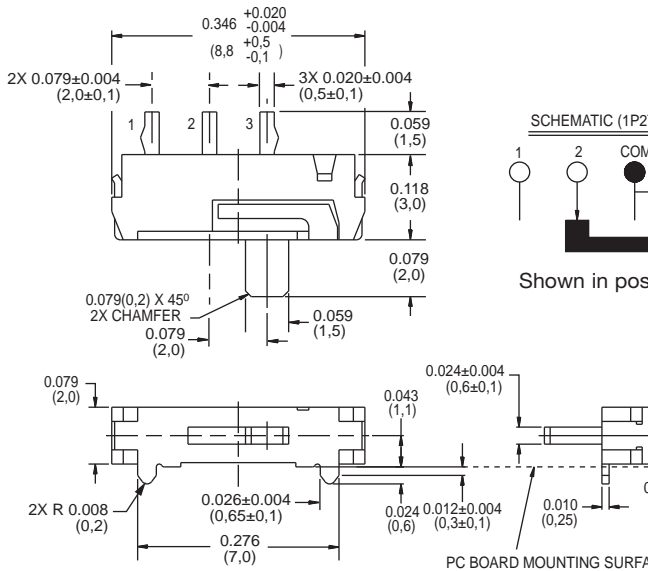
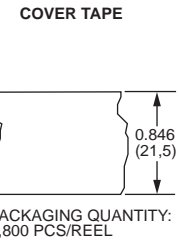
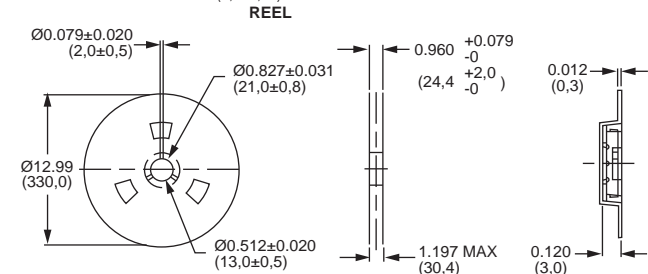


Shown in position 1

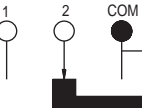
RECOMMENDED PC BOARD LAY OUT



JSM08022SAQNL
SPDT Surface Mount
Momentary only

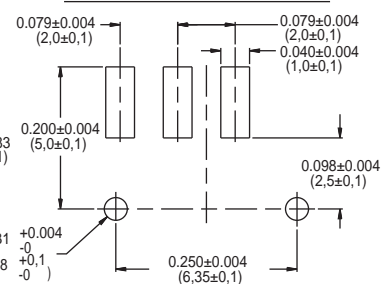


SCHEMATIC (1P2T)

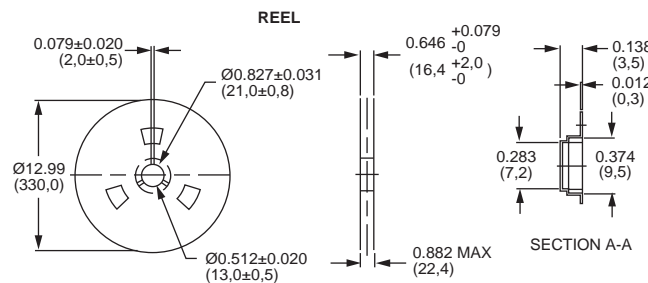


Shown in position 2

RECOMMENDED PC BOARD LAY OUT

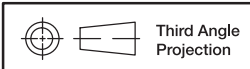
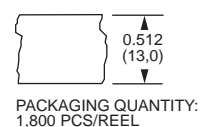


JSM08011SAQNR
SPDT Surface Mount
Momentary only



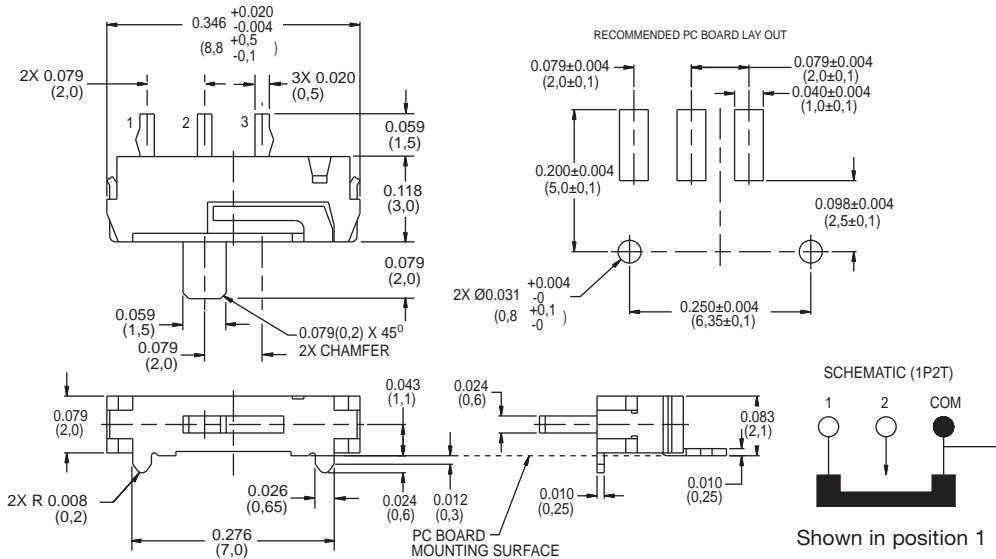
CARRIER TAPE

COVER TAPE

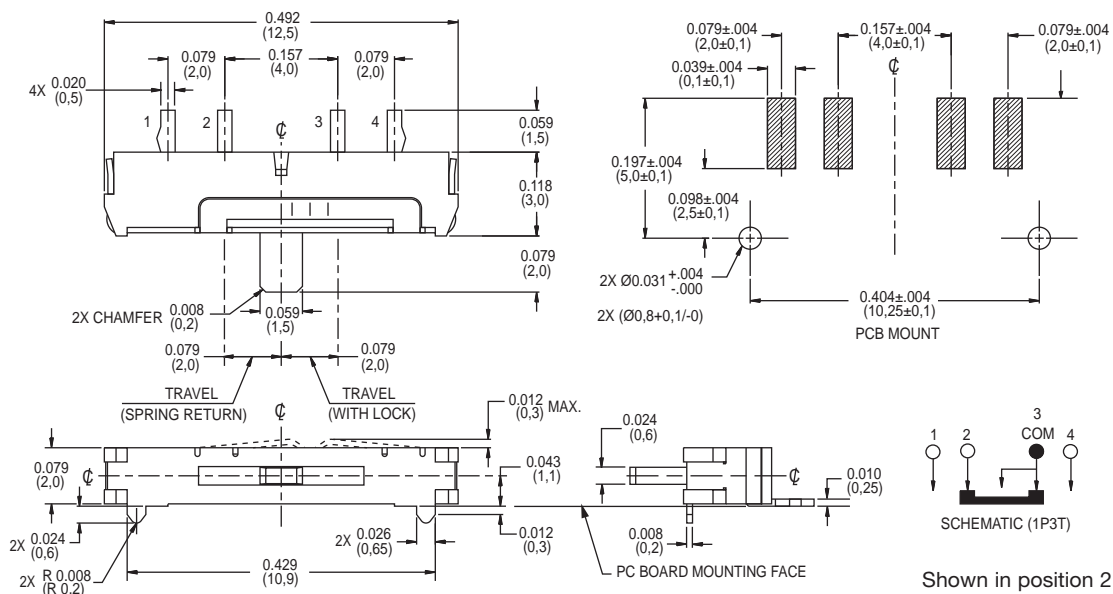
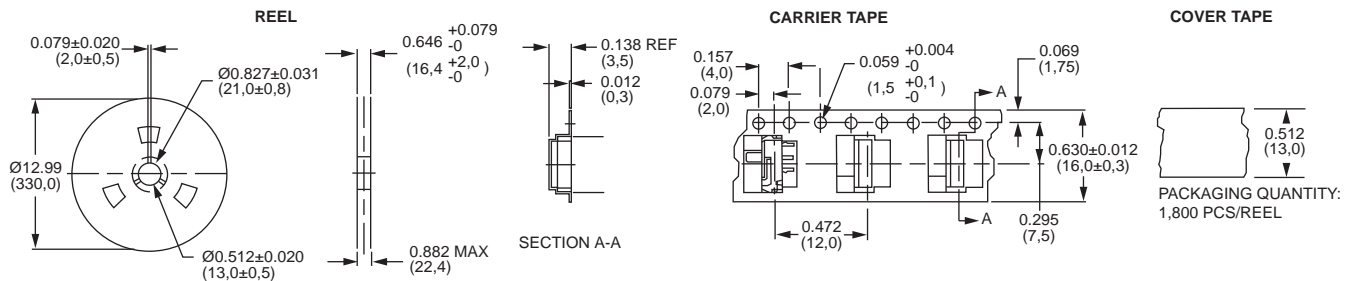
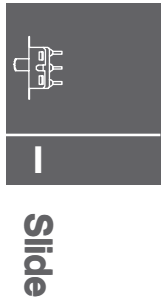


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

JSM Series Sub-Miniature Slide Switches

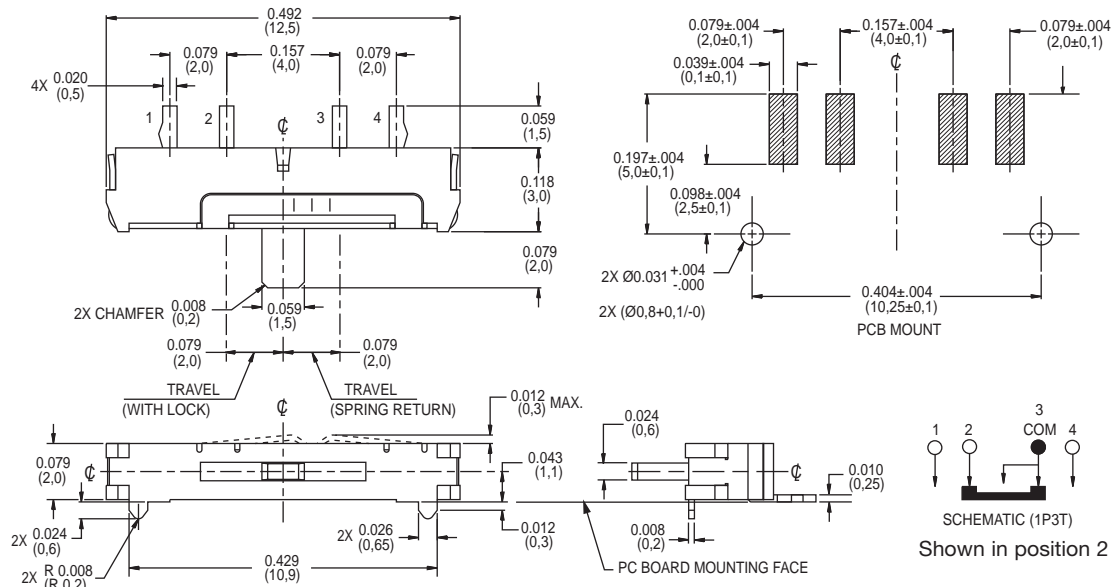


JSM08011SAQNL
SPDT Surface Mount
Momentary only



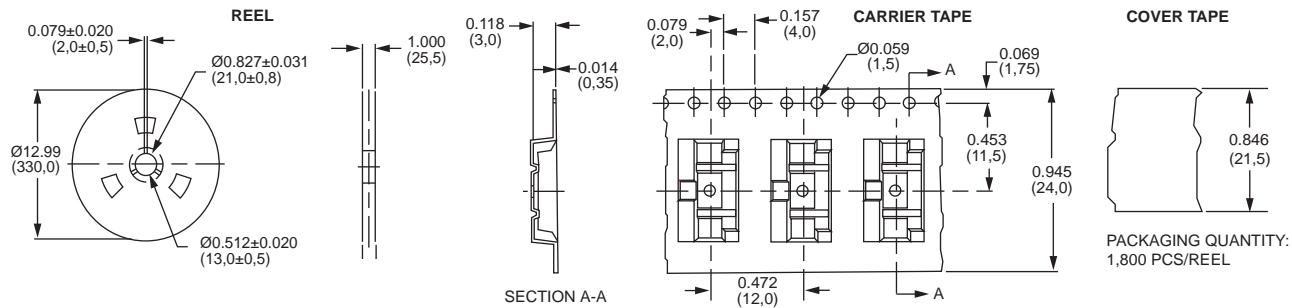
JSM07011SAQNR
SP3T Surface Mount
Momentary one side
& Maintained the other

JSM Series Sub-Miniature Slide Switches



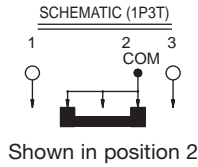
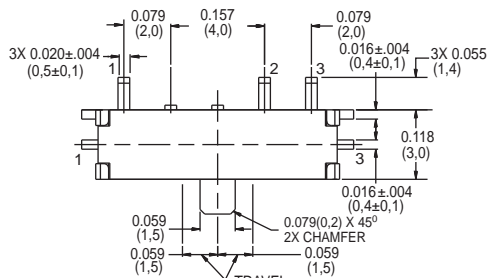
JSM07011SAQNL
SP3T Surface Mount
Momentary one side
& Maintained the other

Packaging for JSM07011SAQNR and JSM07011SAQNL

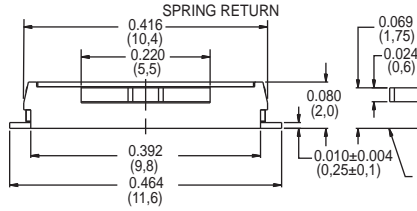


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

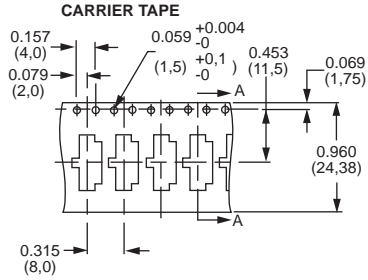
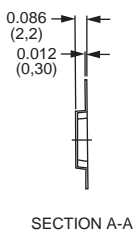
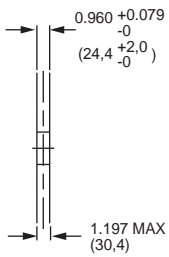
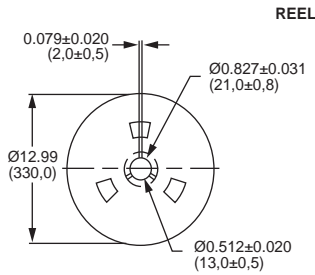
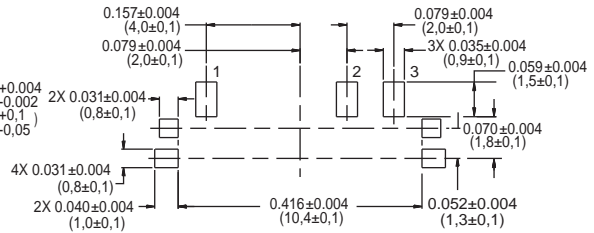
JSM Series Sub-Miniature Slide Switches



JSM05000SAQN
SP3T Surface Mount
Momentary both
sides



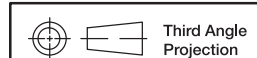
RECOMMENDED PC BOARD LAY OUT
SCALE 5:1



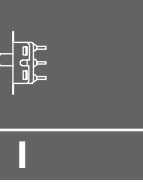
COVER TAPE



PACKAGING QUANTITY:
3,400 PCS/REEL



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Side

JSX Series Sub-Miniature Slide Switch



Features/Benefits

- RoHS compliant and meets all requirements of RoHS directive 2002/95EC
- Low profile
- SPDT momentary action
- Long electrical and mechanical life

Typical Applications

- On/Off touch screens
- Handheld games
- Remote controls
- Instrumentation



Slide

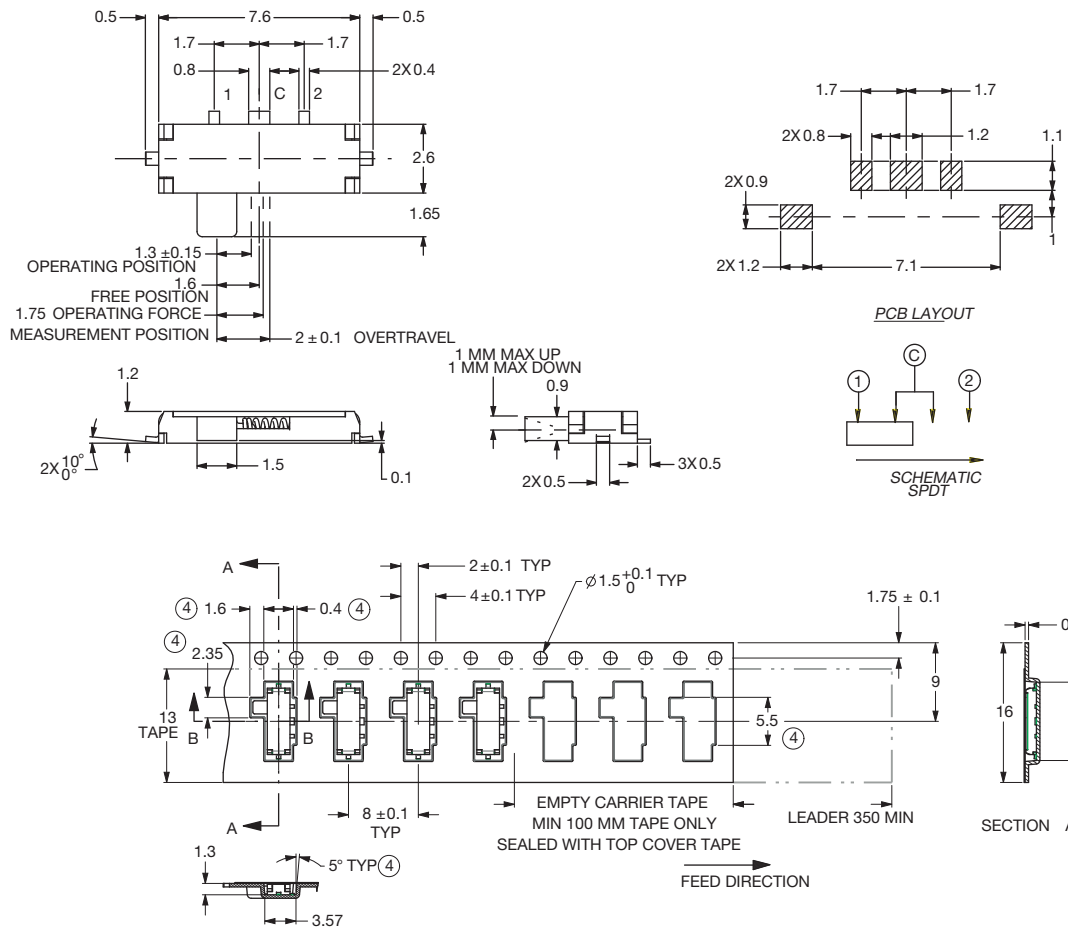
Specifications

CONTACT RATING: 10 mA @ 5VDC (resistive).
 ELECTRICAL LIFE: 100,000 cycles.
 CONTACT RESISTANCE: 70 m Ω max. initial.
 200 m Ω max. after life testing.
 INSULATION RESISTANCE: 100 M Ω min. @ 100VDC.
 DIELECTRIC STRENGTH: 100 VAC for 1 min. @ 50/60 Hz/2mA.
 OPERATING TEMPERATURE: -25°C to +70°C
 STORAGE TEMPERATURE: -40°C to +85°C
 -25°C to +55°C (in tape & reel packaging)

Materials

HOUSING: LCP, Glass filled.
 ACTUATOR: 4/6 nylon (UL94V-2), black.
 CONTACTS: Beryllium copper, silver plated.
 TERMINALS: Phosphur bronze or StSt, silver plated.
 COVER: Nickel silver or Stainless steel, silver plated.
 RETURN SPRING: Stainless steel.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



JSX08001SAQNL
SPDT Surface Mount
Momentary only



Third Angle Projection
 Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

Features/Benefits

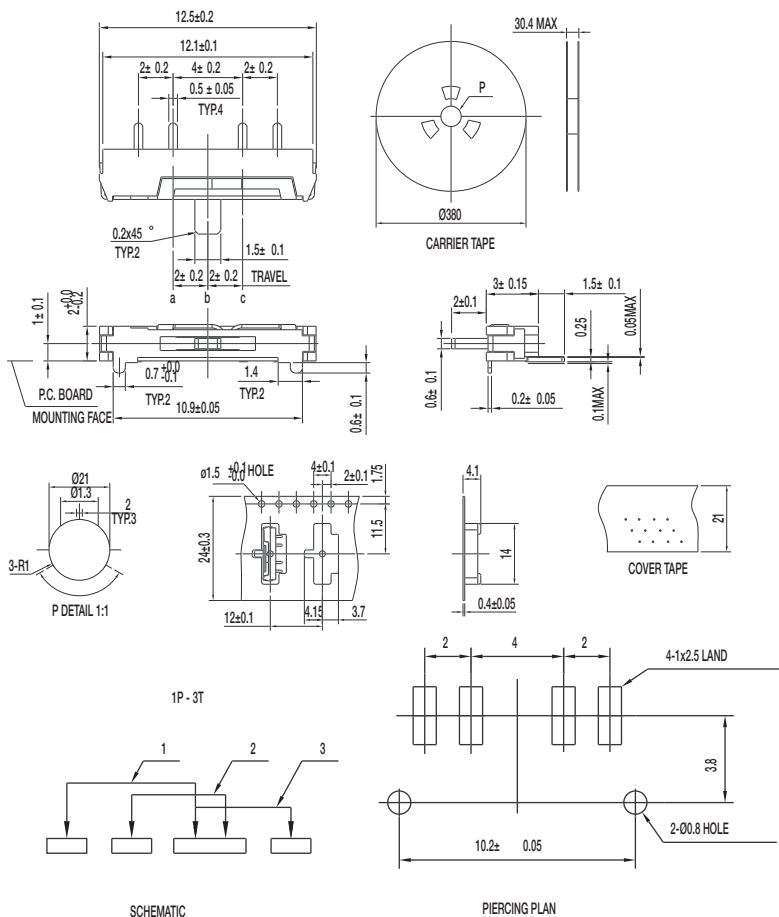
- Broad range of products
- Various circuit design, SPDT, 4P3T, vertical, right angle
- Compact miniature slide switch
- Shorting or non-shorting
- Custom design available

Typical Applications

- Consumer electronics
- Computer peripherals
- Telecommunication
- Audio & visual equipment
- Medical
- Automotive



SK-13D21-G 2RT 1P3T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 4 VDC
 INITIAL CONTACT RESISTANCE: 70 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 125 ± 50 gf (1.23 ± 0.49N)
 200 ± 50 gf (1.96 ± 0.49N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

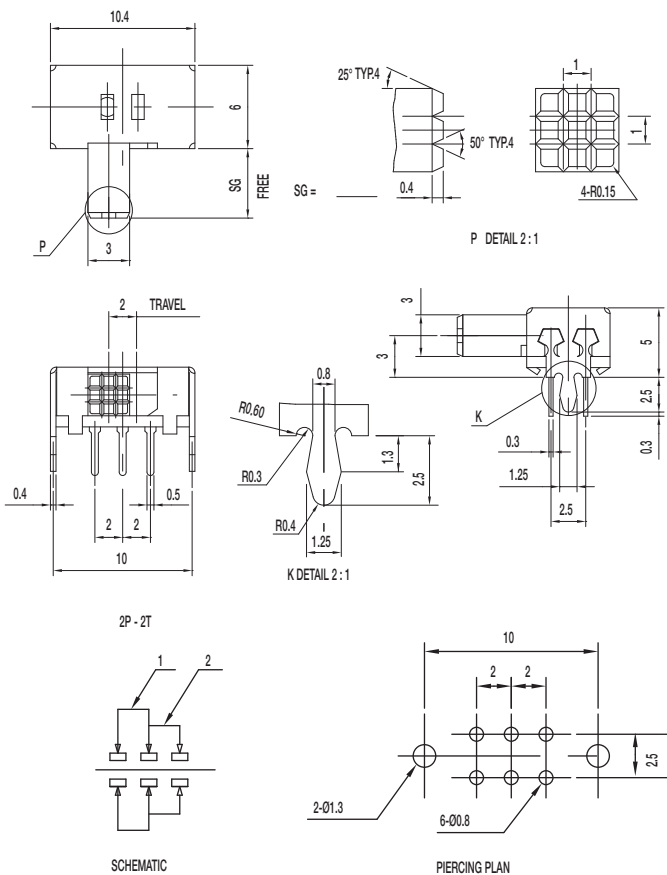
HOUSE: LCP (UL 94V-0)
 KNOB: PA (UL 94V-0)
 FRAME: SUS
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SK Series Miniature Slide Switches

SK-22D01-SG NS DPDT NON-SHORTING



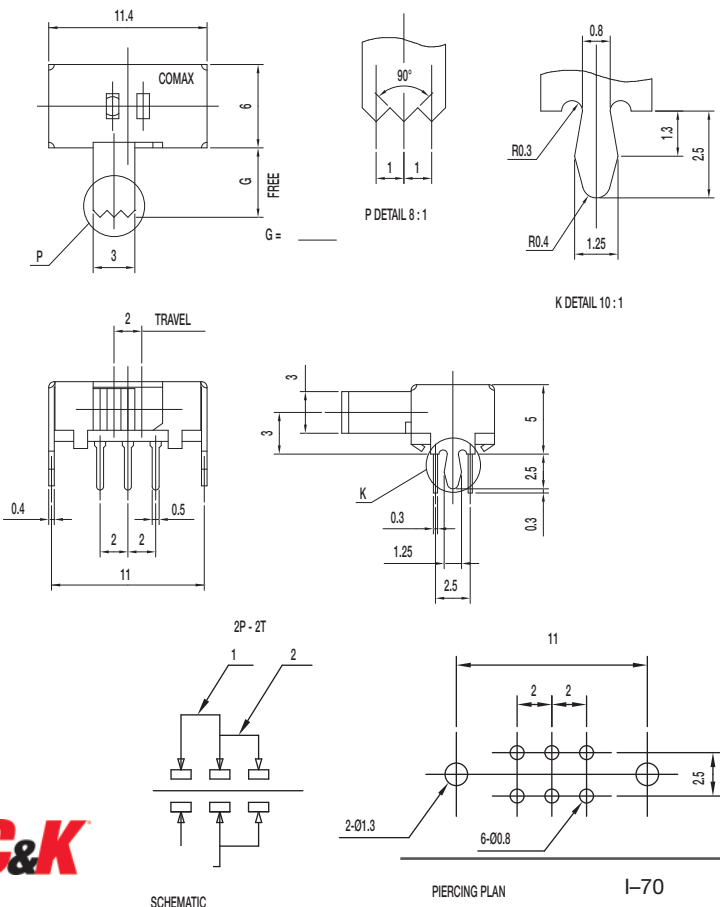
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-22D05-G NS DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

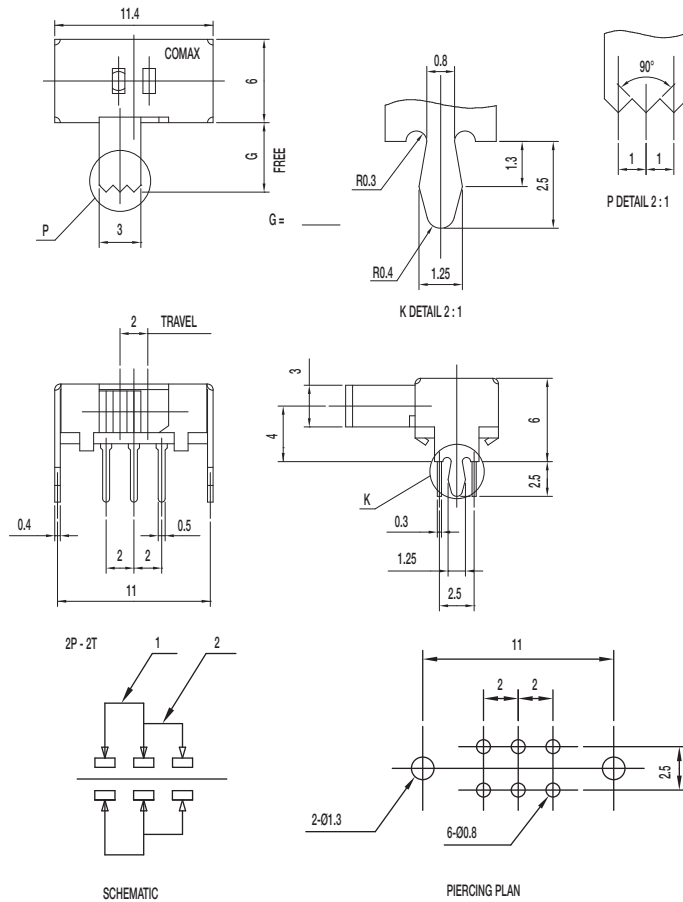


Dimensions are shown:mm
 Specifications and dimensions subject to change

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SK Series Miniature Slide Switches

SK-22D06-G NS DPDT NON-SHORTING

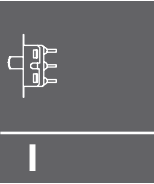


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

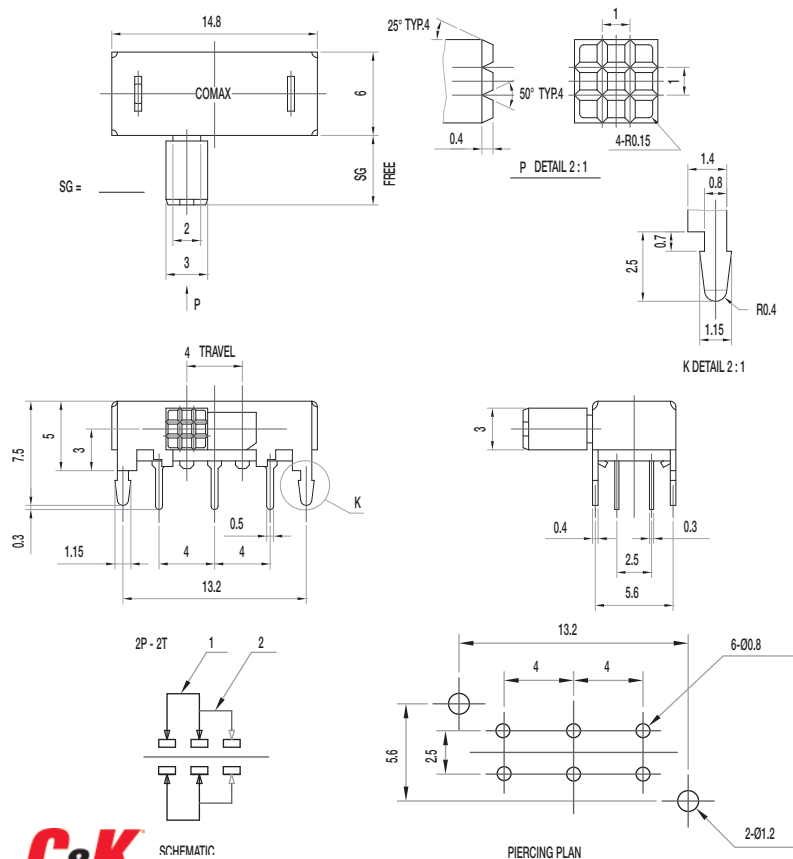
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SK-22H06-SG DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

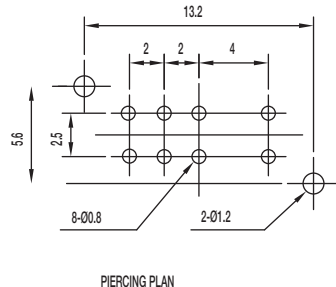
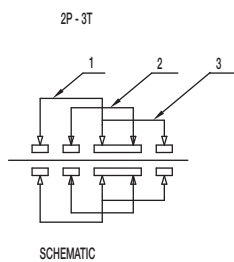
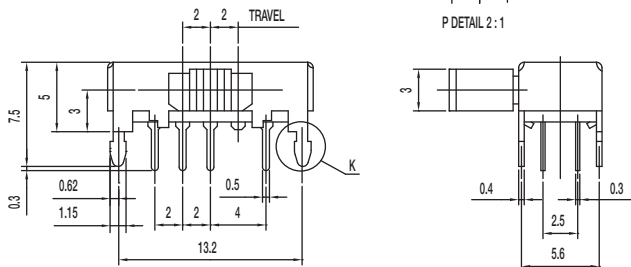
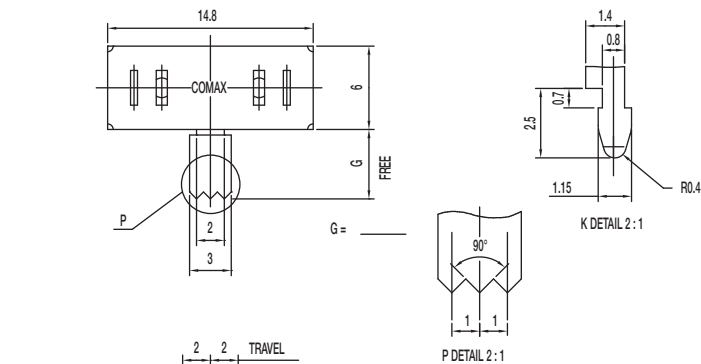


SCHMATIC

Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-23D05-G 2P3T



SCHEMATIC

PIERCING PLAN

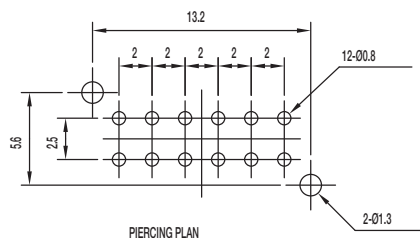
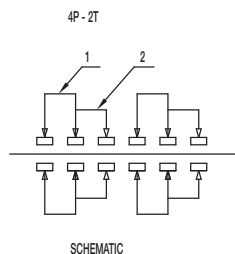
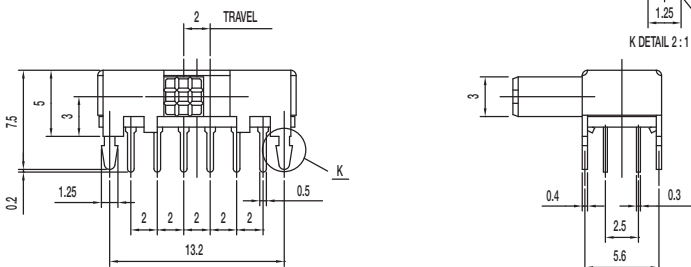
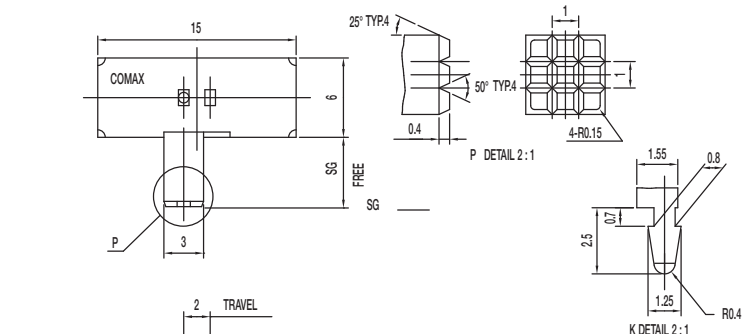
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-42D05-SG NS 4P2T NON-SHORTING



SCHEMATIC

PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

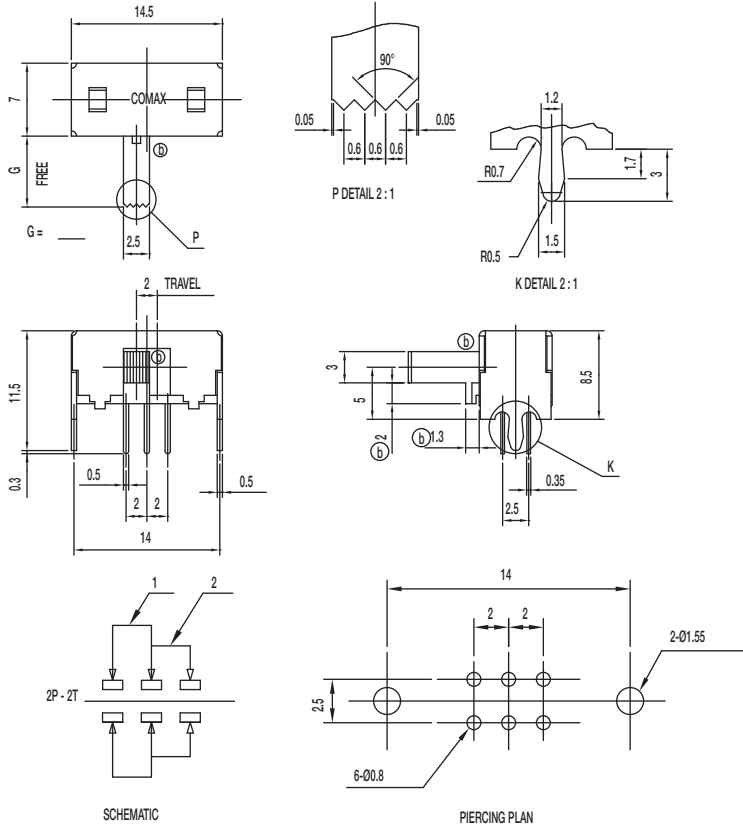
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-22D28-G NS DPDT NON-SHORTING



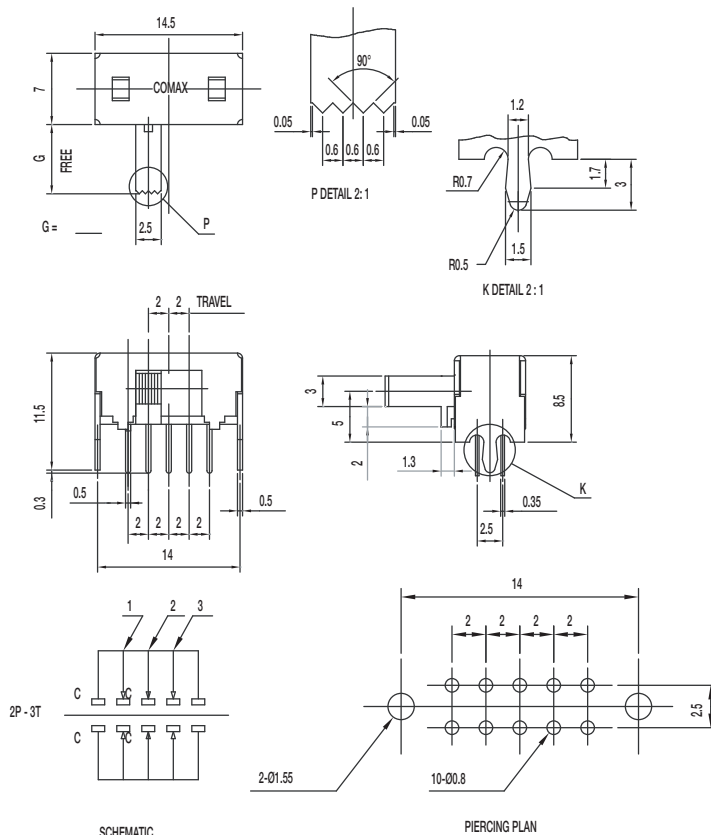
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-23D28-G NS 2P3T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

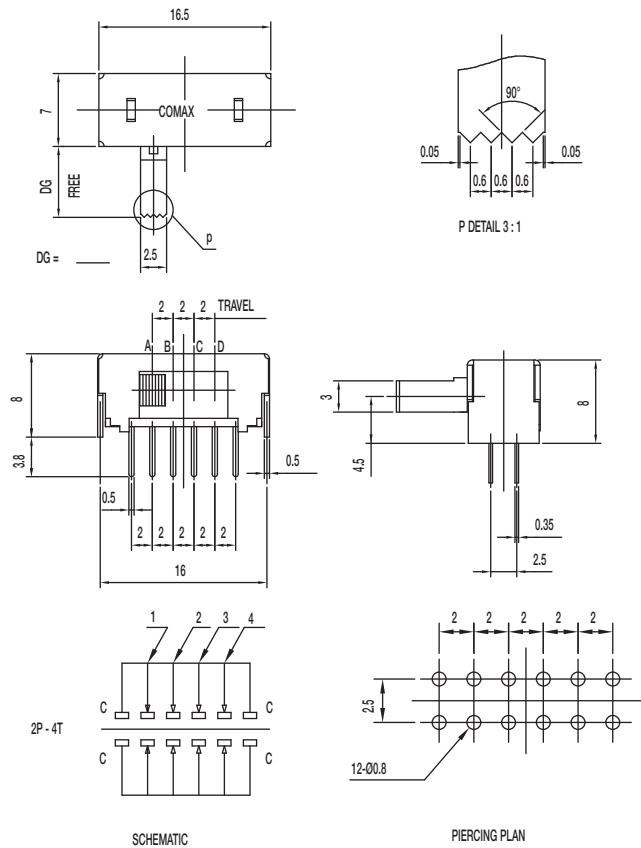
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-24D18-DG NS 2P4T NON-SHORTING

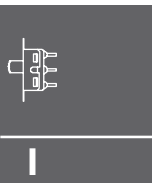


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N); 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

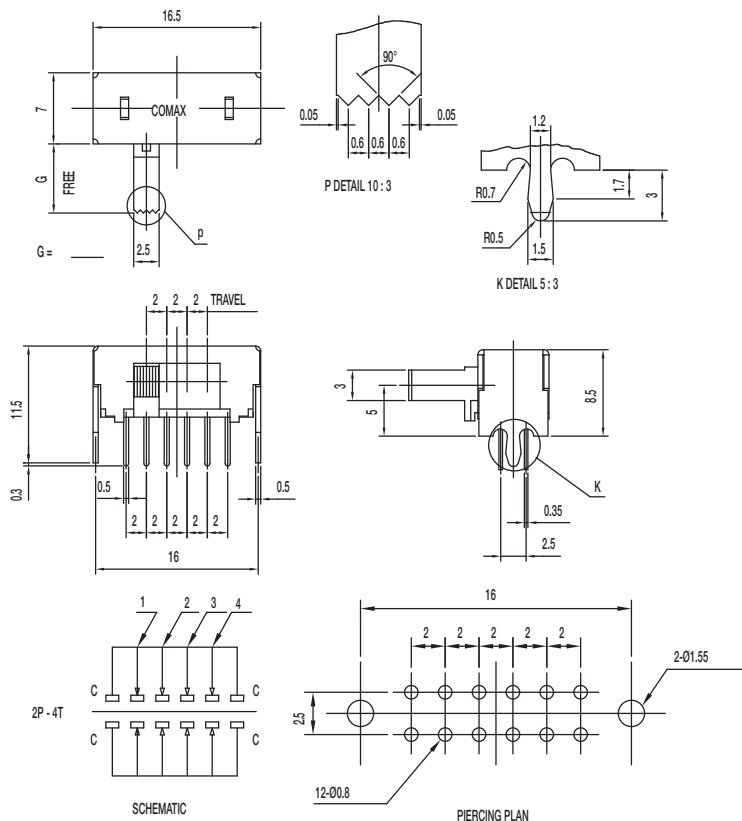
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SK-24D28-G NS 2P4T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N); 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

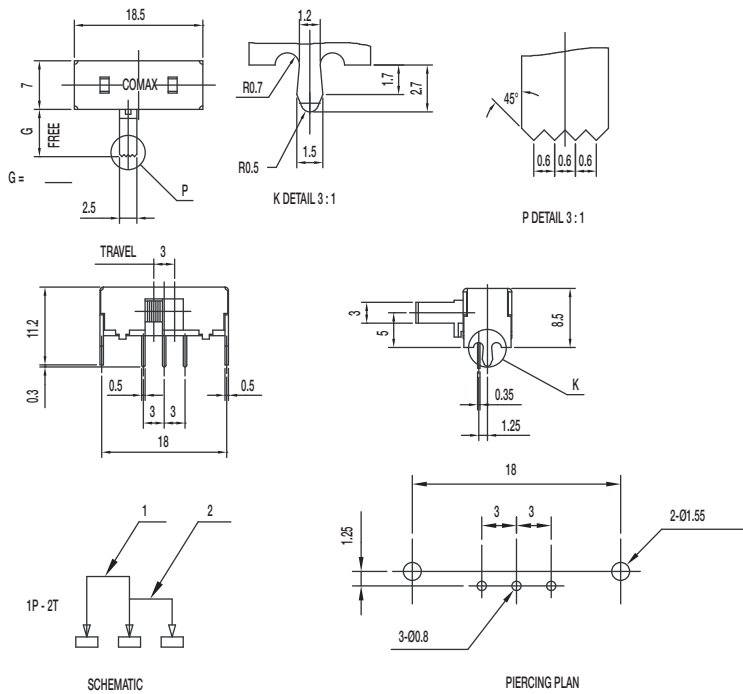
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-12F28-G NS 1P2T NON-SHORTING



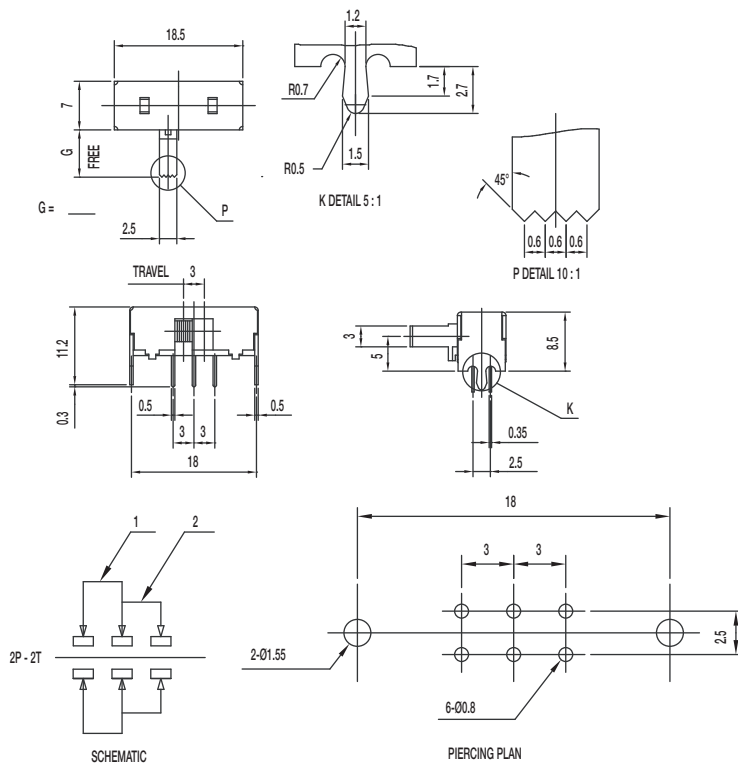
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-22F28-G NS DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

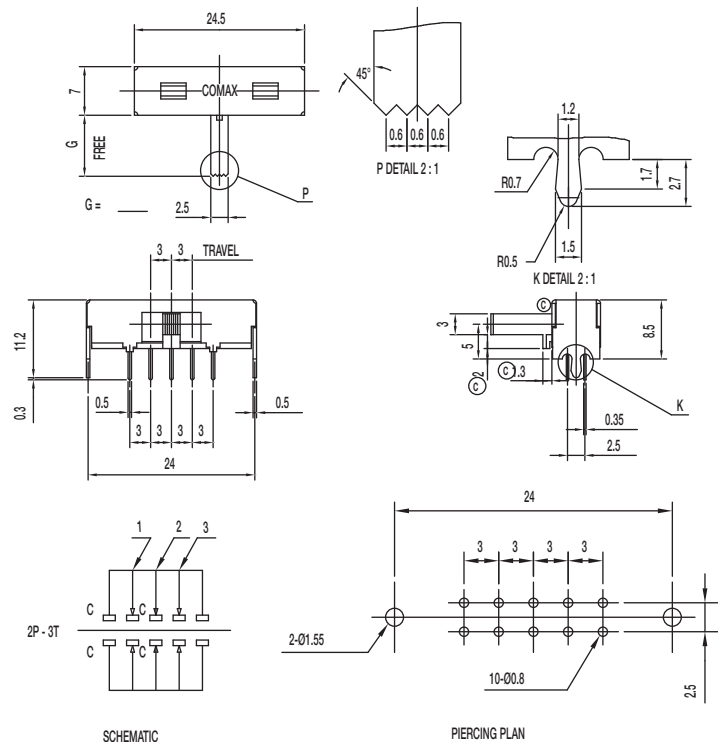
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



SK Series Miniature Slide Switches

SK-23F28-G NS 2P3T NON-SHORTING



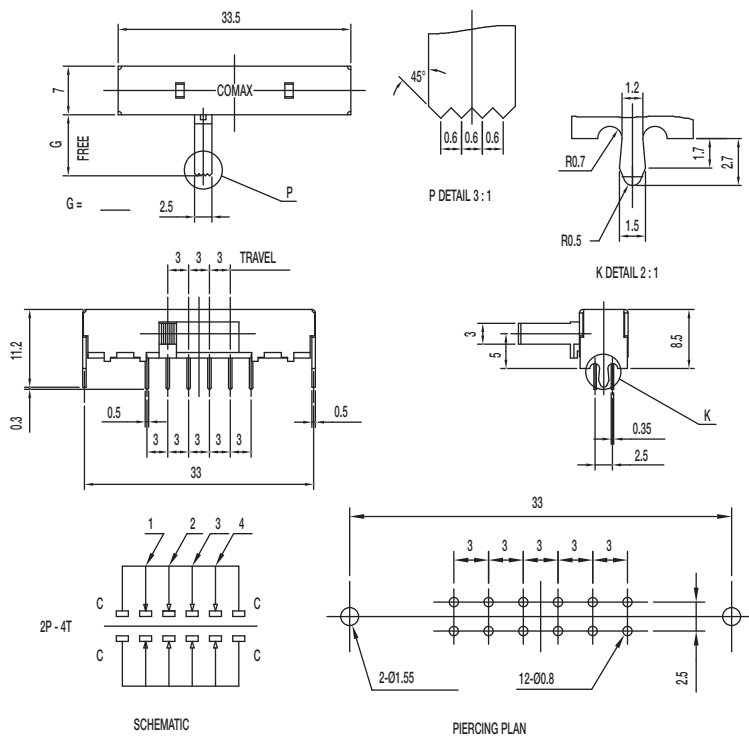
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 150 ± 80 gf (1.47 ± 0.78N)
 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-24F28-G NS 2P4T NON-SHORTING



Specifications

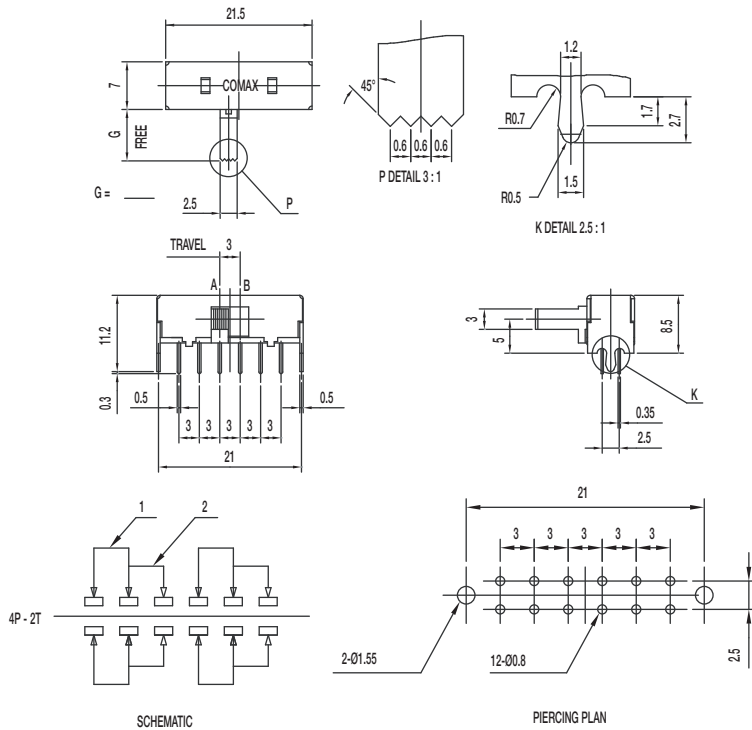
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK Series Miniature Slide Switches

SK-42F28-G NS 2P4T NON-SHORTING

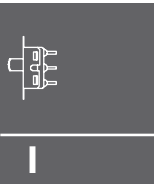


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98 N)
 250 ± 100 gf (2.45 ± 0.98 N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

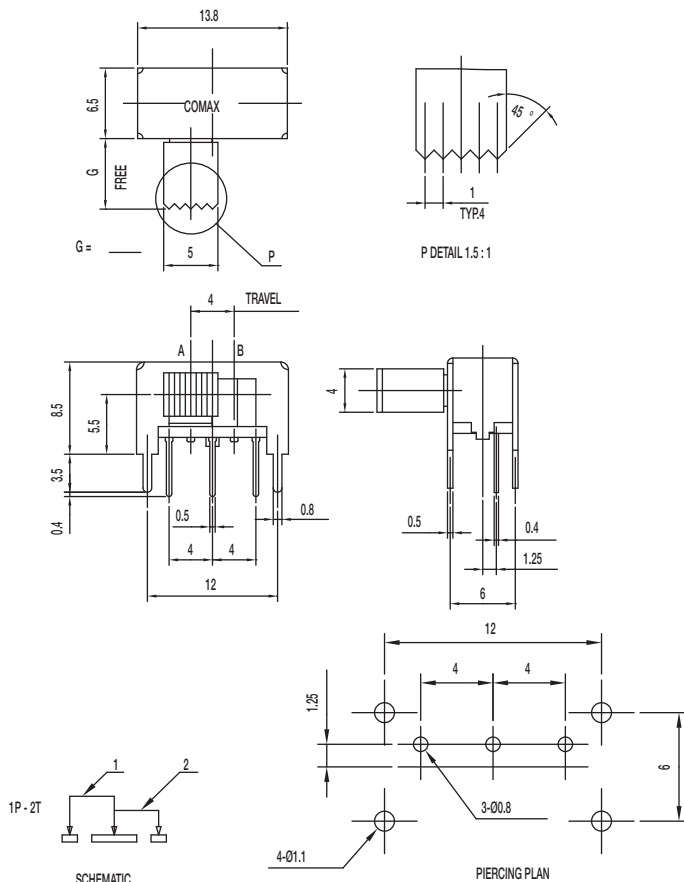
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SK-12H04-G NS 1P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

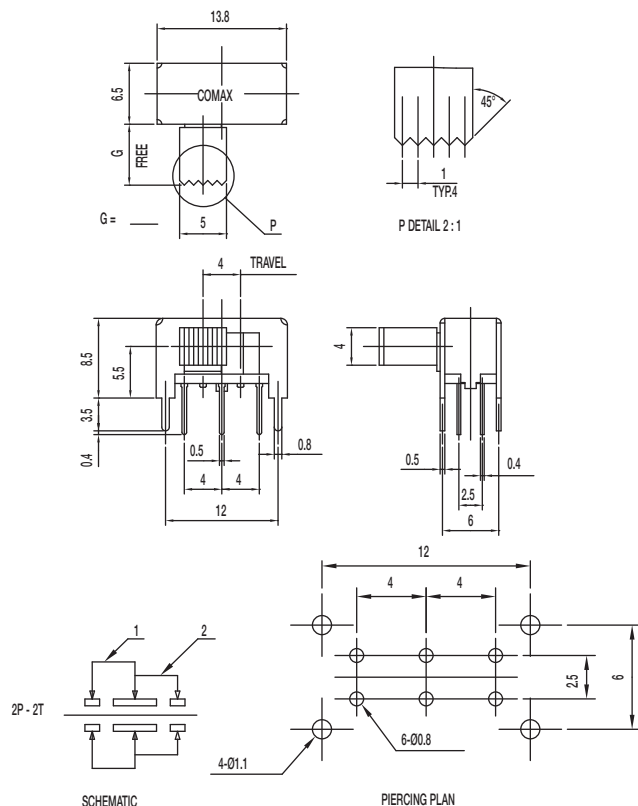
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-22H04-G NS DPDT NON-SHORTING



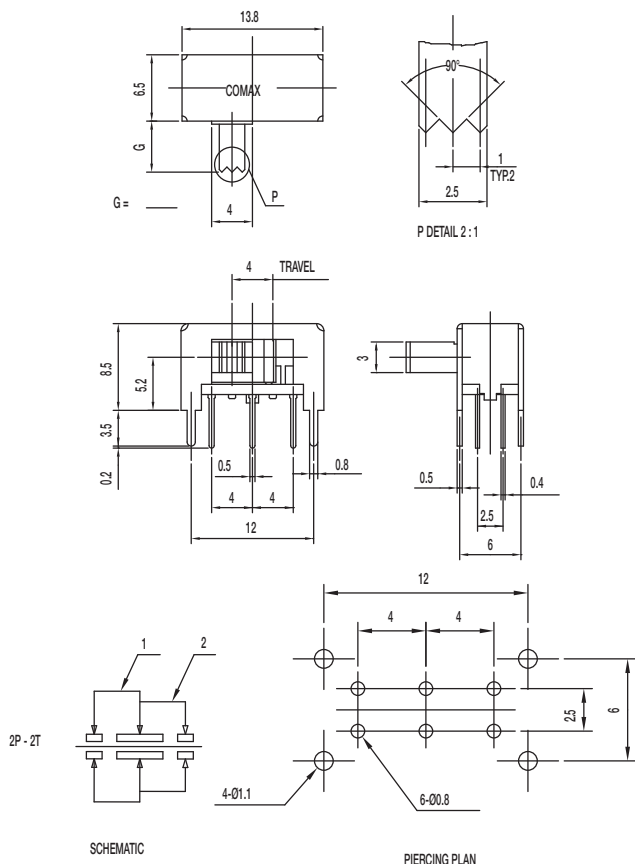
Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
- TRAVEL: 4 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated

SK-22H24-G NS DPDT NON-SHORTING



Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
- TRAVEL: 4 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated

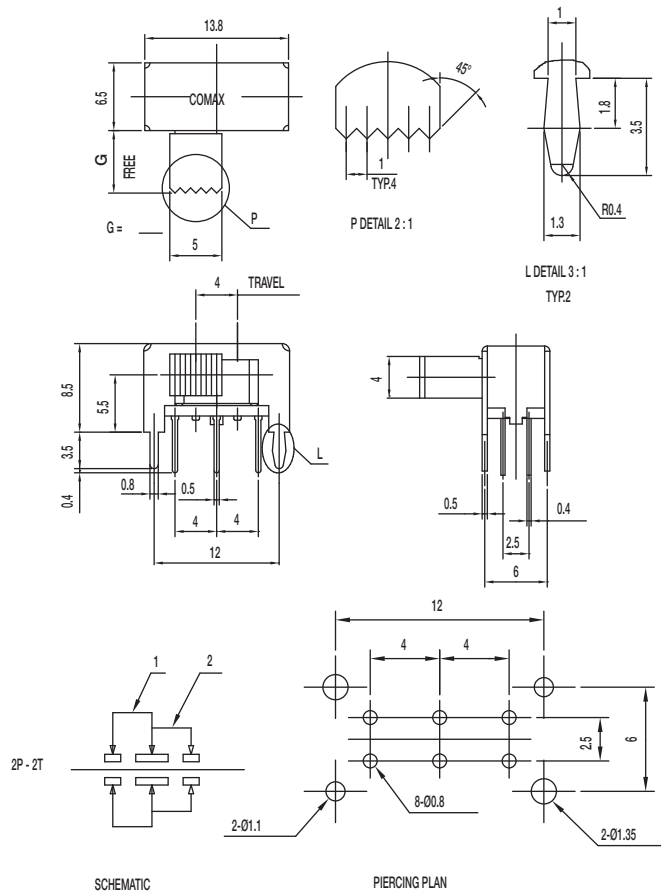


Dimensions are shown: mm
Specifications and dimensions subject to change

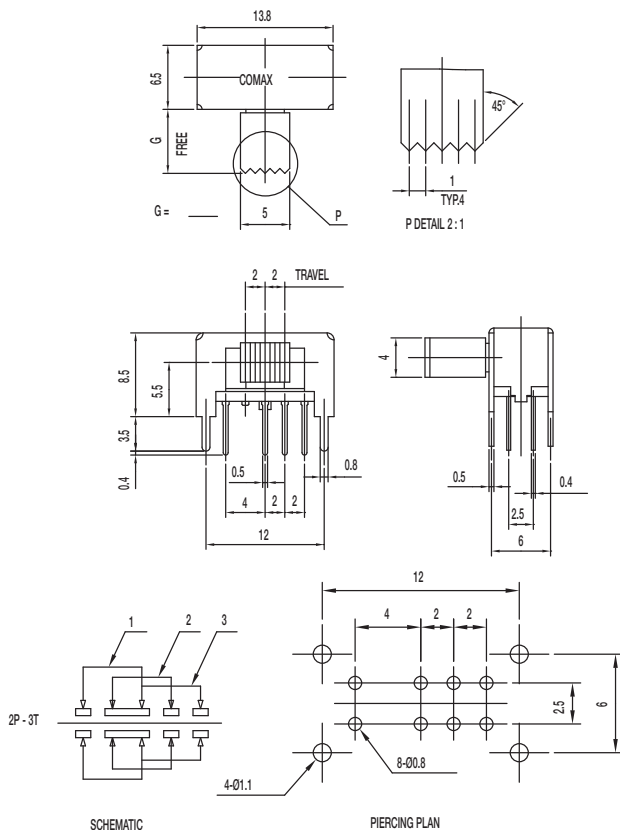
Slide

SK Series Miniature Slide Switches

SK-22H44-G NS DPDT NON-SHORTING



SK-23D04-G 2P3T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 150 gf (2.45 ± 1.47N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

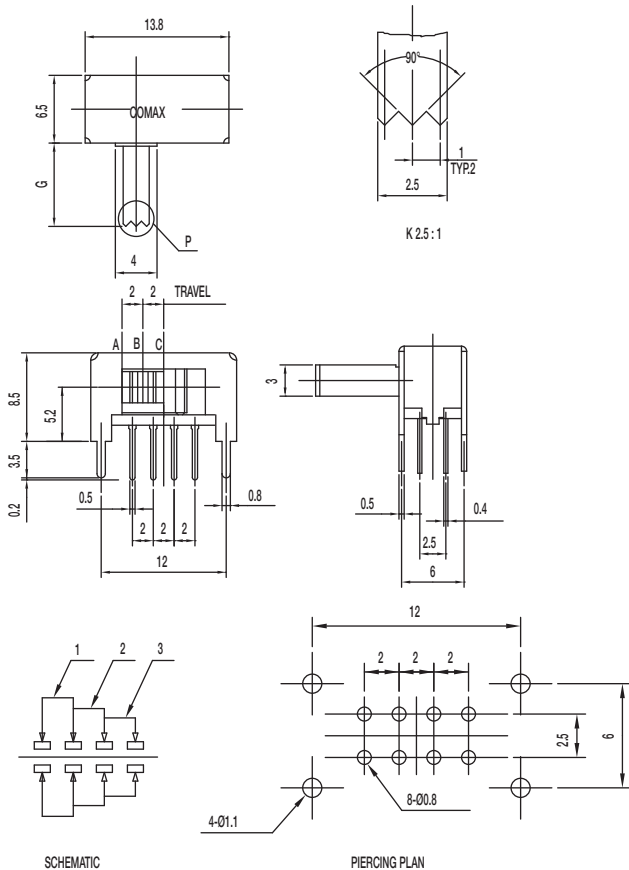


Dimensions are shown: mm
 Specifications and dimensions subject to change



SK Series Miniature Slide Switches

SK-23D23-G NS 2P3T NON-SHORTING



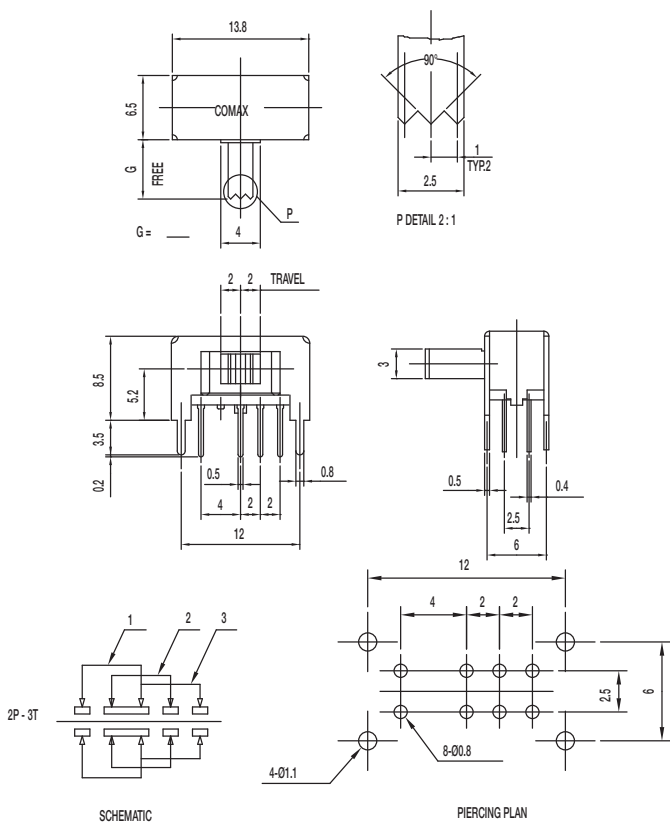
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-23D24-G 2P3T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

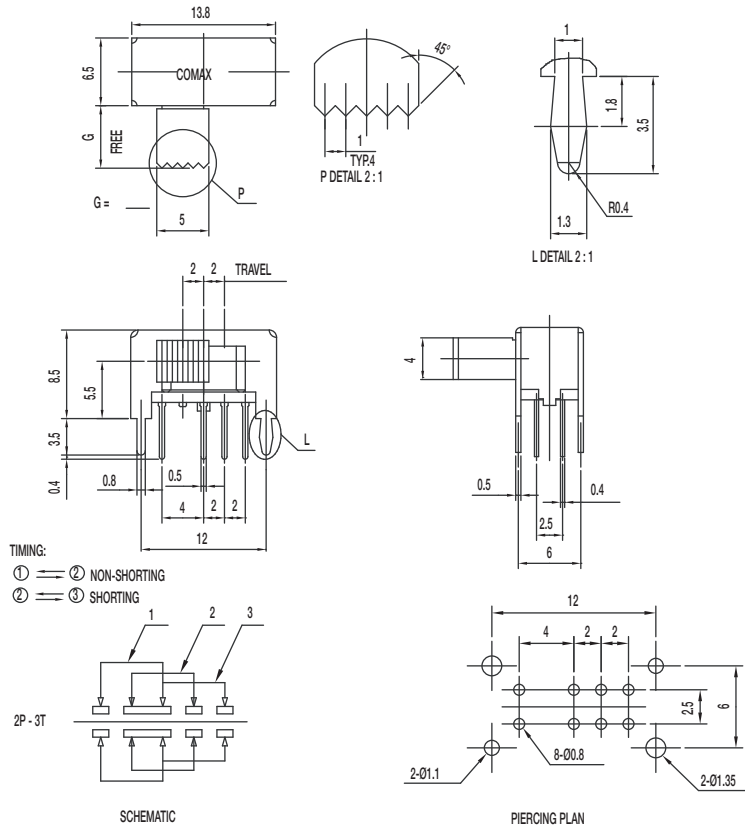
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



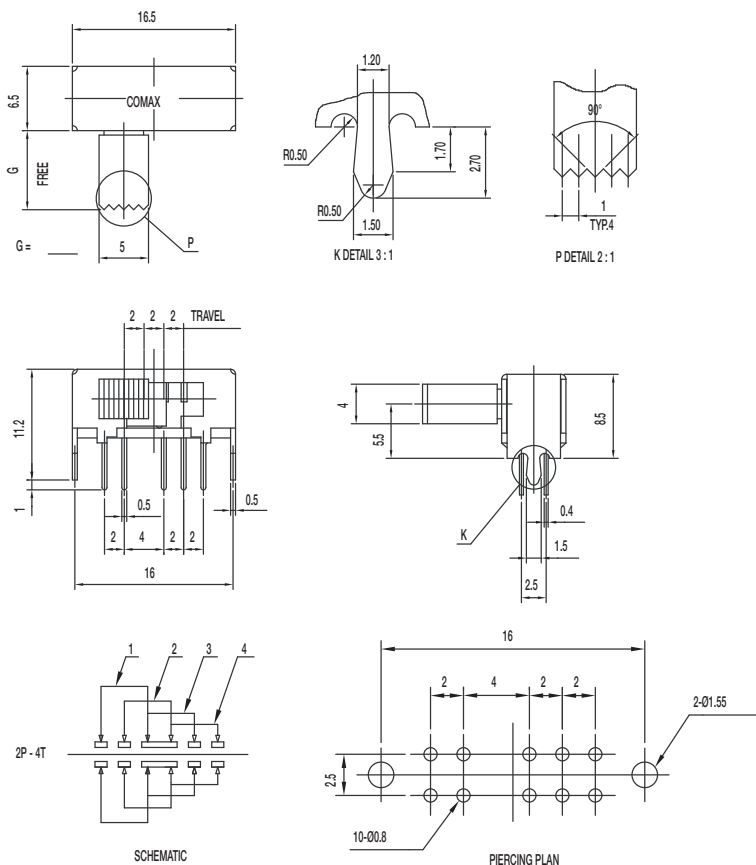
Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-23D44-G K 2P3T NON-SHORTING AND SHORTING

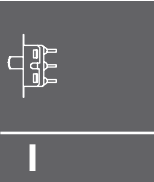


SK-24D04-G 2P4T



C&K

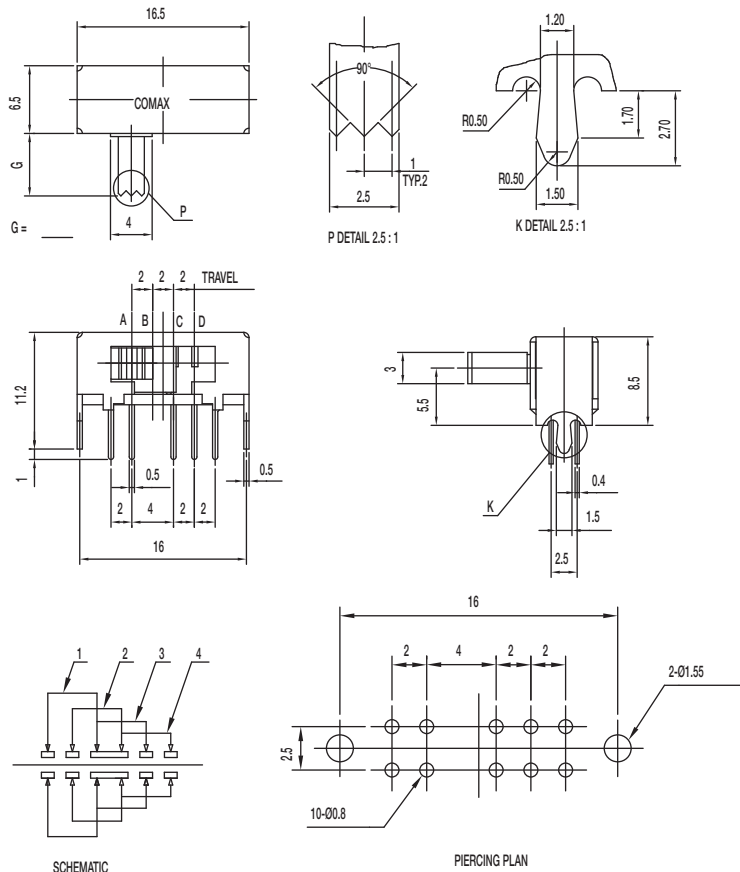
Dimensions are shown: mm
 Specifications and dimensions subject to change



Side

SK Series Miniature Slide Switches

SK-24D24 1P3T NON-SHORTING



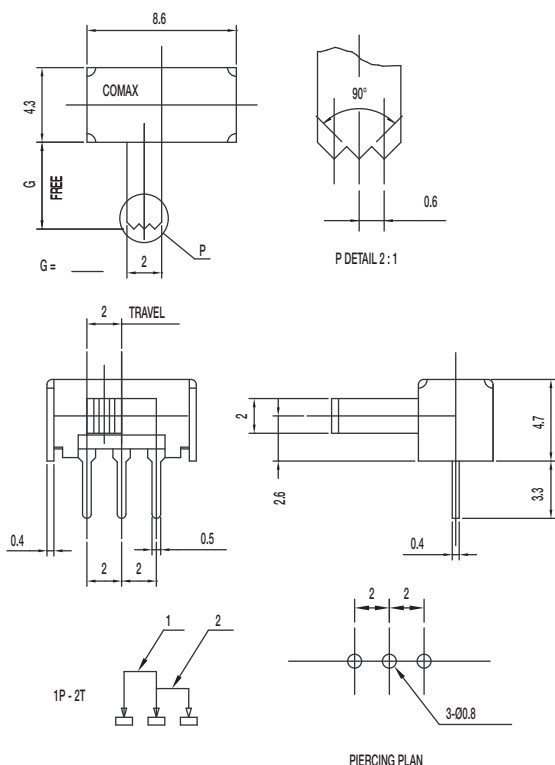
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-12D04-G NS 1P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

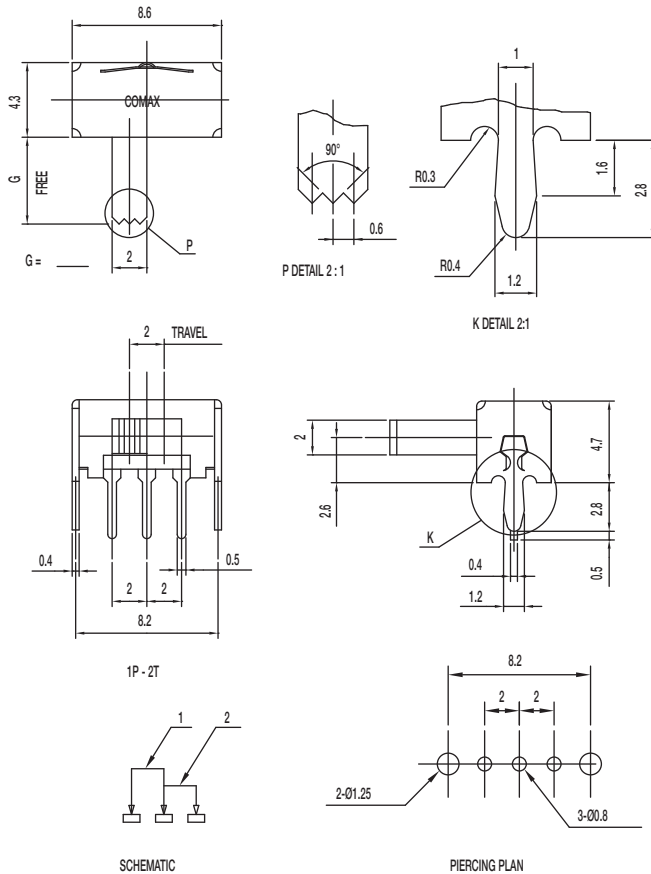
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-12D07-G NS PA 1P2T NON-SHORTING



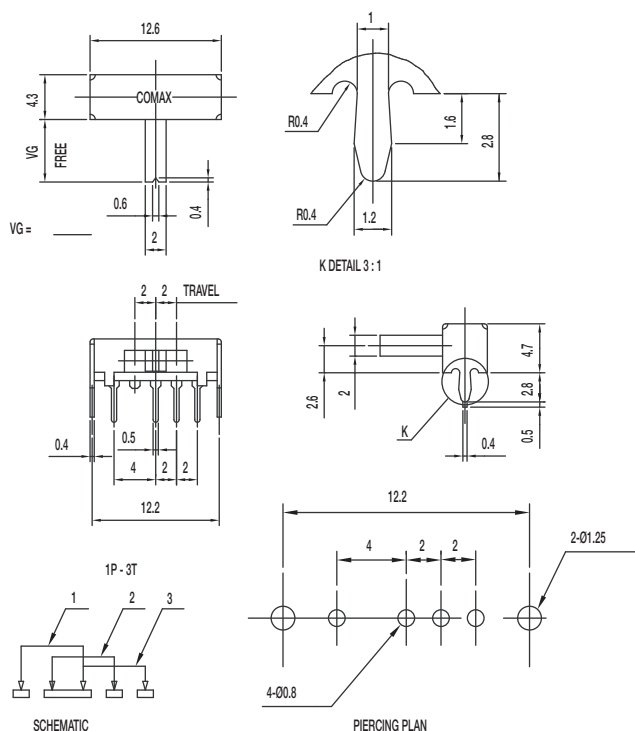
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-13D16-VG PA 1P3T

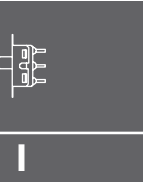


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

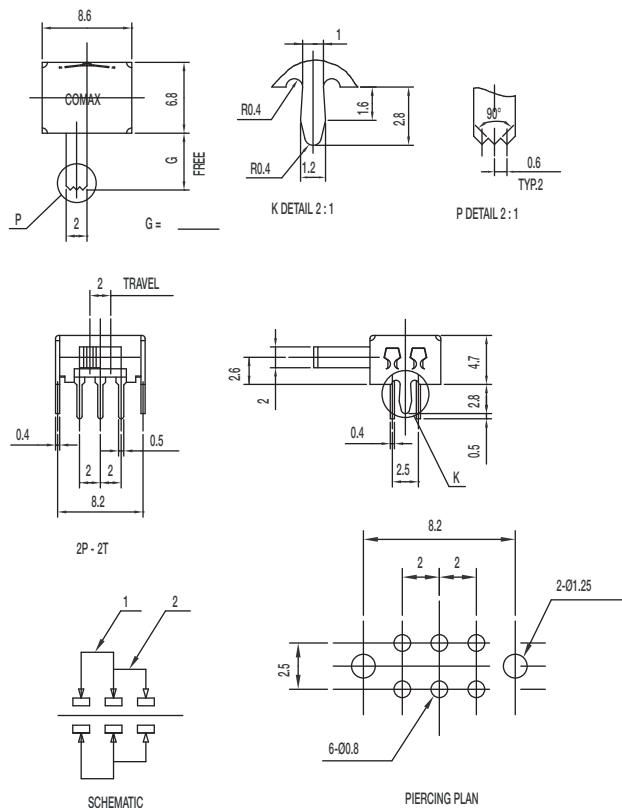
KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Slide

SK Series Miniature Slide Switches

SK-22D07-G NS PA DPDT NON-SHORTING



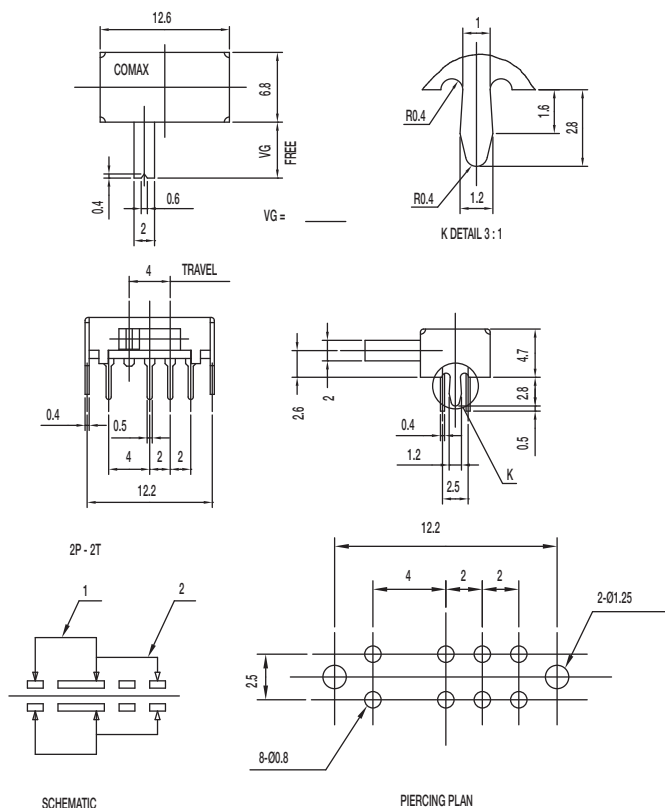
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: PA (UL94V-0)
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-22H07-VG DPDT NON-SHORTING



Specifications

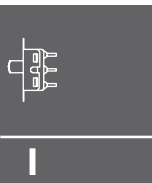
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



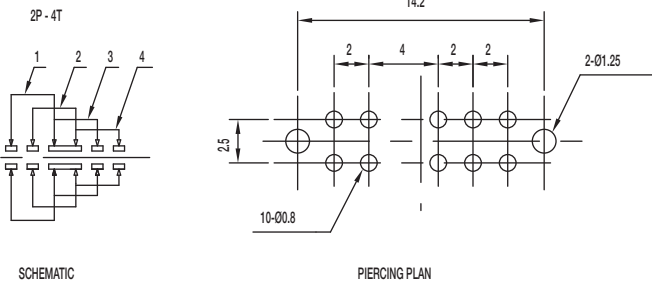
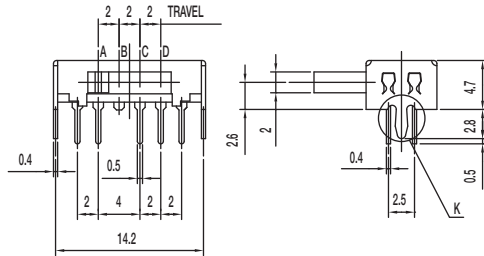
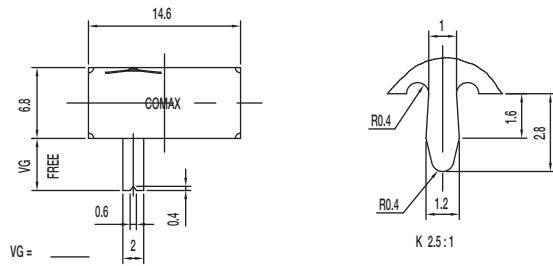
Dimensions are shown: mm
 Specifications and dimensions subject to change



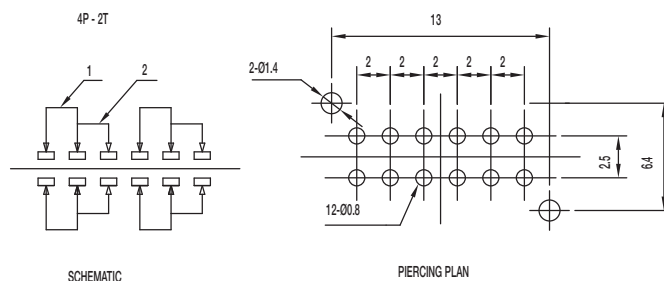
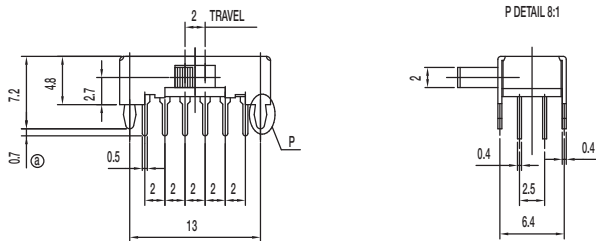
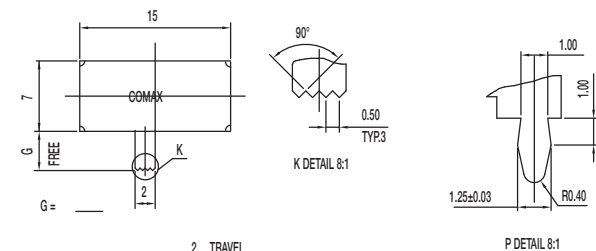
Slide

SK Series Miniature Slide Switches

SK-24D07-VG NS (S) 2P4T NON-SHORTING



SK-42D07-G NS 4P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 350 ± 150 gf (3.43 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Specifications

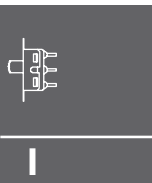
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



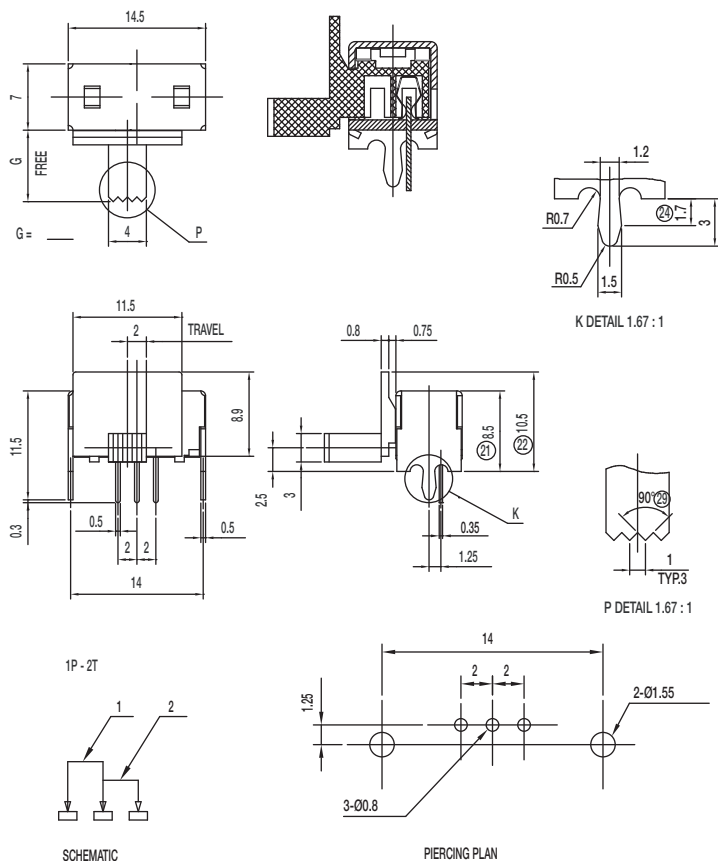
Dimensions are shown: mm
 Specifications and dimensions subject to change



Slide

SK Series Miniature Slide Switches

SK-12D26-G 6.5 NS GY 1P2T NON-SHORTING



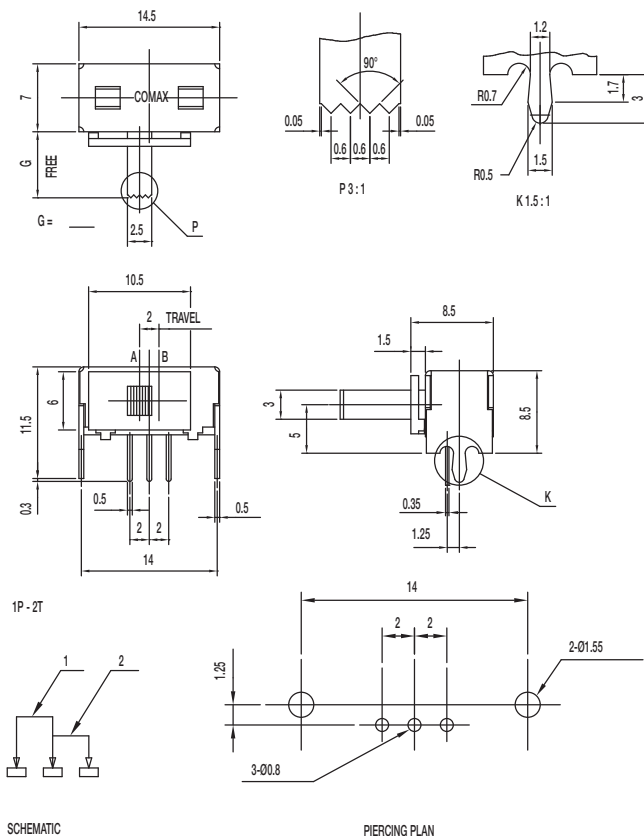
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 20 m ohms max.
 INSULATION RESISTANCE: 500 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-12D37-G NS 1P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

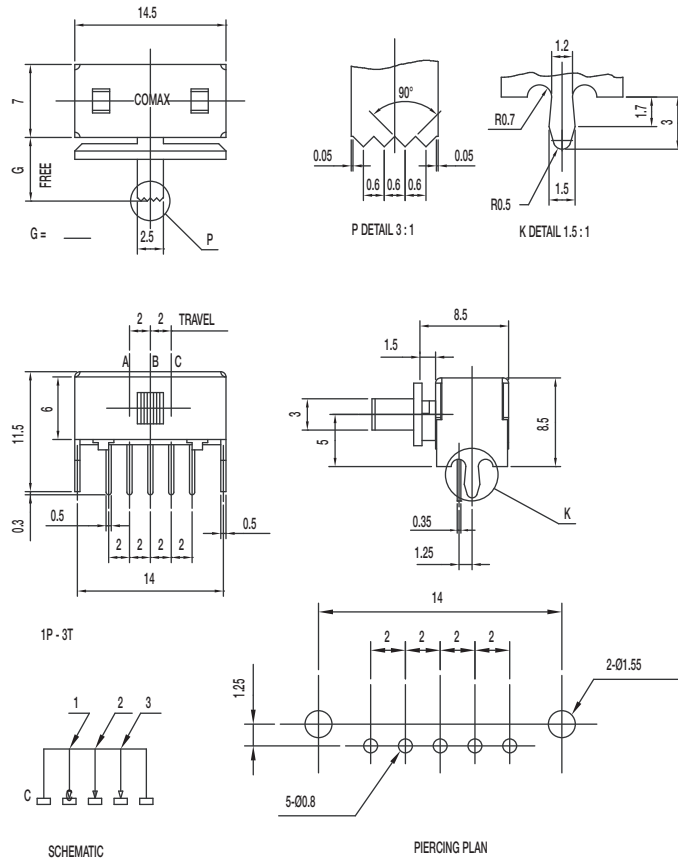
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-13D37-G NS 1P3T NON-SHORTING

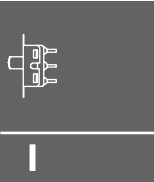


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

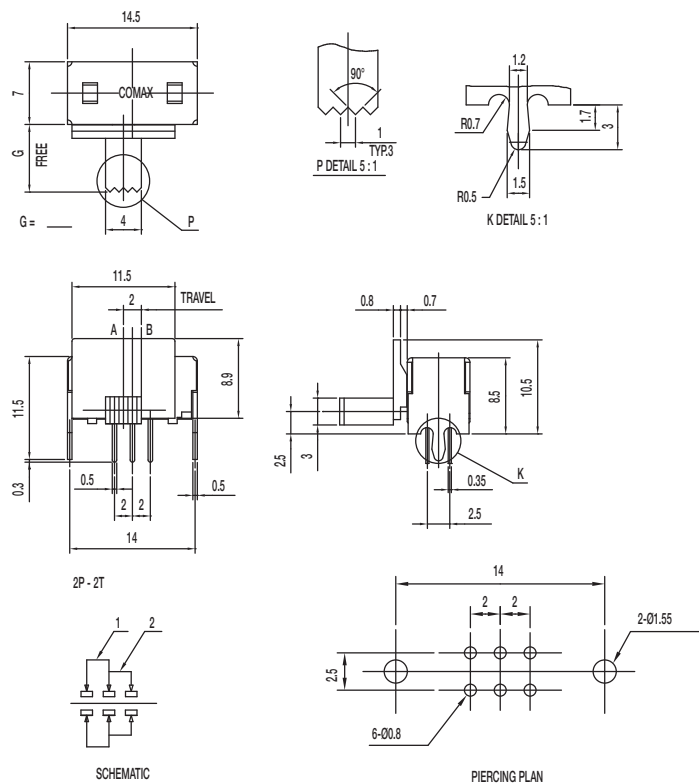
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Slide

SK-22D27-G NS DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

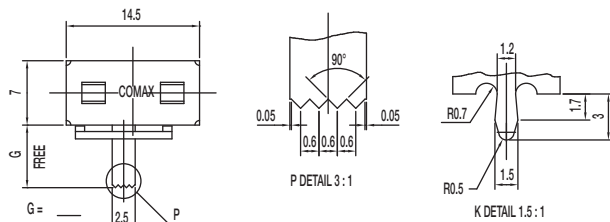
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-22D37-G NS DPDT NON-SHORTING

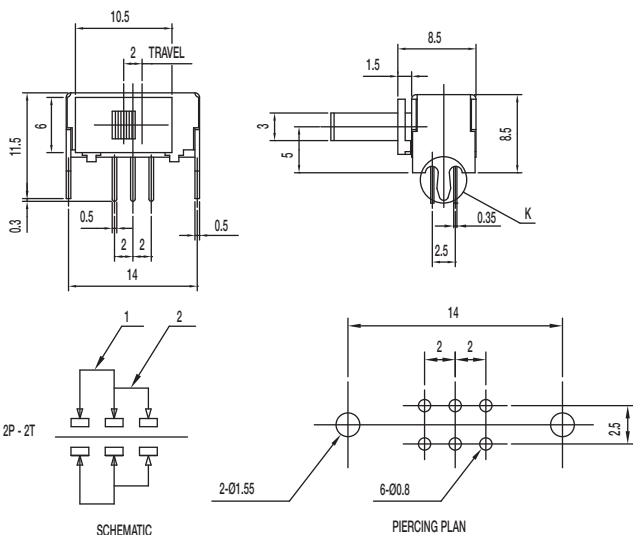


Specifications

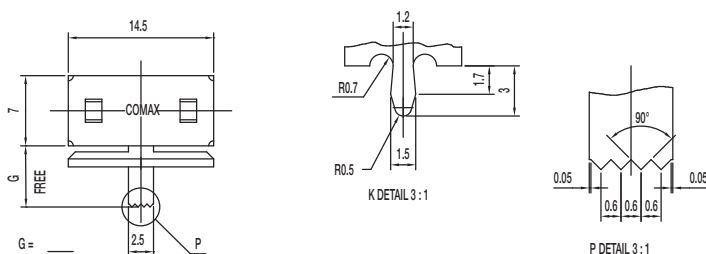
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



SK-23D37-G NS 2P3T NON-SHORTING

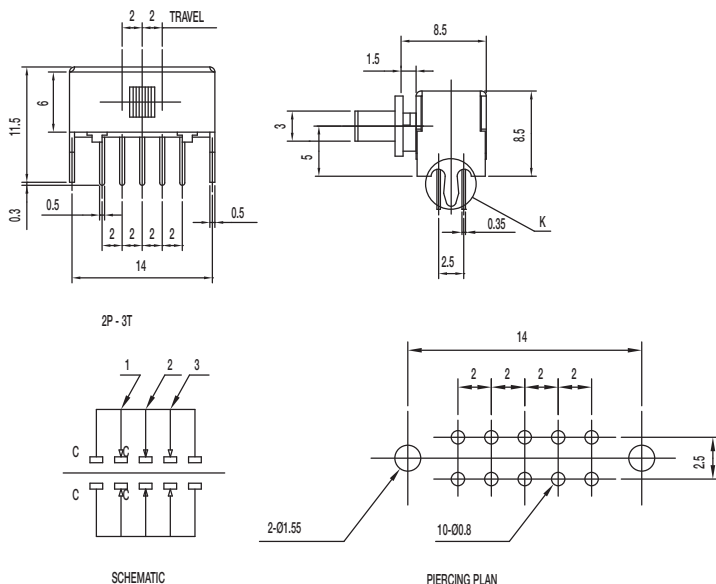


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

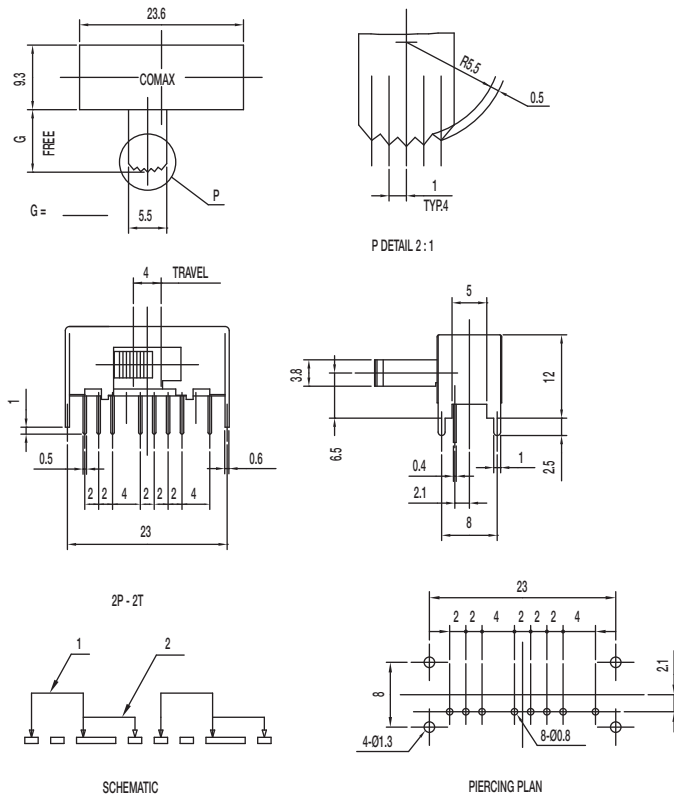
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-22H01-G RP DPDT NON-SHORTING

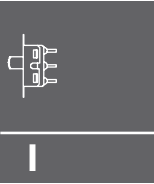


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

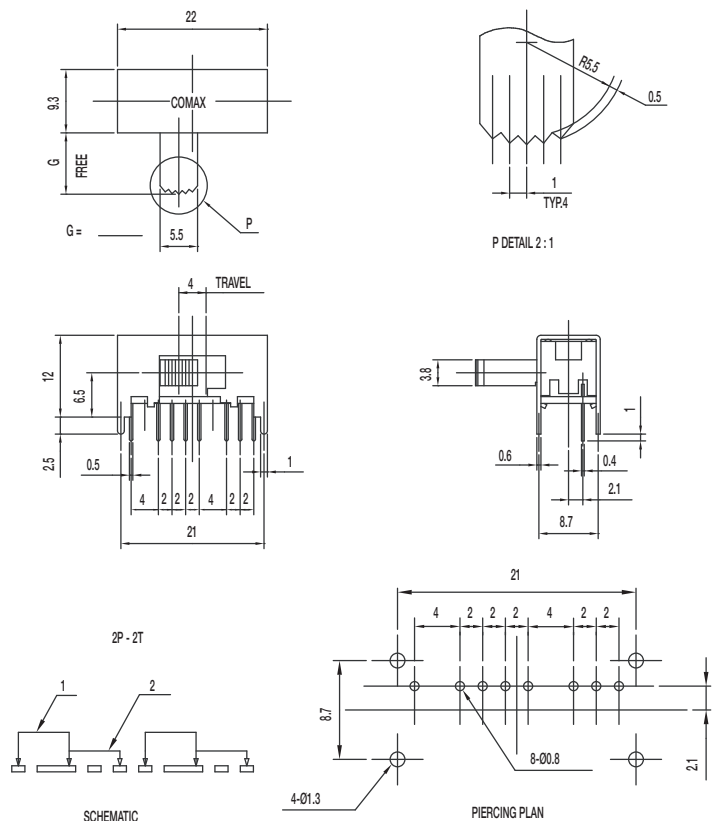
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SK-22H17-G DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

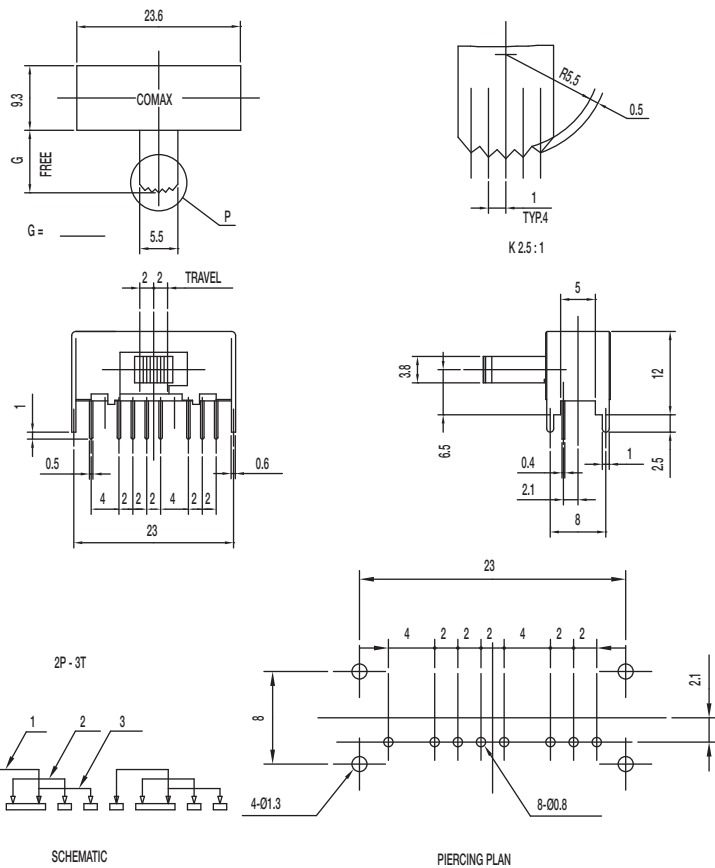
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

C&K

Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-23D10-G 2P3T



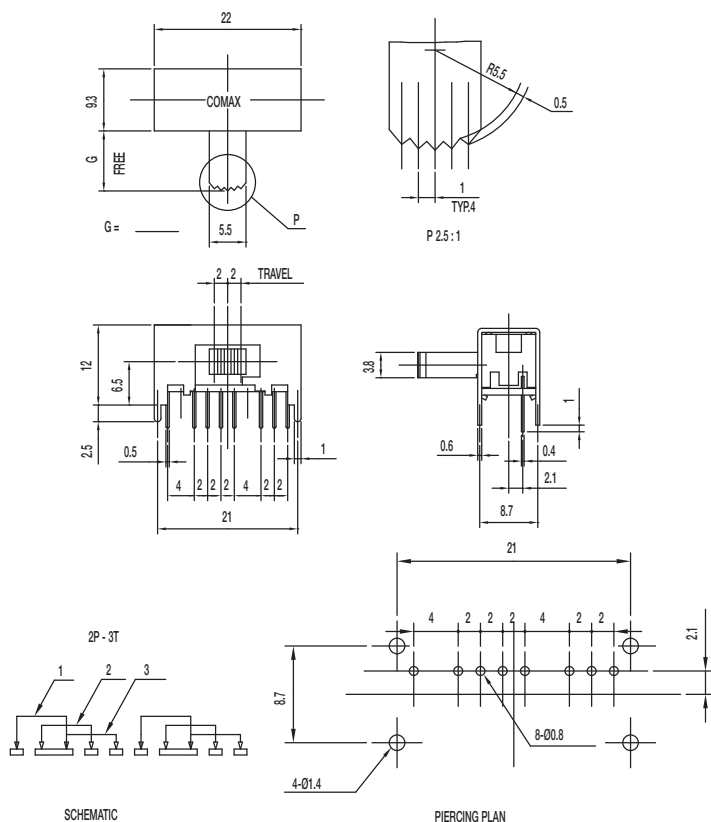
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 350 ± 150 gf (3.43 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-23D13-G 2P3T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

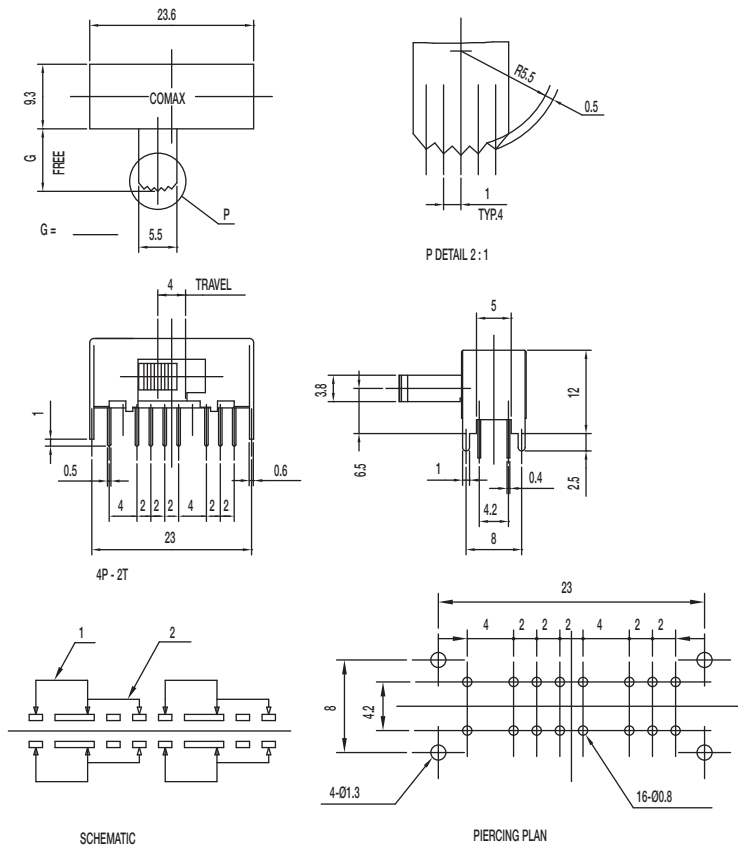
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-42H01-G 4P2T NON-SHORTING



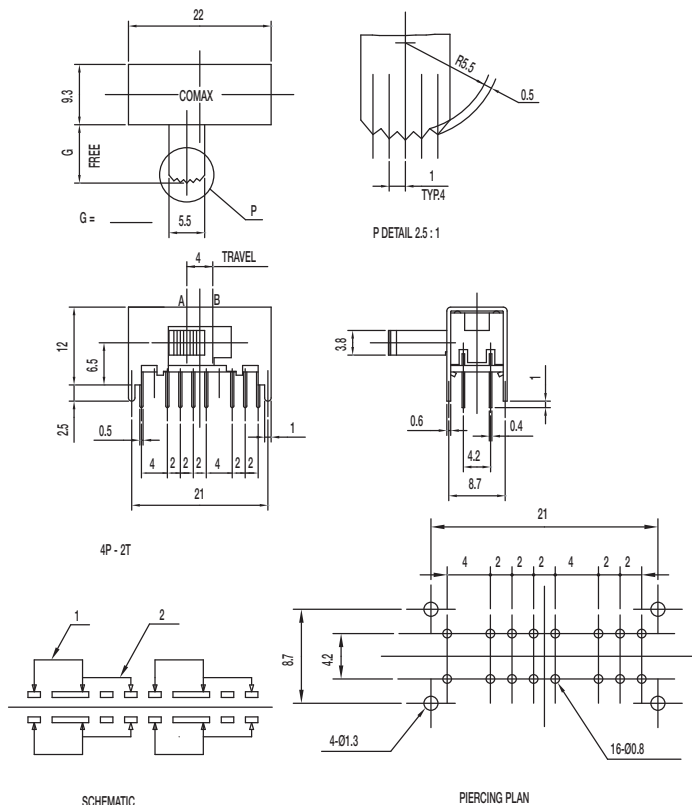
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-42H02-G 4P2T NON-SHORTING



Specifications

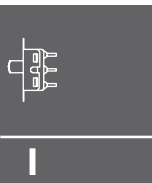
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



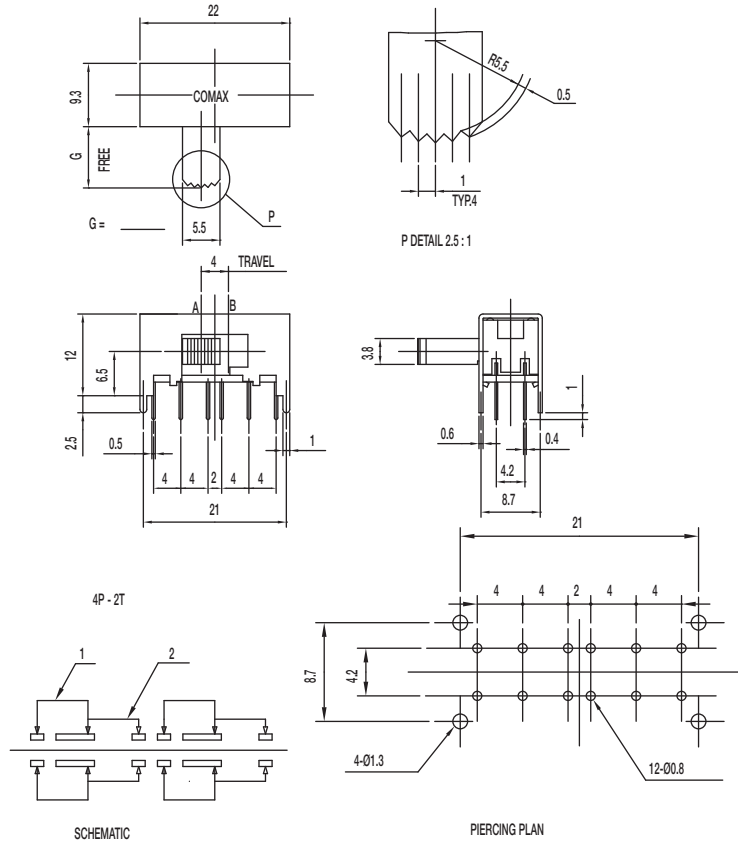
Dimensions are shown: mm
 Specifications and dimensions subject to change



Slide

SK Series Miniature Slide Switches

SK-42H05 4P2T NON-SHORTING



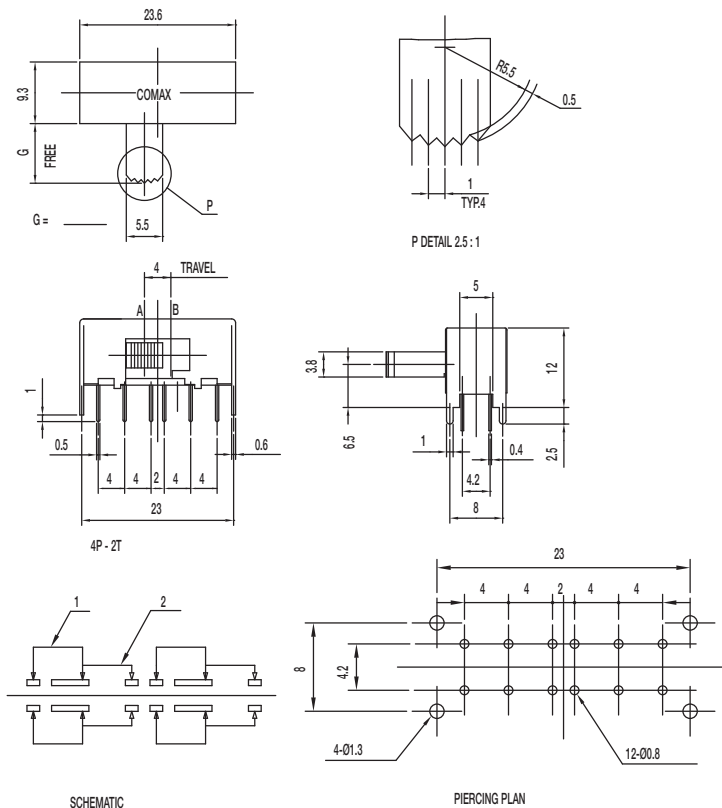
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-42H06-G 4P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)
 350 ± 150 gf (3.43 ± 1.47 N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

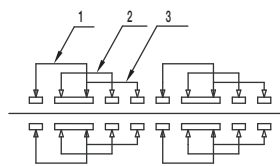
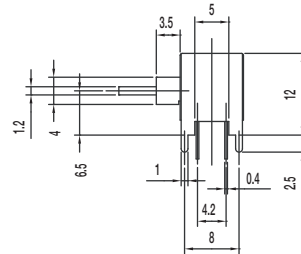
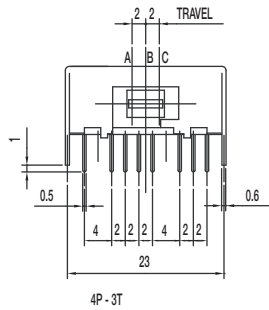
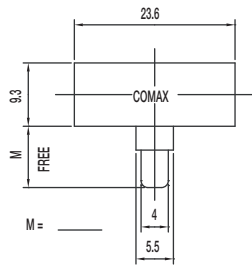
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



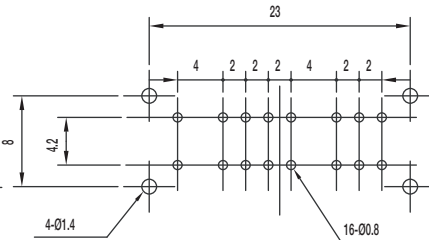
Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-43D01-G 4P3T



SCHEMATIC



PIERCING PLAN

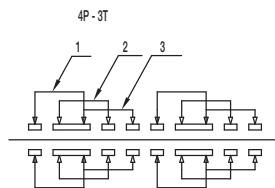
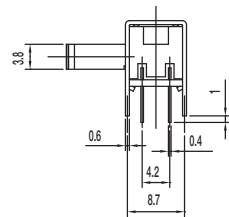
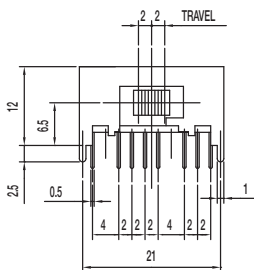
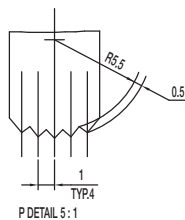
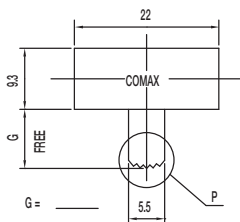
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 350 ± 150 gf (3.43 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

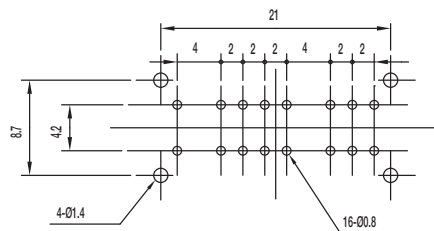
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SK-43D03-G 4P3T SHORTING



SCHEMATIC



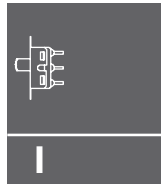
PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 350 ± 150 gf (3.43 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side



Dimensions are shown: mm
 Specifications and dimensions subject to change

SK Series Miniature Slide Switches

SK-44D01-G 4P4T SHORTING

Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49 N)

200 ± 100 gf (1.96 ± 0.98 N); 250 ± 100 gf (2.45 ± 0.98 N)

TRAVEL: 2 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C



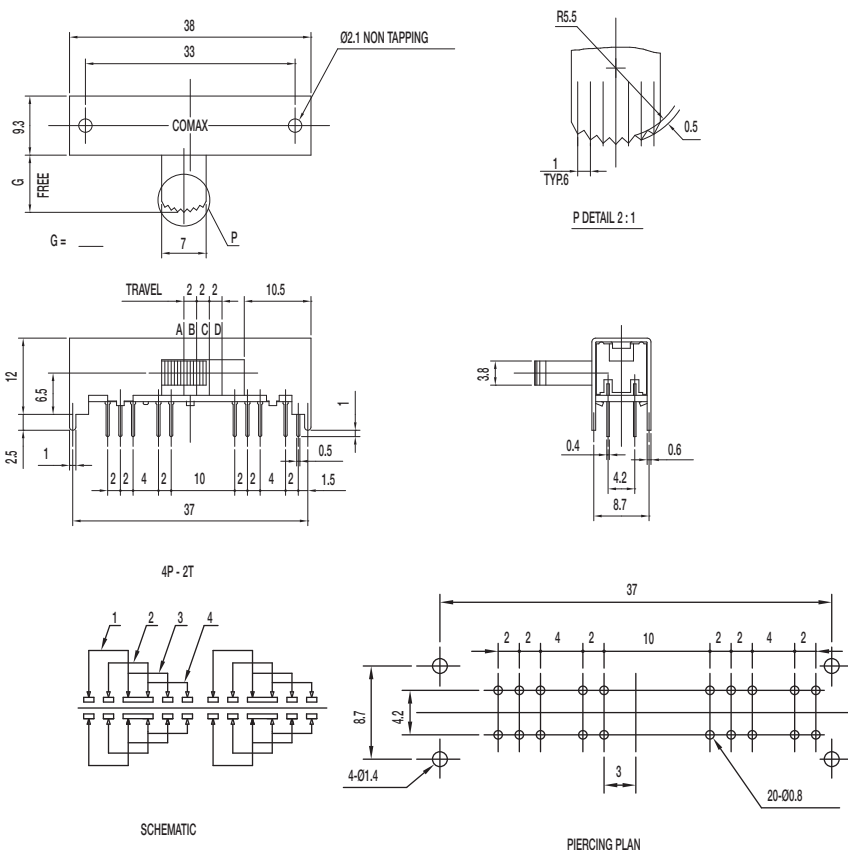
Slide Materials

KNOB: POM

FRAME: SPCC

CONTACT: Silver clad

TERMINAL: Silver plated



Dimensions are shown: mm
Specifications and dimensions subject to change

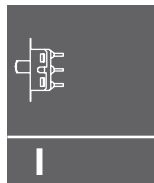
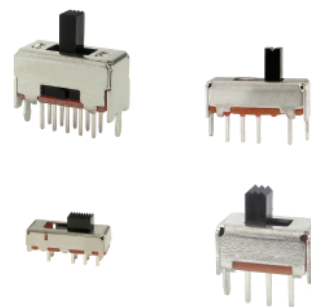
SS Series Miniature Slide Switches

Features/Benefits

- Broad range of products
- Various circuit design, SPDT, 4P3T, vertical, right angle
- Compact miniature slide switch
- Shorting or non-shorting
- Custom design available

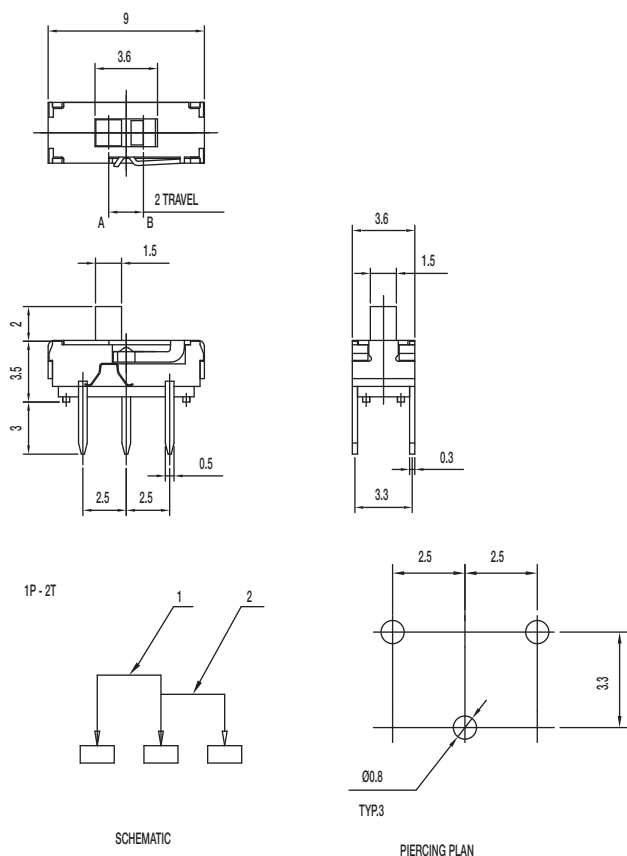
Typical Applications

- Consumer electronics
- Computer peripherals
- Telecommunication
- Audio & visual equipment
- Medical
- Automotive



Slide

SS-12D1305-G 2 1P2T NON-SHORTING



Specifications

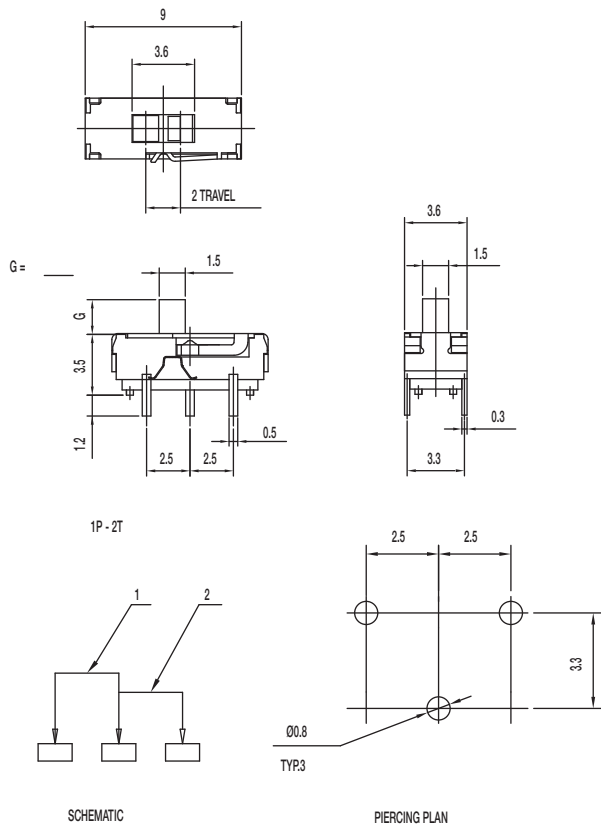
- CONTACT RATING: 0.3A @ 6 VDC
- INITIAL CONTACT RESISTANCE: 70 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
- TRAVEL: 2 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: PA
- COVER: SUS
- HOUSING: PA
- CONTACT: Silver clad
- TERMINAL: Silver plated

SS Series Miniature Slide Switches

SS-12D1505-G 1P2T NON-SHORTING



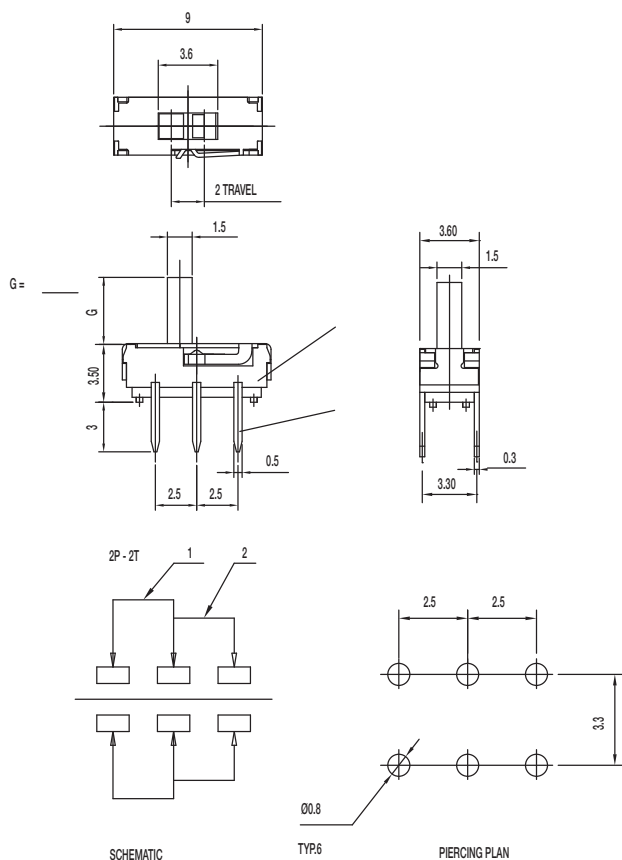
Specifications

CONTACT RATING: 0.3A @ 6 VDC
 INITIAL CONTACT RESISTANCE: 70 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 80°C

Materials

KNOB: PA
 COVER: SUS
 HOUSING: PA
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-22D0205-G DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 6 VDC
 INITIAL CONTACT RESISTANCE: 70 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 80°C

Materials

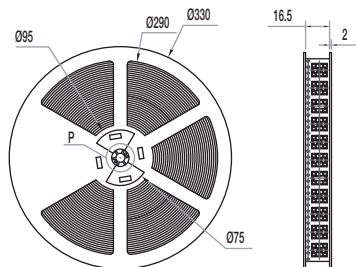
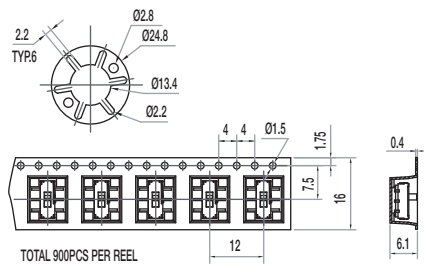
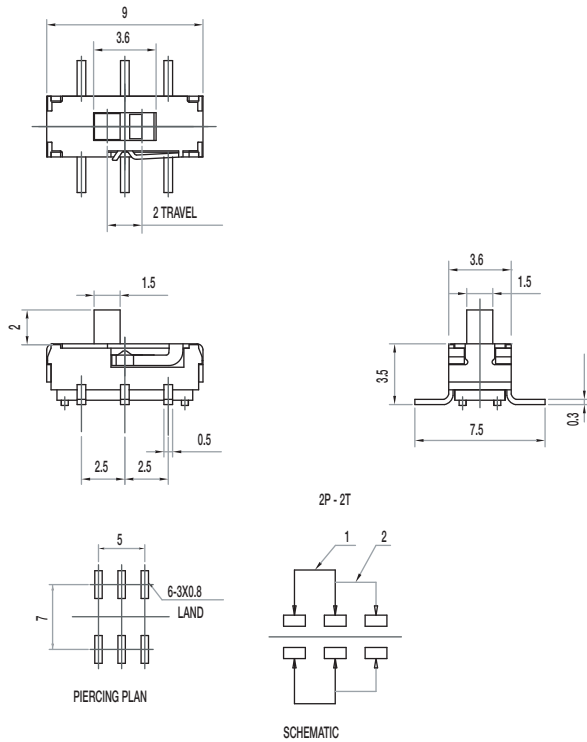
KNOB: PA
 COVER: SUS
 HOUSING: PA
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-22D0205-G 2 -LT DPDT NON-SHORTING

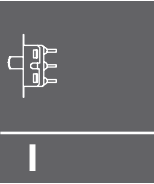


Specifications

CONTACT RATING: 0.3A @ 6 VDC
 INITIAL CONTACT RESISTANCE: 70 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

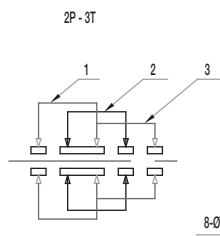
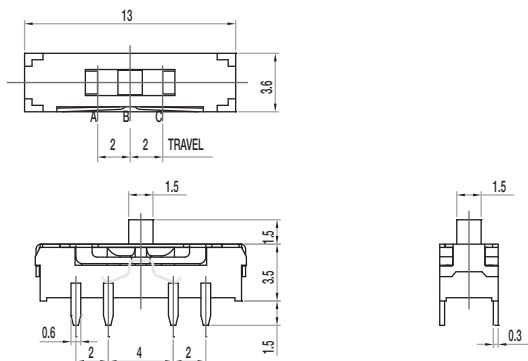
KNOB: PA
 COVER: SUS
 HOUSING: PA
 CONTACT: Silver clad
 TERMINAL: Silver plated



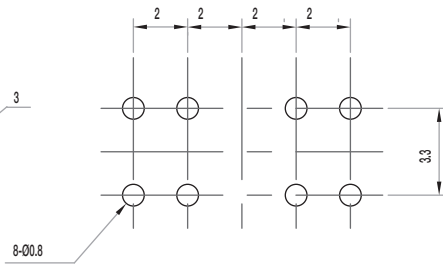
Side

SS Series Miniature Slide Switches

SS-23D31-G 1.5 NS 2P3T NON-SHORTING



SCHEMATIC



PIERCING PLAN

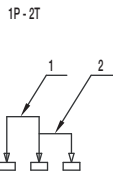
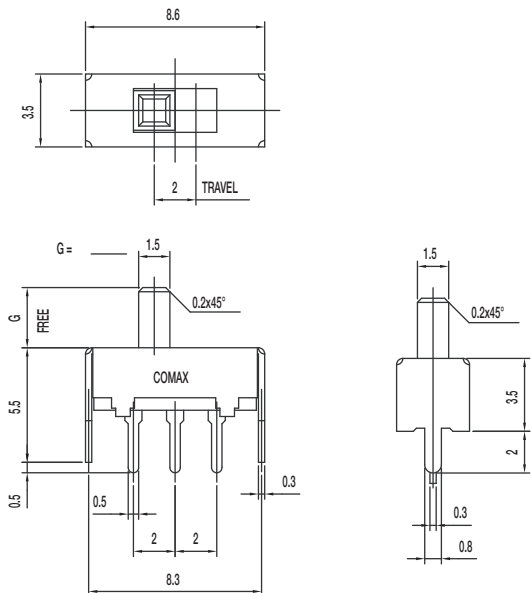
Specifications

CONTACT RATING: 0.3A @ 6 VDC
 INITIAL CONTACT RESISTANCE: 70 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.47 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

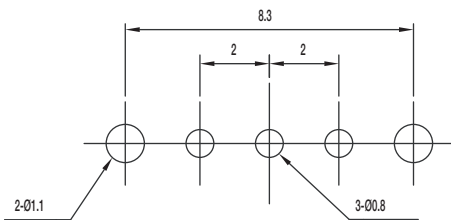
Materials

KNOB: PA
 COVER: SUS
 HOUSING: PA
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-12D01-G E NS 1P2T NON-SHORTING



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

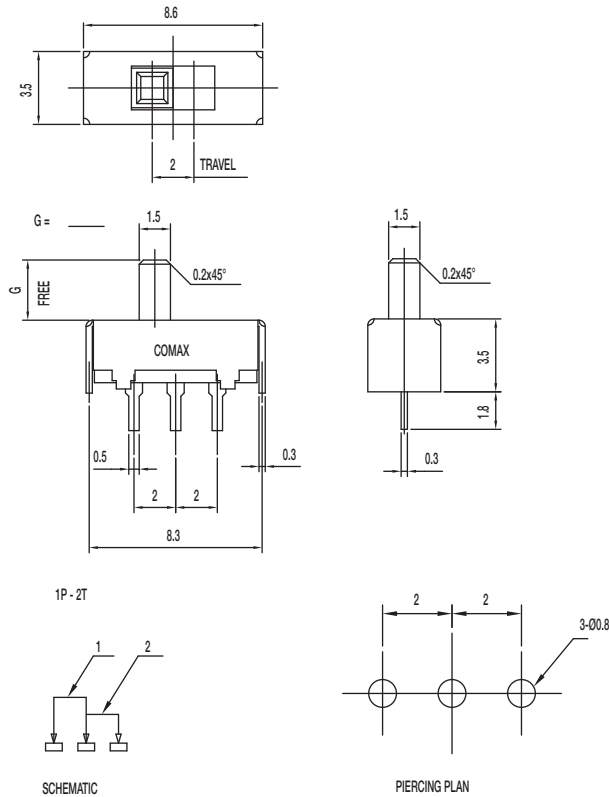
KNOB: POM
 COVER: SUS
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-12D05-G E NS 1P2T NON-SHORTING

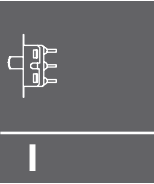


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

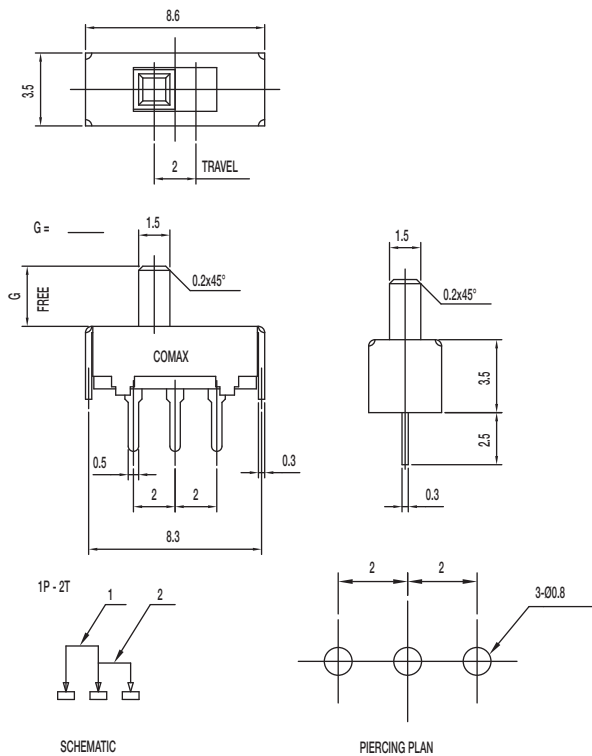
Materials

KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-12D06-G E NS 1P2T NON-SHORTING



Specifications

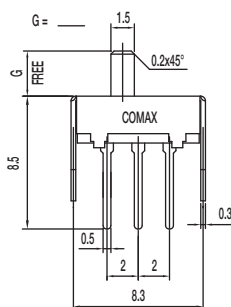
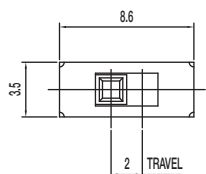
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS Series Miniature Slide Switches

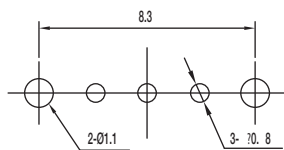
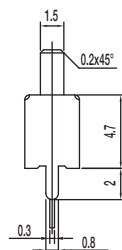
SS-12D11-G E NS 1P2T NON-SHORTING



1P - 2T



SCHEMATIC



PIERCING PLAN

Specifications

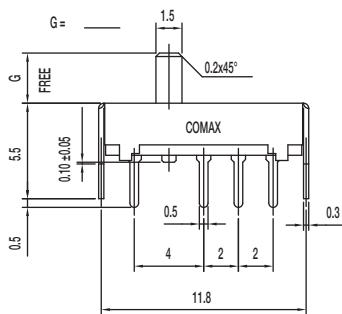
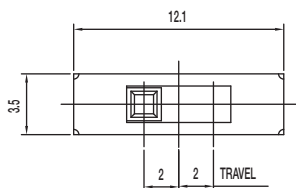
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

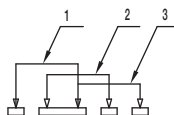
KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated

Slide

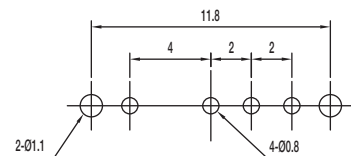
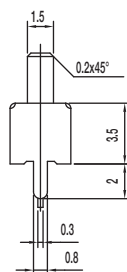
SS-13D01-G 1P3T



1P - 3T



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.47 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

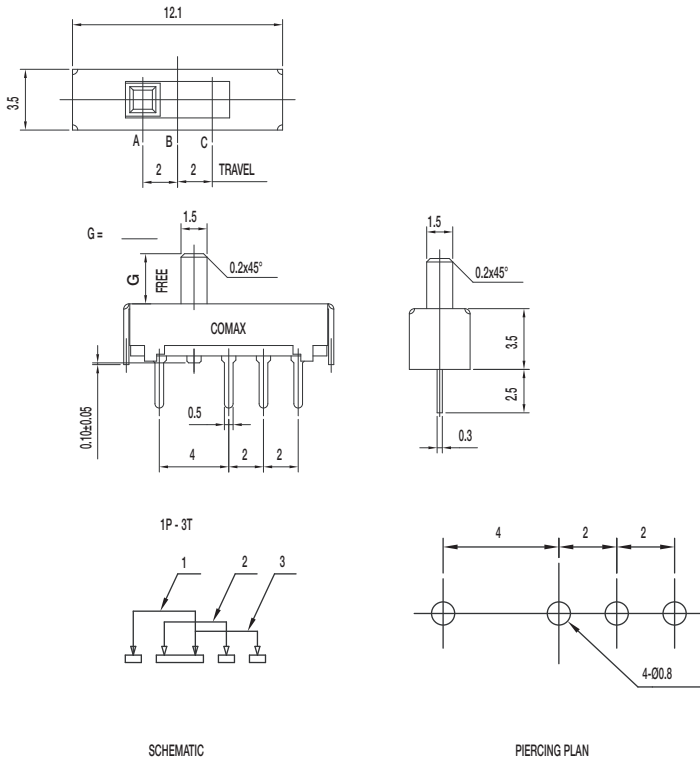
KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-13D04-G 1P3T

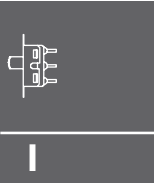


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.47 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

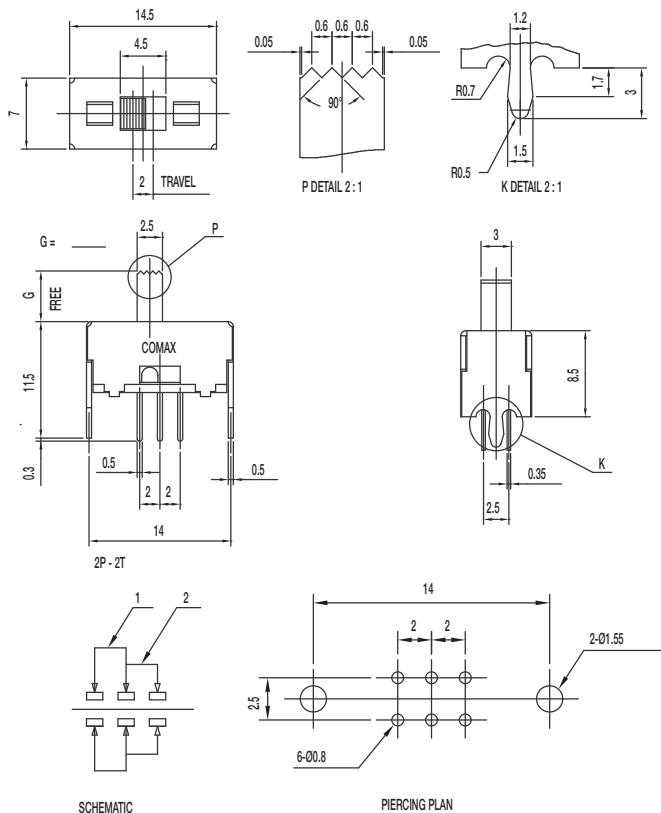
Materials

KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-22D28-G NS 2P2T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

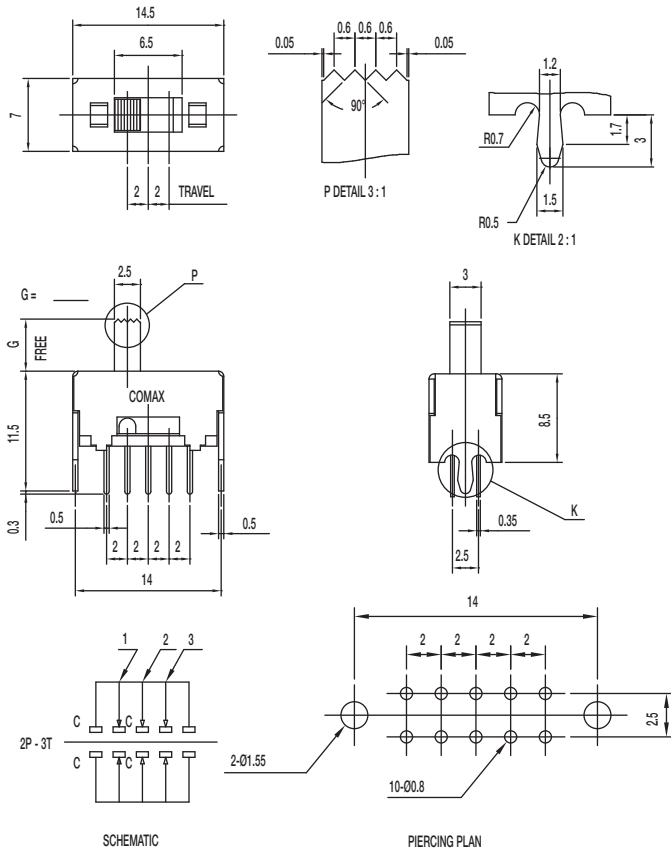
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-23D28-G NS 2P3T NON-SHORTING



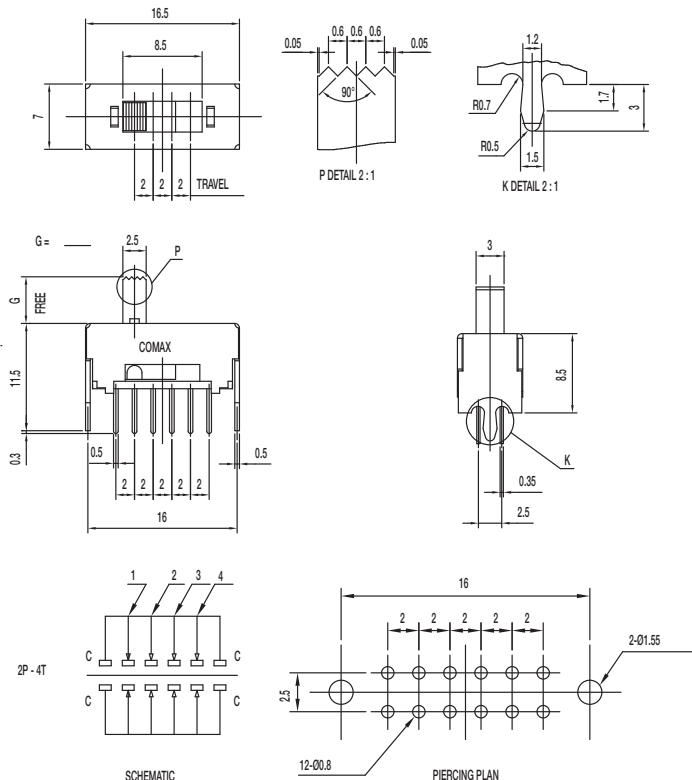
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-24D28-G NS 2P4T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N); 300 ± 100 gf (2.94 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

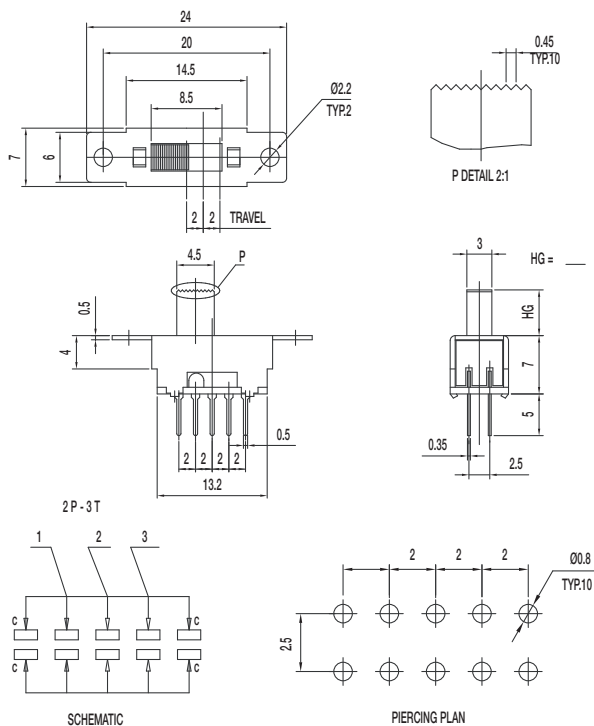


Dimensions are shown: mm
 Specifications and dimensions subject to change



SS Series Miniature Slide Switches

SS-23D32-HG NS 2P3T NON-SHORTING



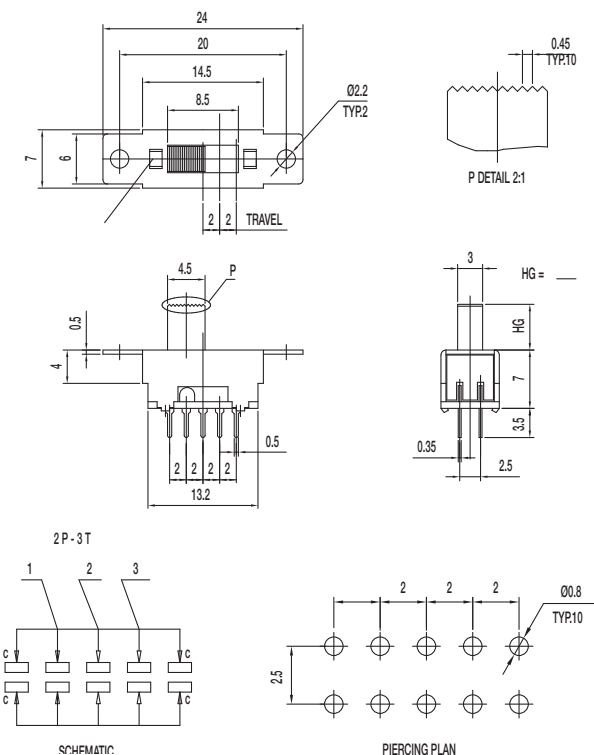
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98 N)
 300 ± 100 gf (2.94 ± 0.98 N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23D33-HG NS 2P3T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98 N)
 300 ± 100 gf (2.94 ± 0.98 N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

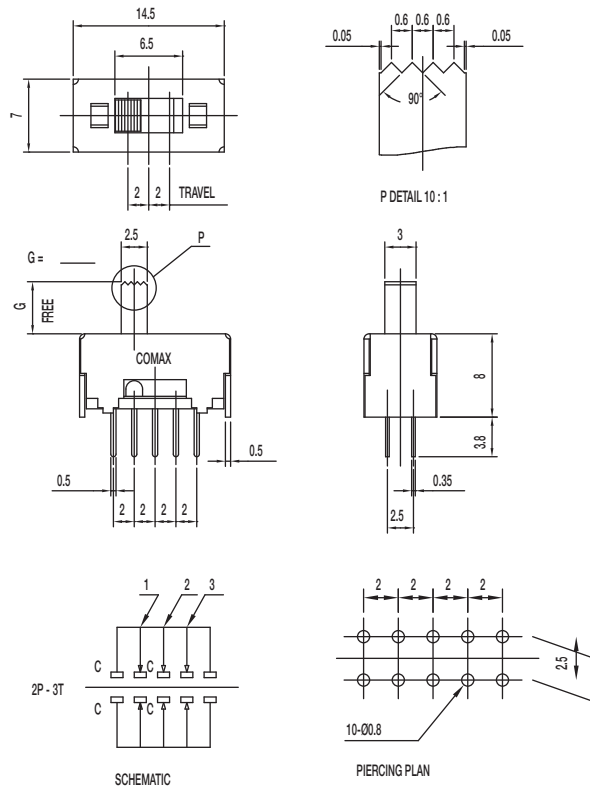
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-23D37-G NS 2P3T NON-SHORTING

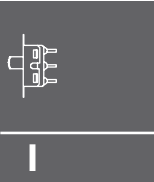


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 100 gf (2.94 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -10°C to 60°C

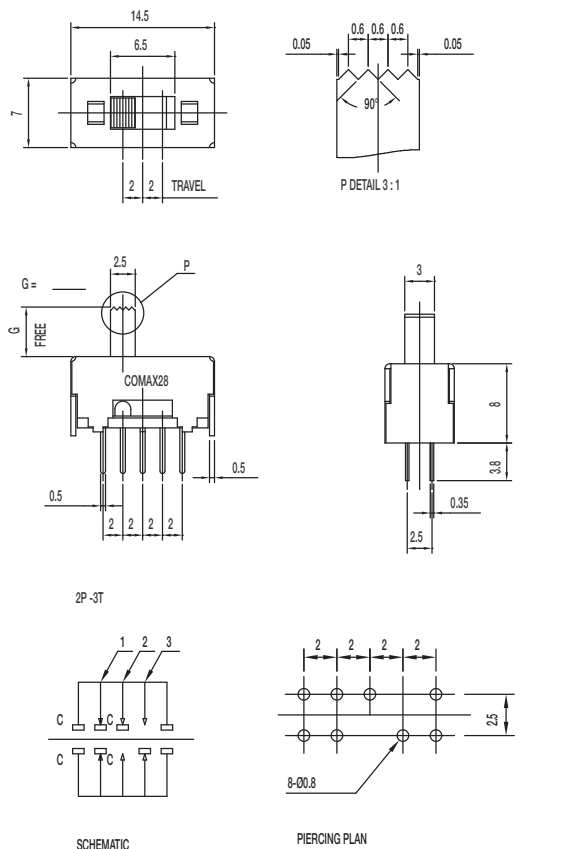
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-23D47-G NS 2P3T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 100 gf (2.94 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

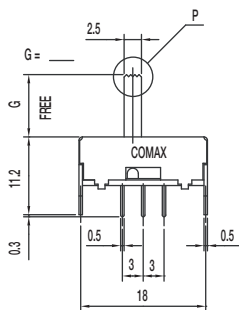
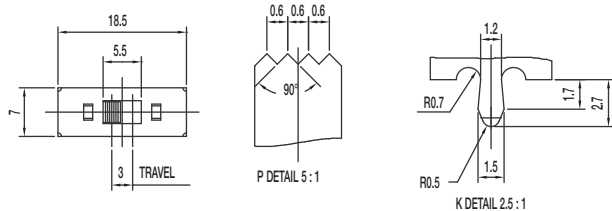
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



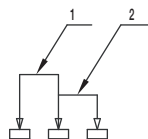
Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

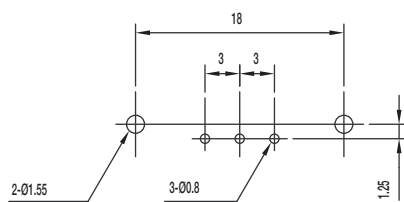
SS-12F28-G NS 1P2T NON-SHORTING



1P - 2T



SCHEMATIC



PIERCING PLAN

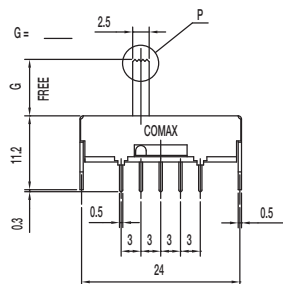
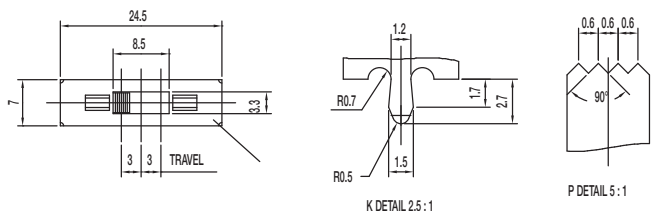
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

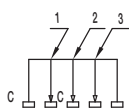
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

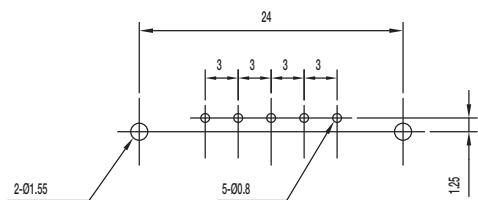
SS-13F28-G NS 1P3T NON-SHORTING



1P - 3T



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 180 ± 50 gf (1.76 ± 0.49N)
 220 ± 100 gf (2.16 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

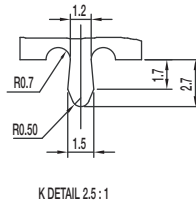
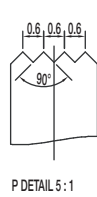
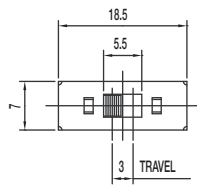
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-22F28-G S DPDT SHORTING

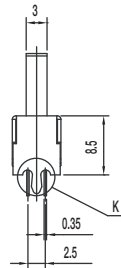
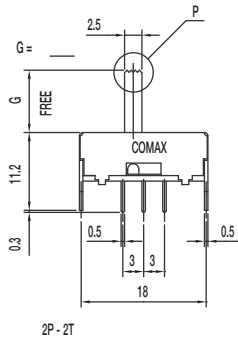


Specifications

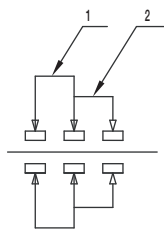
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

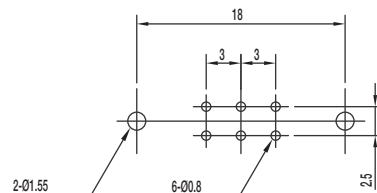
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



2P-2T

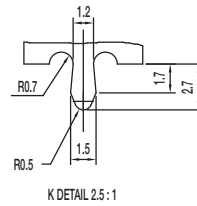
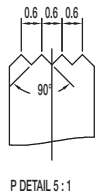
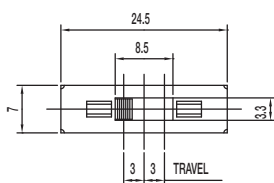


SCHEMATIC



PIERCING PLAN

SS-23F28-G 6 NS 2P3T NON-SHORTING

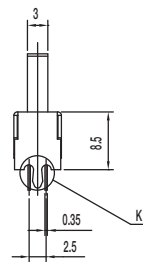
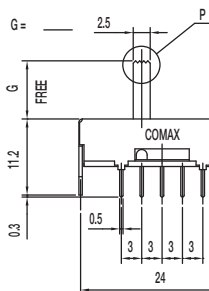


Specifications

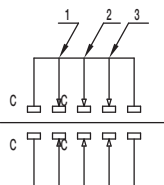
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 180 ± 50 gf (1.76 ± 0.49N) (A->B / C->B)
 220 ± 100 gf (2.16 ± 0.98N) (B->C / B->A)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C
 KNOB LENGTH: 6mm

Materials

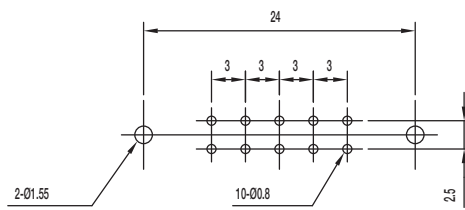
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



2P-3T



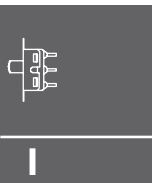
SCHEMATIC



PIERCING PLAN



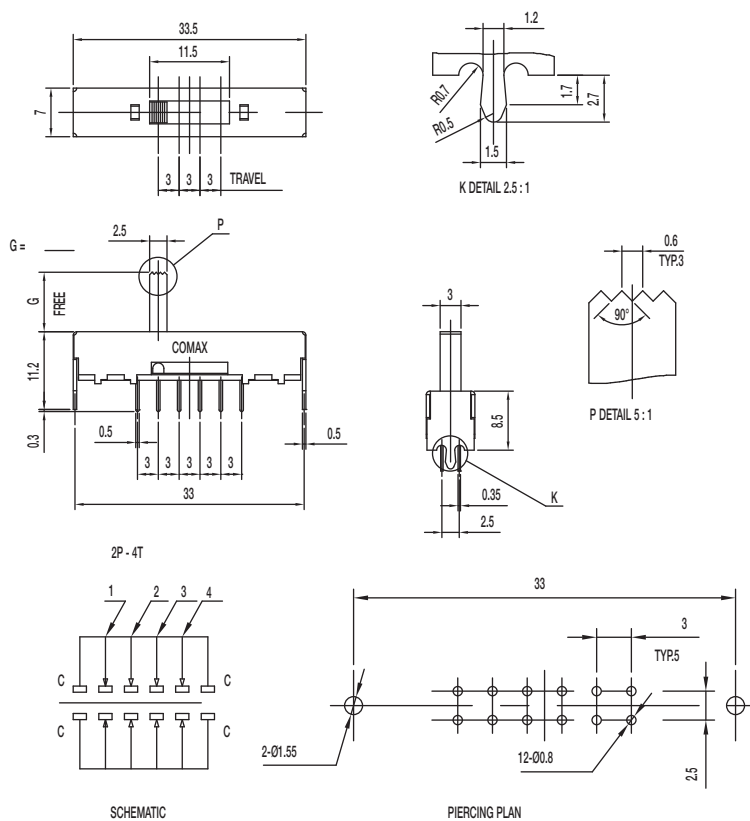
Dimensions are shown: mm
 Specifications and dimensions subject to change



Side

SS Series Miniature Slide Switches

SS-24F28-G 2P4T NON-SHORTING



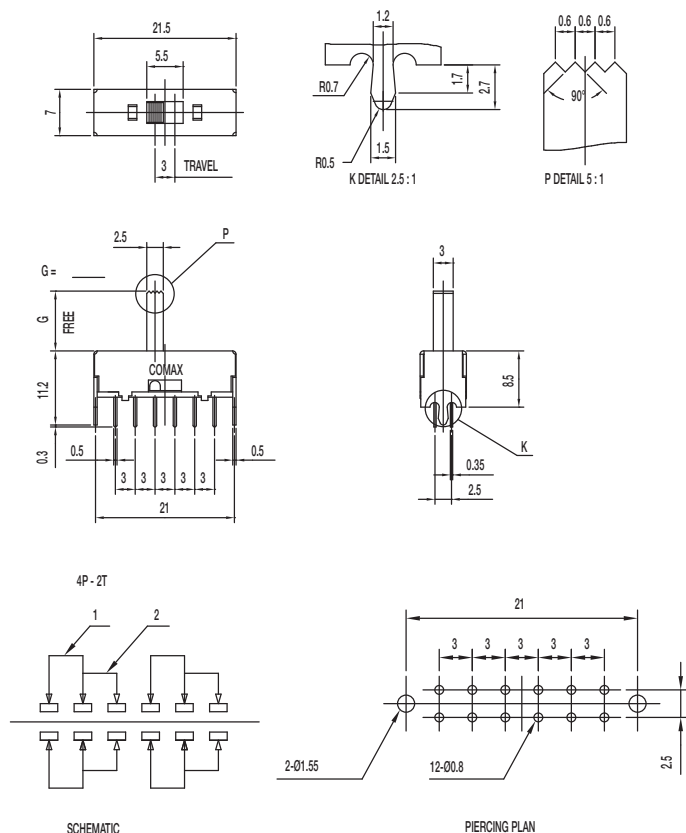
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-42F28-G NS 4P2T NON-SHORTING



Specifications

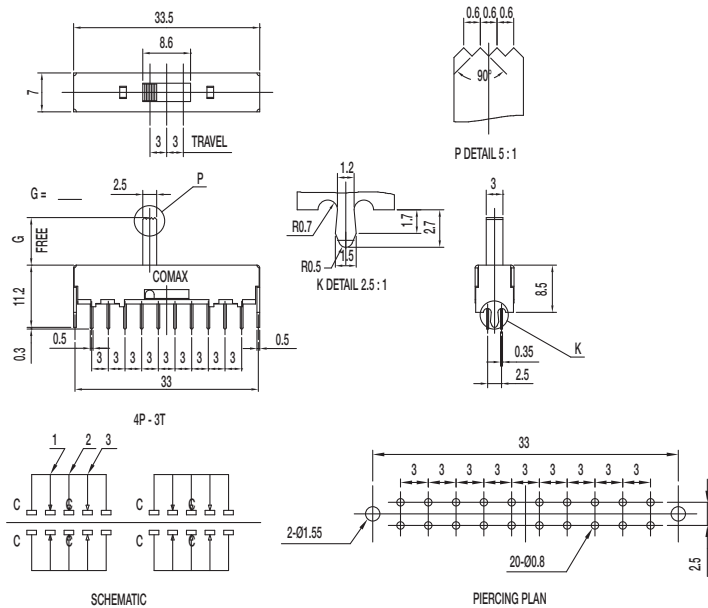
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS Series Miniature Slide Switches

SS-43F28-G NS 4P3T NON-SHORTING

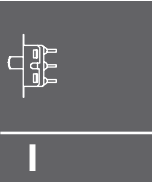


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

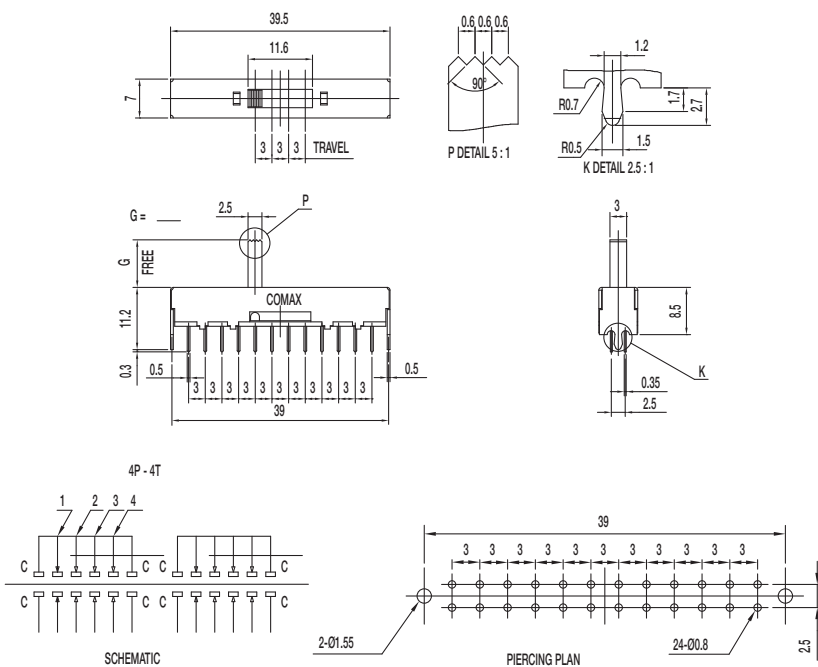
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-44F28-G NS 4P4T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

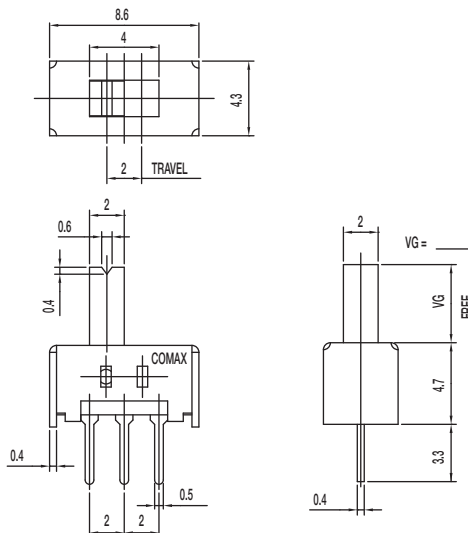
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



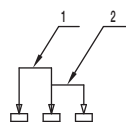
Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

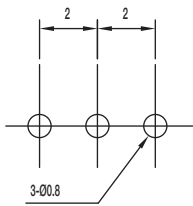
SS-12D04-VG NS 1P2T NON-SHORTING



1P-2T



SCHEMATIC



PIERCING PLAN

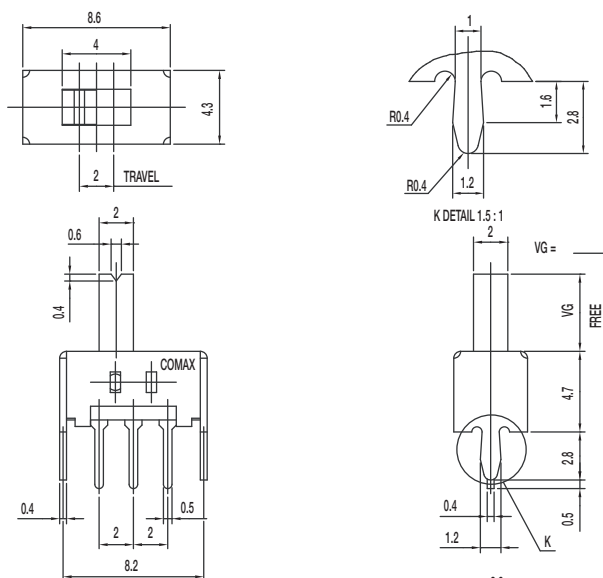
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

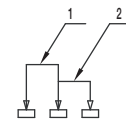
Materials

KNOB: POM
 FRAME: SPTE
 CONTACT: Silver clad
 TERMINAL: Silver plated

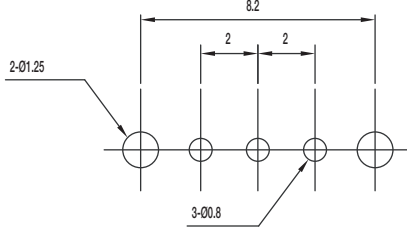
SS-12D07-G NS 1P2T NON-SHORTING



1P-2T



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

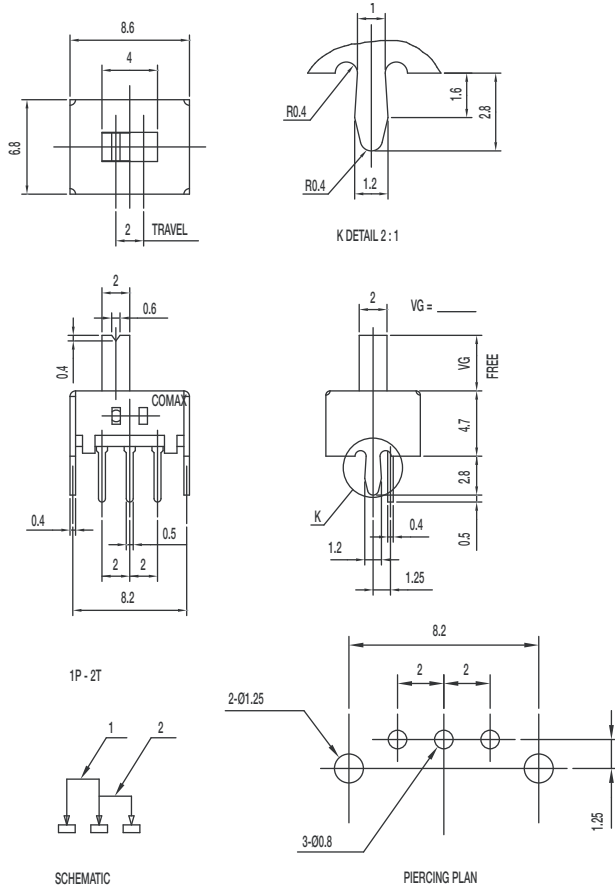
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-12D17-VG NS 1P2T NON-SHORTING



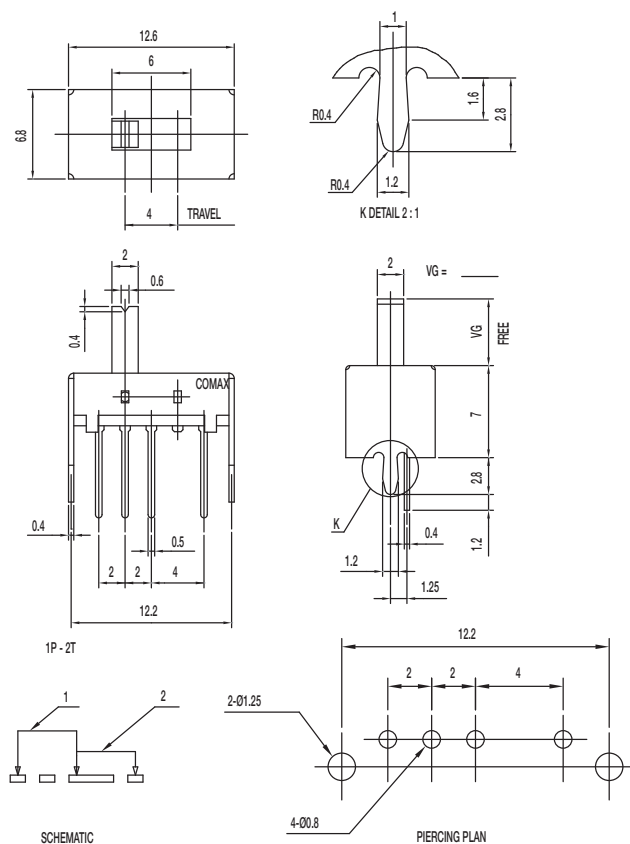
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-12H16-VG 1P2T NON-SHORTING



Specifications

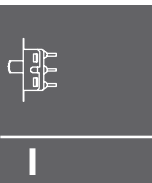
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



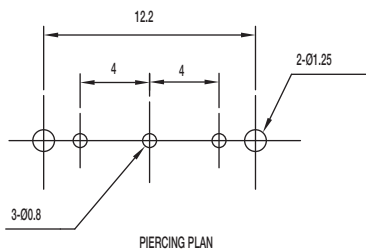
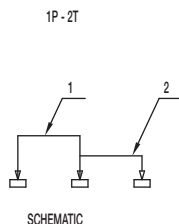
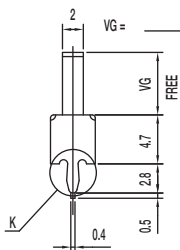
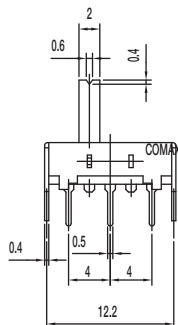
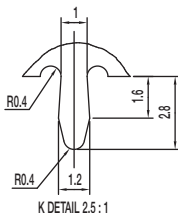
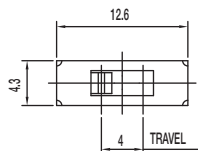
Dimensions are shown: mm
 Specifications and dimensions subject to change



Slide

SS Series Miniature Slide Switches

SS-12H26-VG 1P2T NON-SHORTING



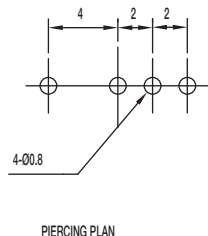
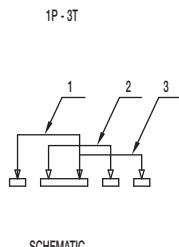
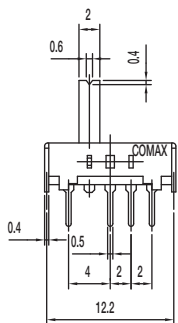
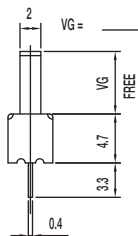
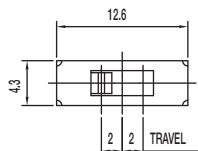
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 150 ± 100 gf (1.47 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-13D06-VG 1P3T



Specifications

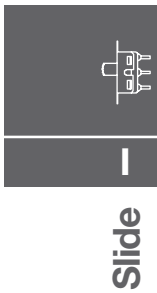
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

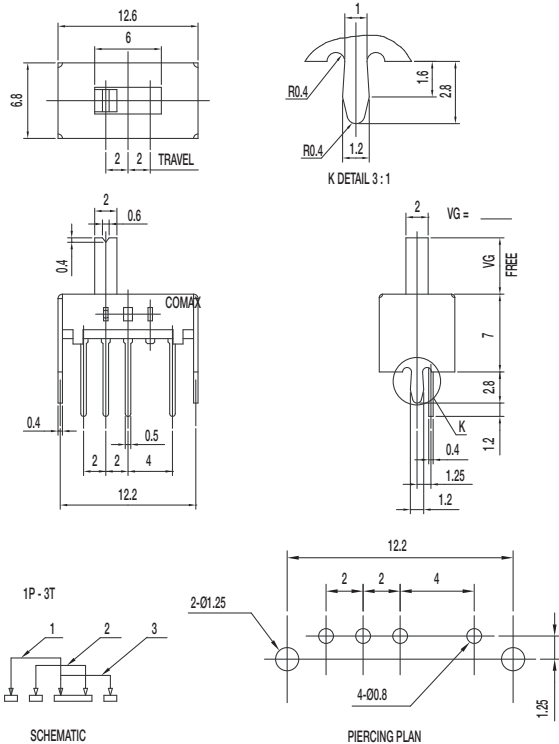


Dimensions are shown: mm
 Specifications and dimensions subject to change



SS Series Miniature Slide Switches

SS-13D08-VG 1P3T



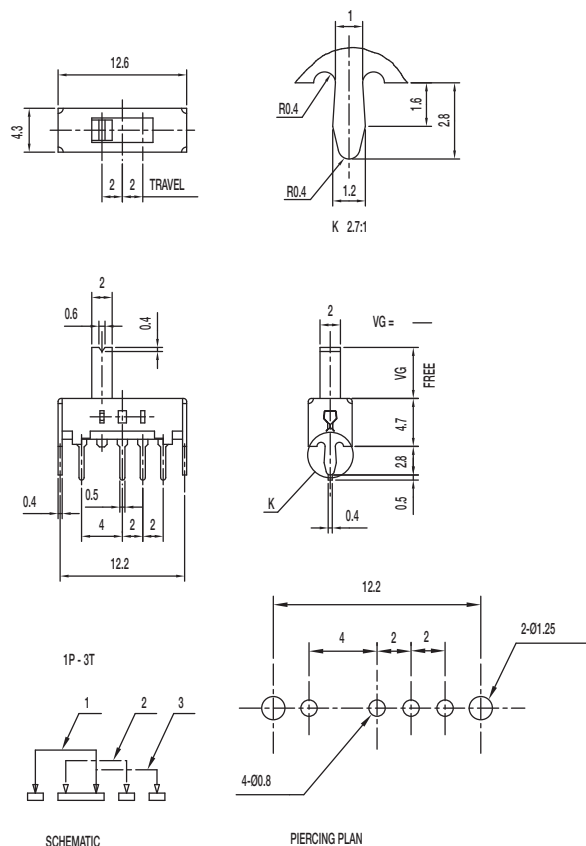
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49N)
 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-13D16-VG 1P3T



Specifications

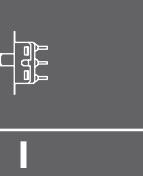
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



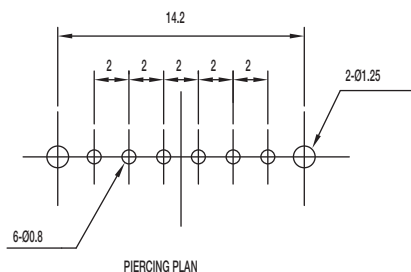
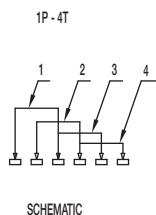
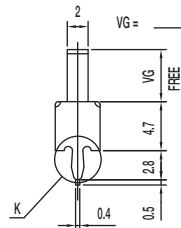
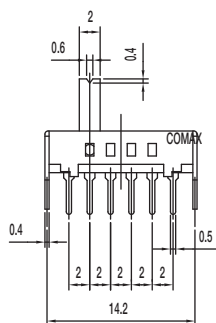
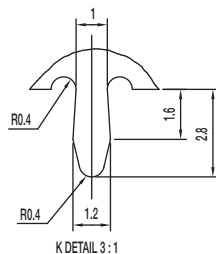
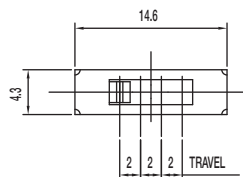
Dimensions are shown: mm
 Specifications and dimensions subject to change



Slide

SS Series Miniature Slide Switches

SS-14D01-VG 1P4T



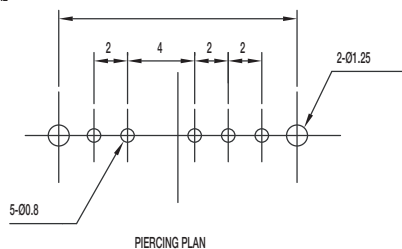
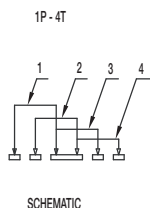
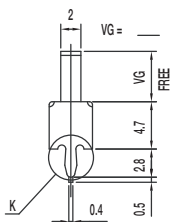
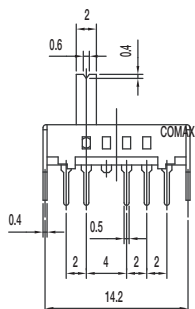
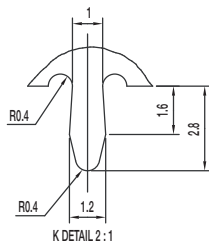
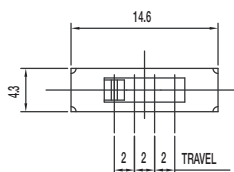
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-14D07-VG 1P4T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

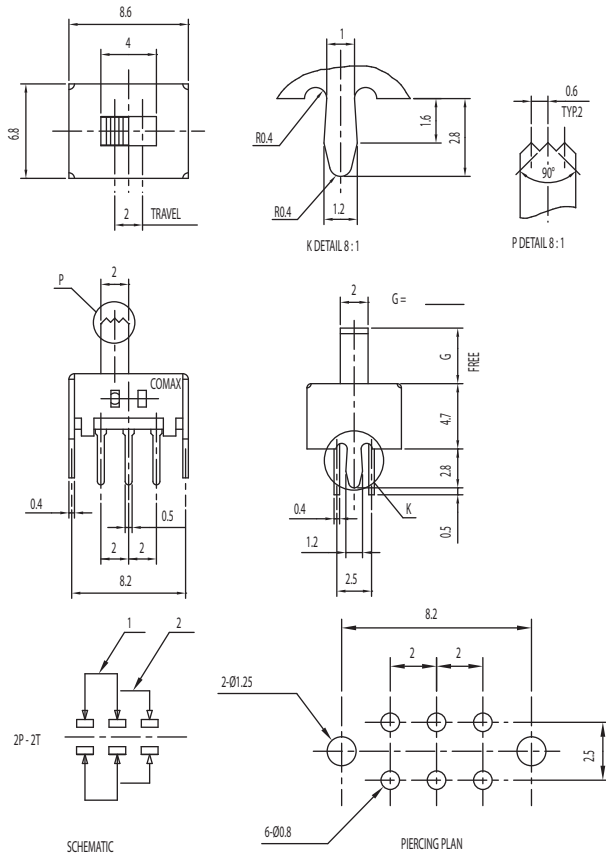
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-22D07-VG S DPDT SHORTING



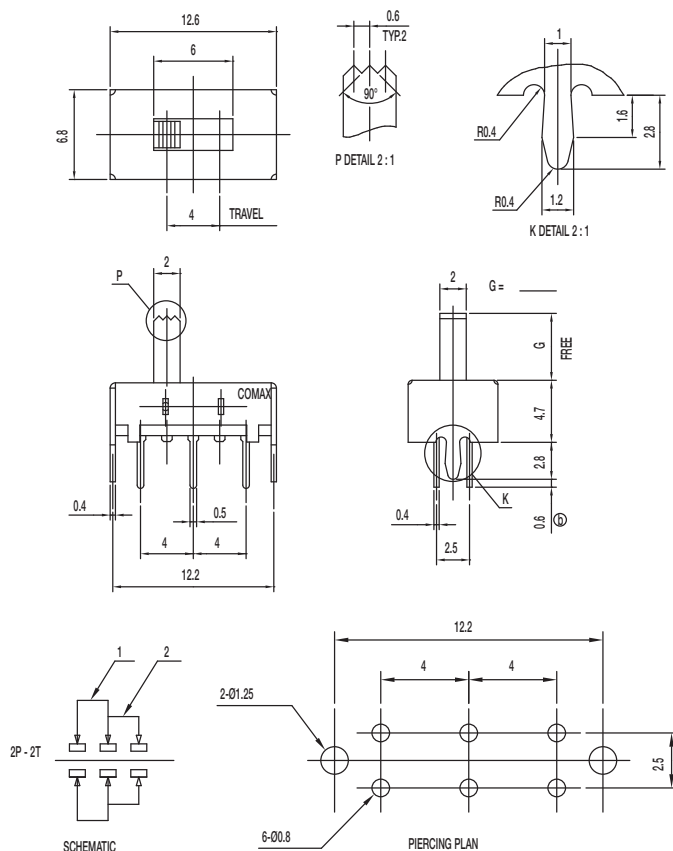
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-22H08-G DPDT NON-SHORTING



Specifications

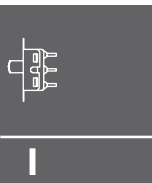
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



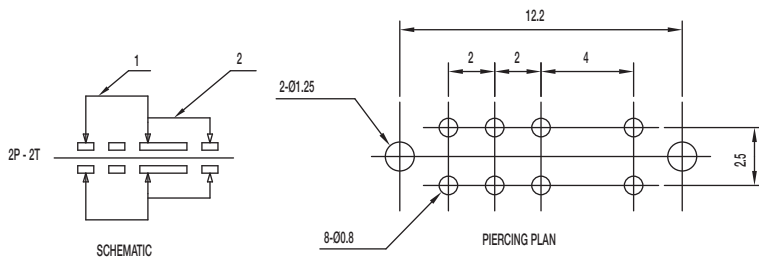
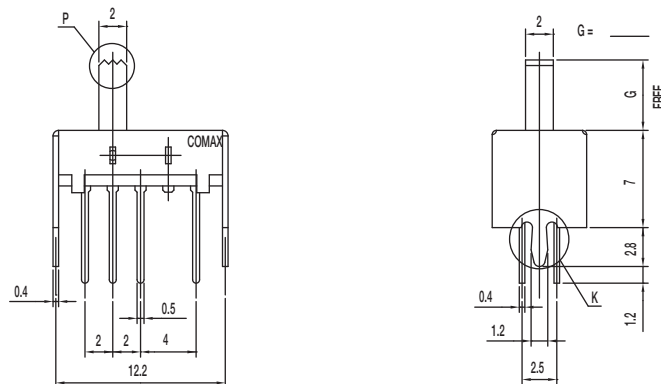
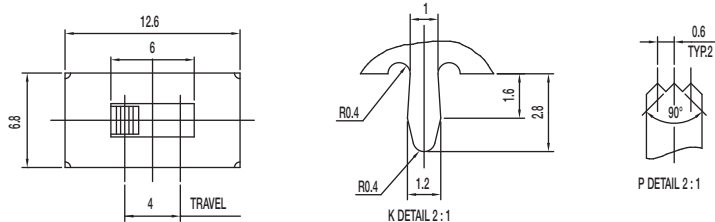
Dimensions are shown: mm
 Specifications and dimensions subject to change



Side

SS Series Miniature Slide Switches

SS-22H16-G DPDT NON-SHORTING



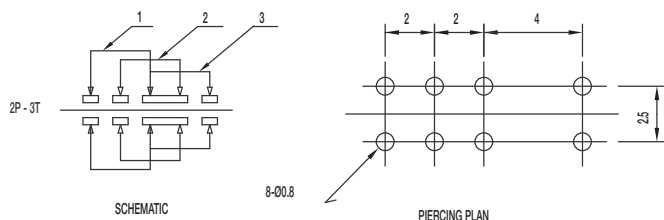
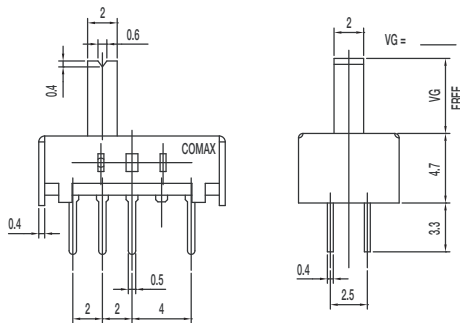
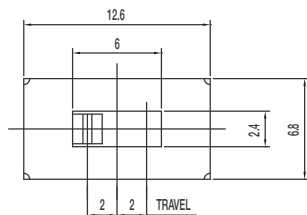
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23D04-VG 2P3T NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49N)
 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



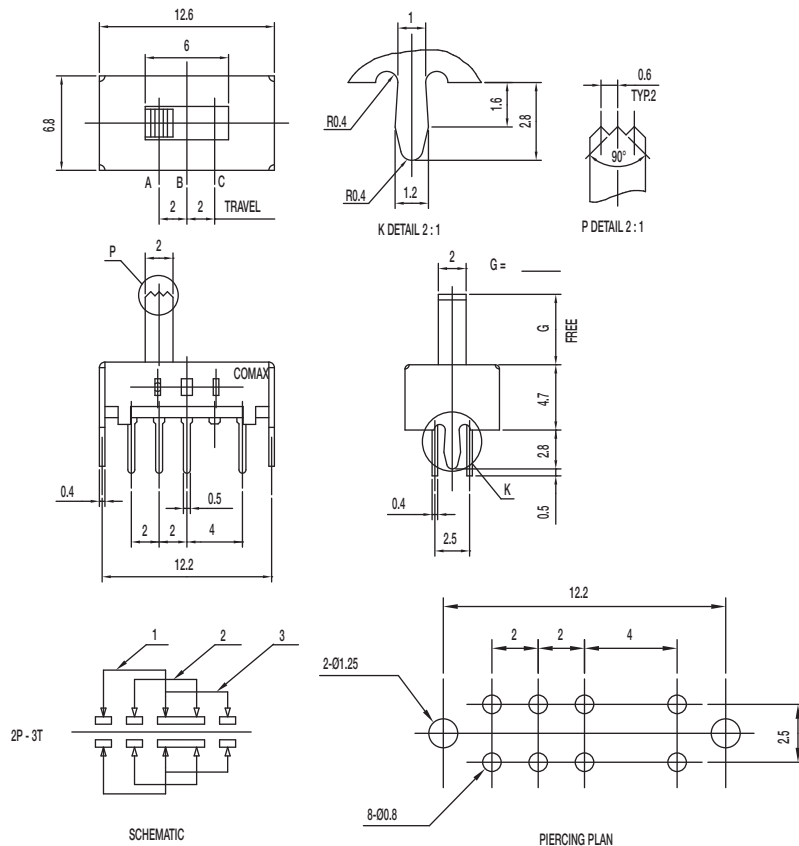
Dimensions are shown: mm
 Specifications and dimensions subject to change

Slide



SS Series Miniature Slide Switches

SS-23D07-G PA 2P3T NON-SHORTING



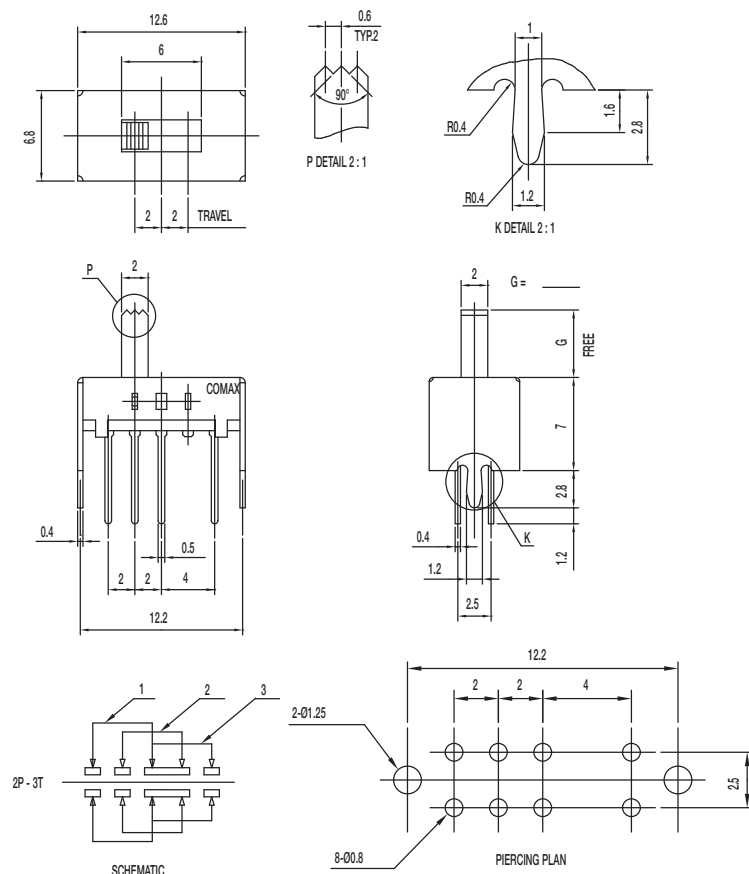
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 150 gf (2.45 ± 1.47N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 80°C

Materials

KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23D08-G 2P3T



Specifications

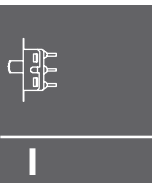
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 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49N)
 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



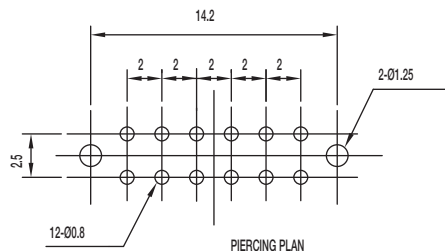
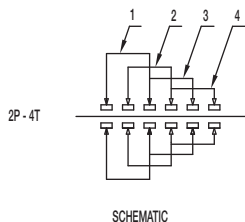
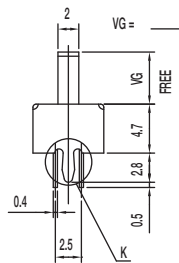
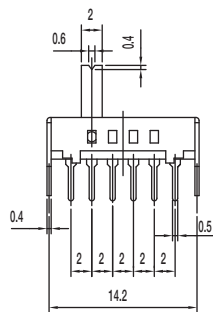
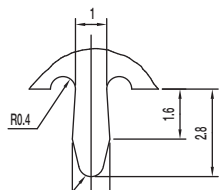
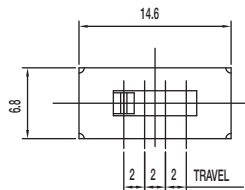
Dimensions are shown: mm
 Specifications and dimensions subject to change



Slide

SS Series Miniature Slide Switches

SS-24D02-VG 2P4T



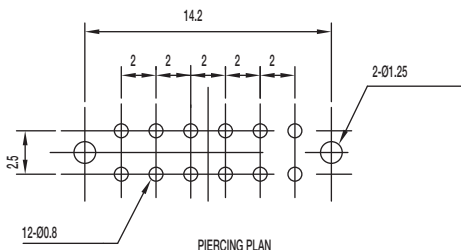
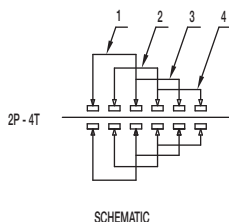
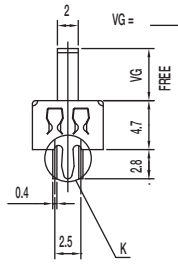
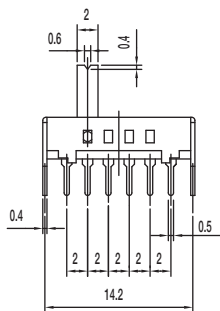
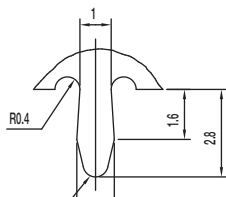
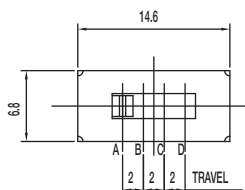
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-24D04-VG PA 2P4T

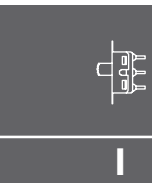


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

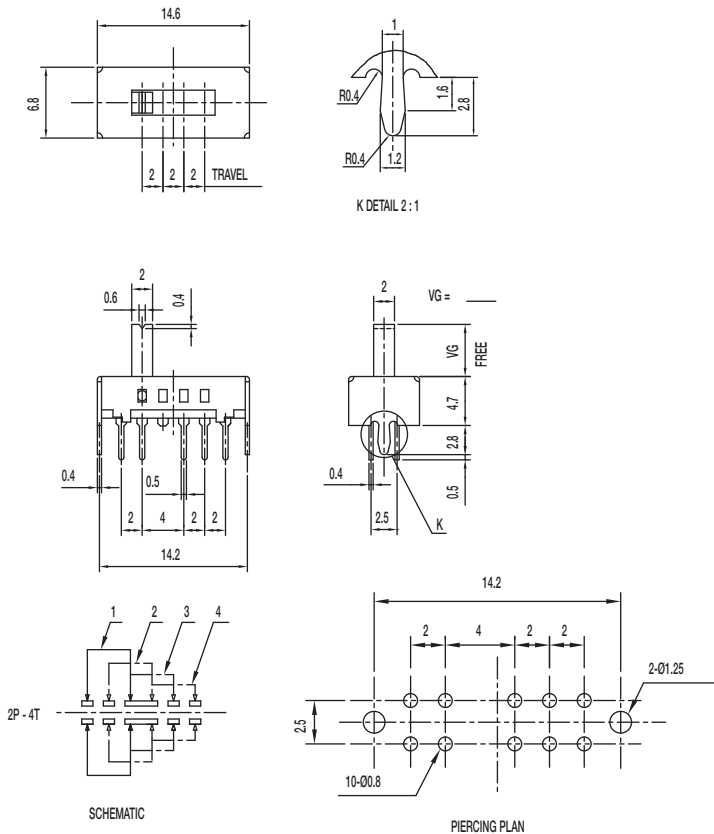
KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Slide

SS Series Miniature Slide Switches

SS-24D07-VG PA 2P4T



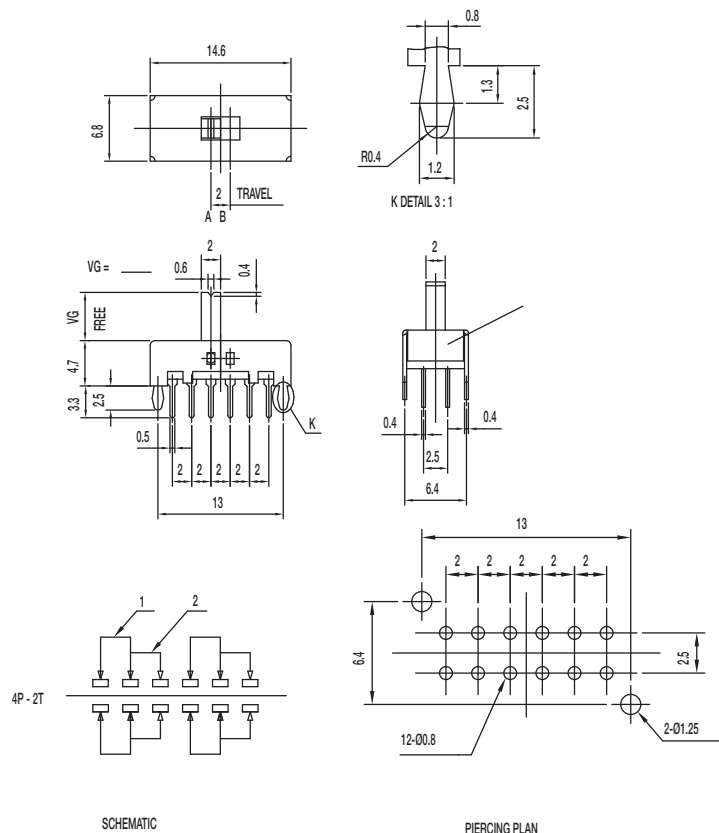
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-42D07-VG NS 4P2T NON-SHORTING



Specifications

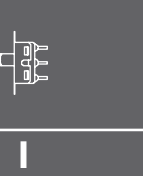
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



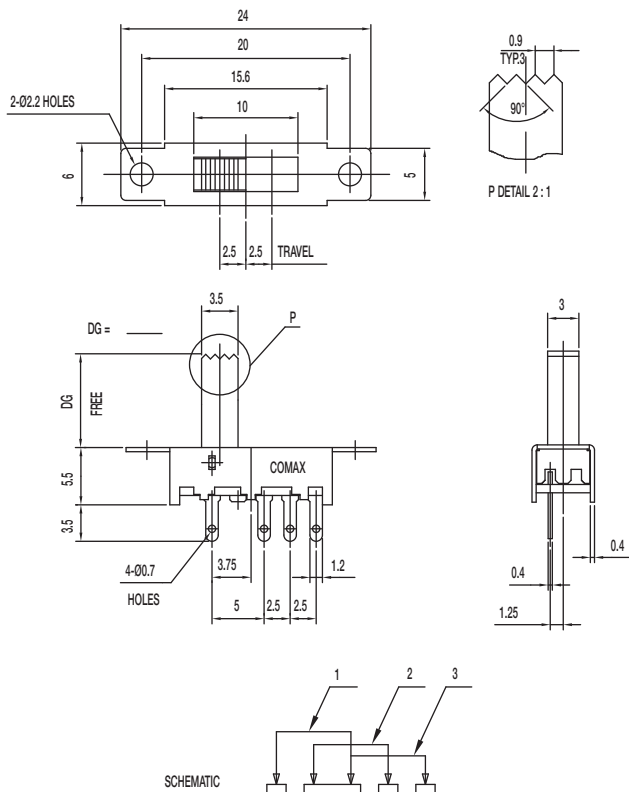
Dimensions are shown: mm
 Specifications and dimensions subject to change



Side

SS Series Miniature Slide Switches

SS-13E08-DG 1P3T



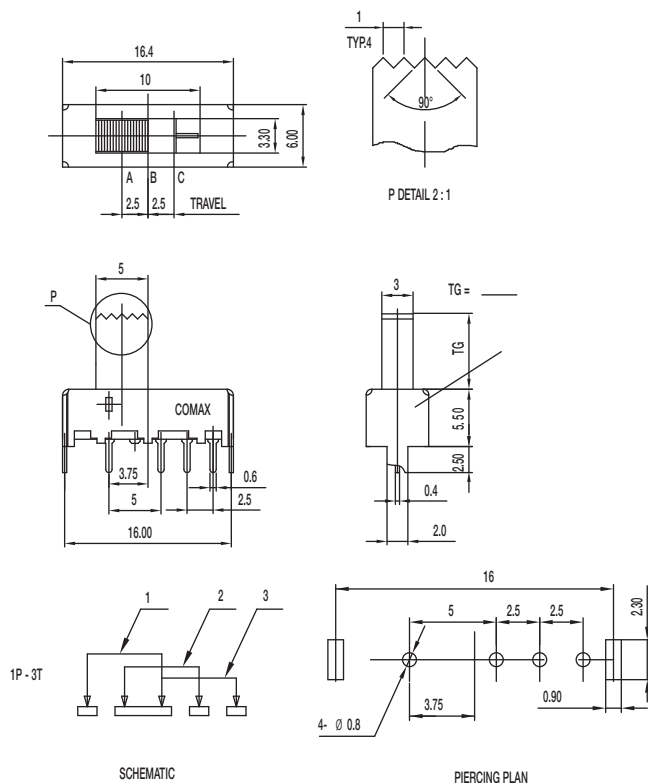
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-13E29-TG 1P3T



Specifications

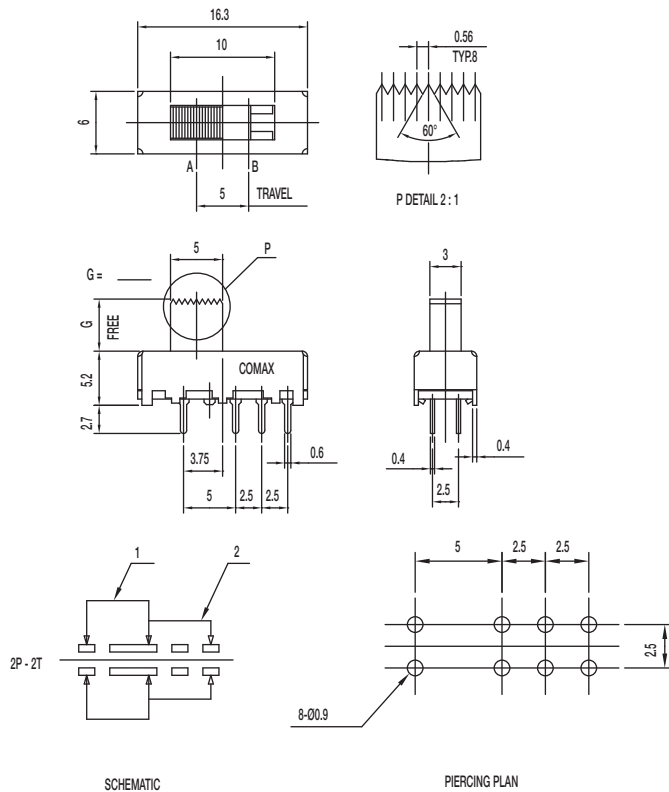
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 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS Series Miniature Slide Switches

SS-22J08-G DPDT NON-SHORTING



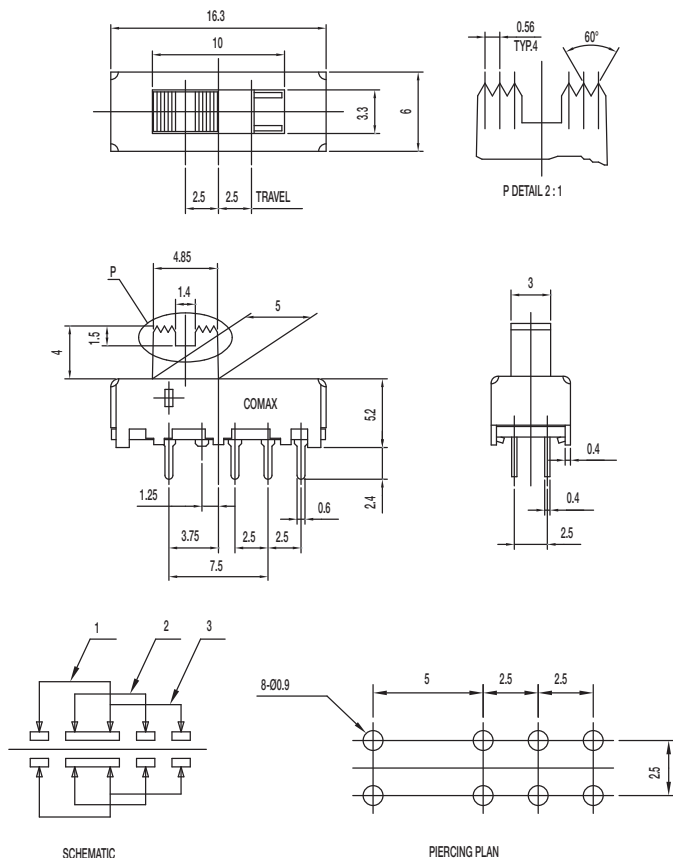
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23E05-G 4 2P3T



Specifications

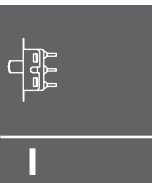
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 100 gf (2.94 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



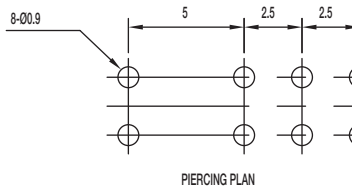
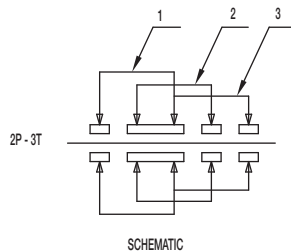
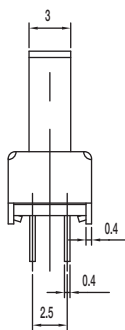
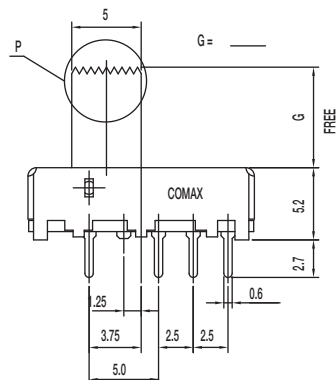
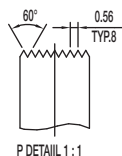
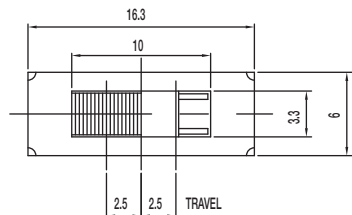
Dimensions are shown: mm
 Specifications and dimensions subject to change



Side

SS Series Miniature Slide Switches

SS-23E06-G 2P3T



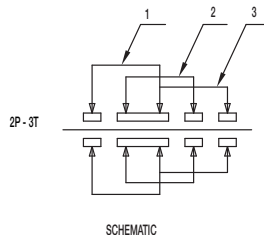
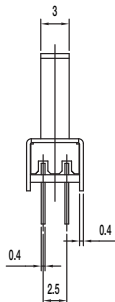
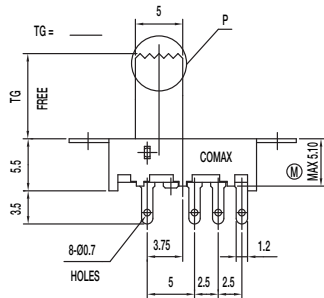
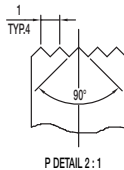
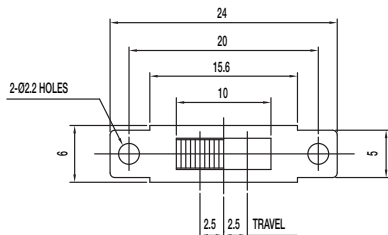
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23E08-TG 2P3T



TG=6,8,9mm Max 5.10mm

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 80°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Dimensions are shown: mm
 Specifications and dimensions subject to change

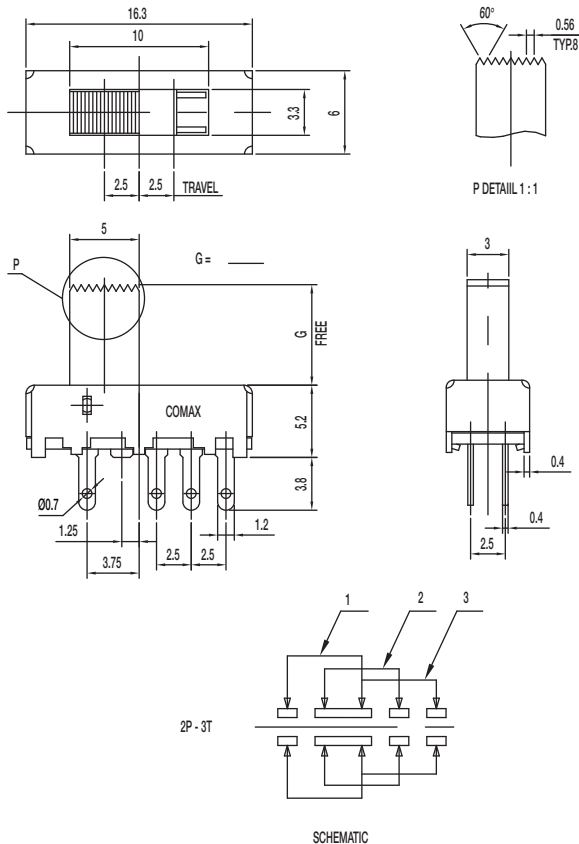


Slide



SS Series Miniature Slide Switches

SS-23E10-G 2P3T



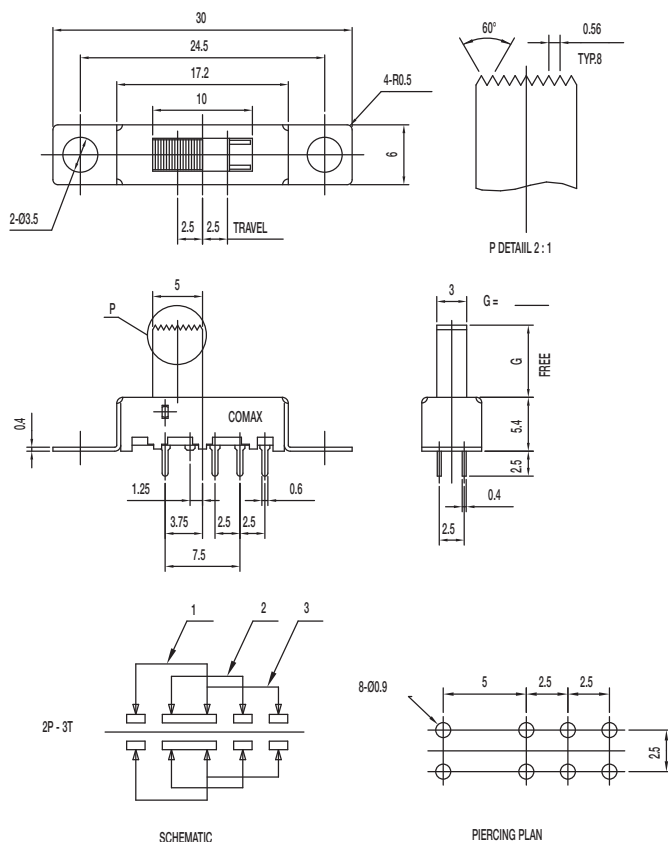
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23E11-G 2P3T



Specifications

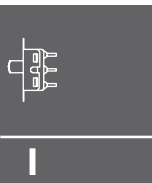
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



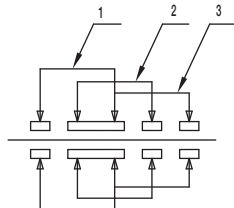
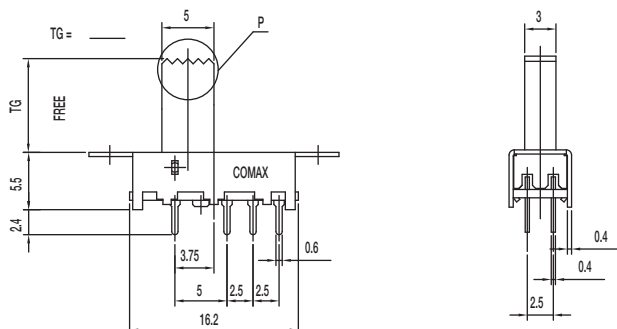
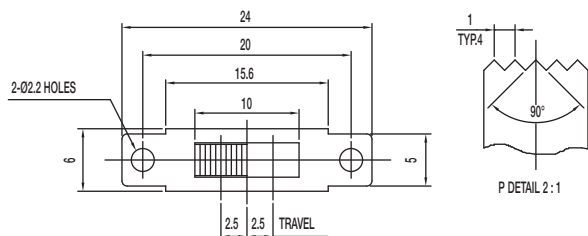
Dimensions are shown: mm
 Specifications and dimensions subject to change



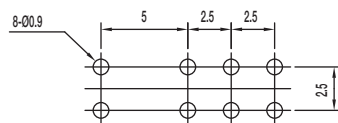
Slide

SS Series Miniature Slide Switches

SS-23E12-TG 2P3T



SCHEMATIC



PIERCING PLAN

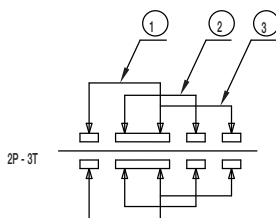
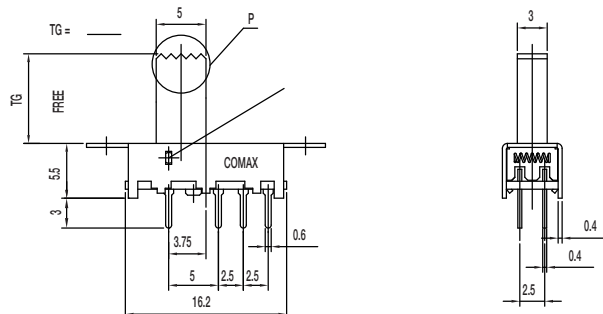
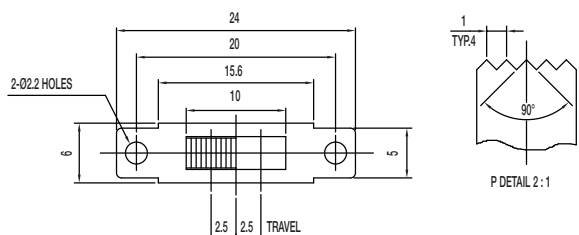
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

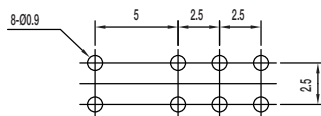
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-23E14-TG NS 2P3T NON-SHORTING



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

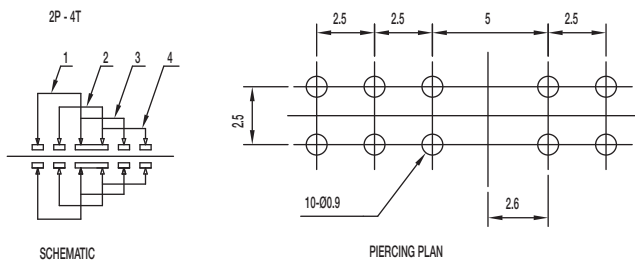
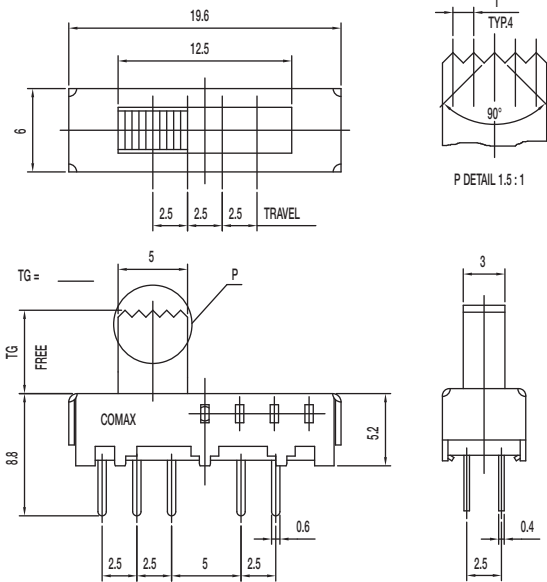
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-24E06-TG 2P4T SHORTING

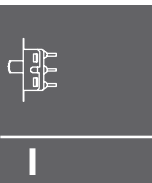


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

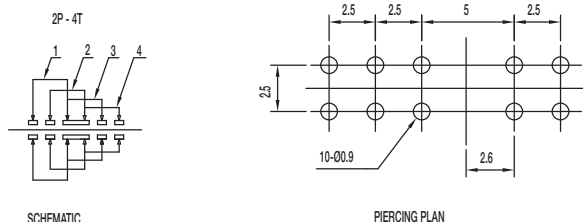
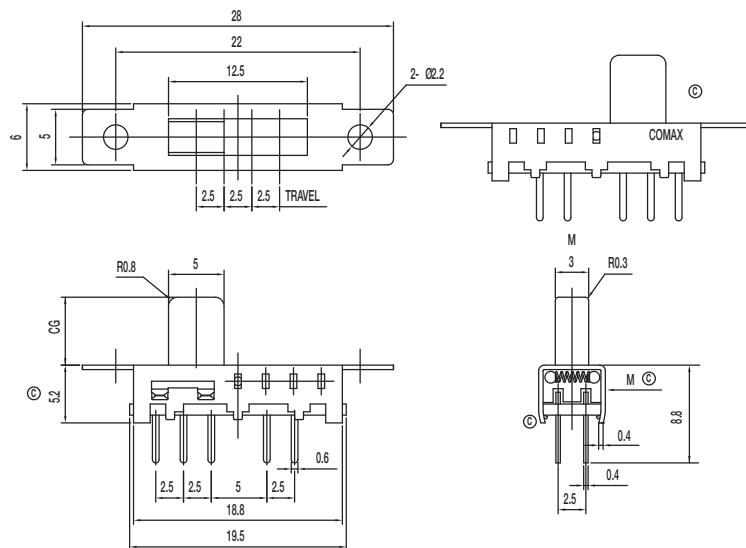
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-24E08-CG 2P4T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

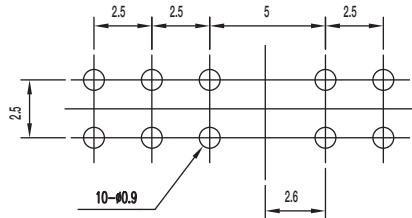
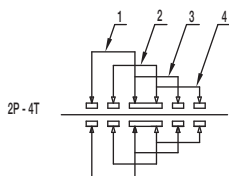
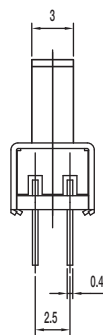
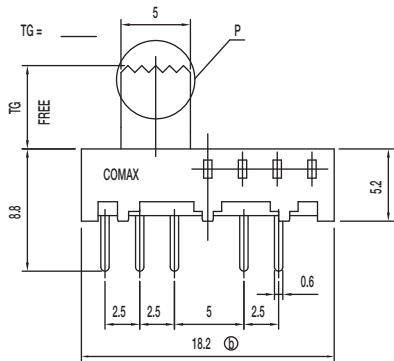
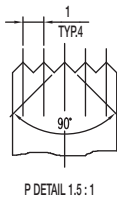
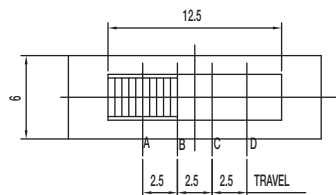
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

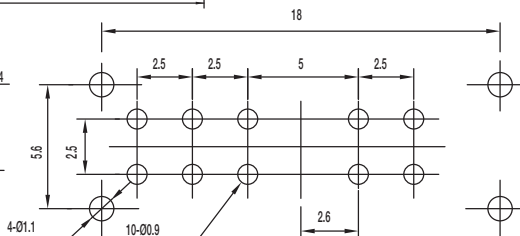
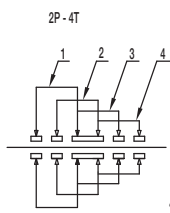
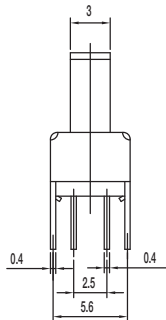
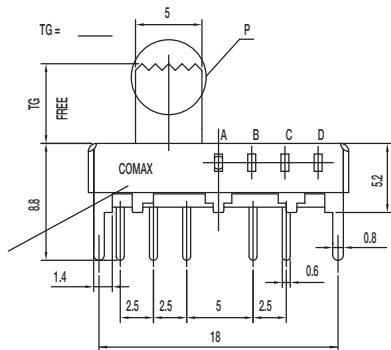
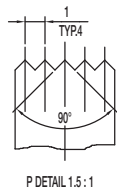
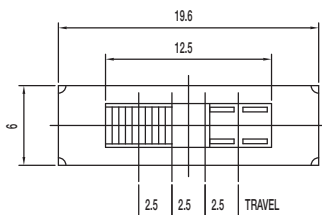
SS-24E09-TG 2P4T



SCHEMATIC

PIERCING PLAN

SS-24E10-TG 2P4T



SCHEMATIC

PIERCING PLAN

Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
- TRAVEL: 2.5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated

Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
- TRAVEL: 2.5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated

Dimensions are shown: mm
Specifications and dimensions subject to change

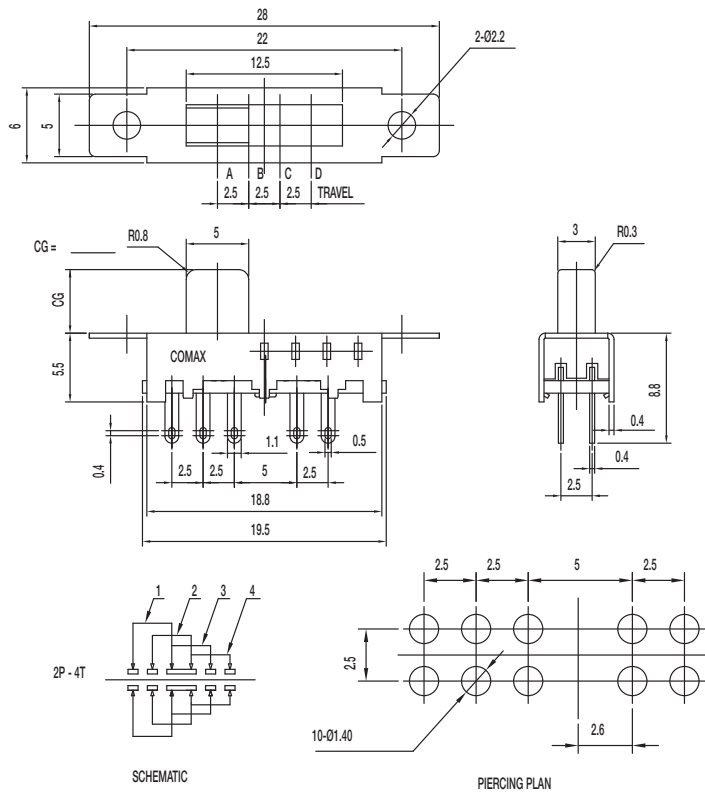


Slide



SS Series Miniature Slide Switches

SS-24E18-CG 2P4T

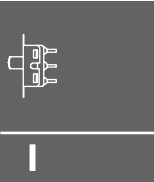


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

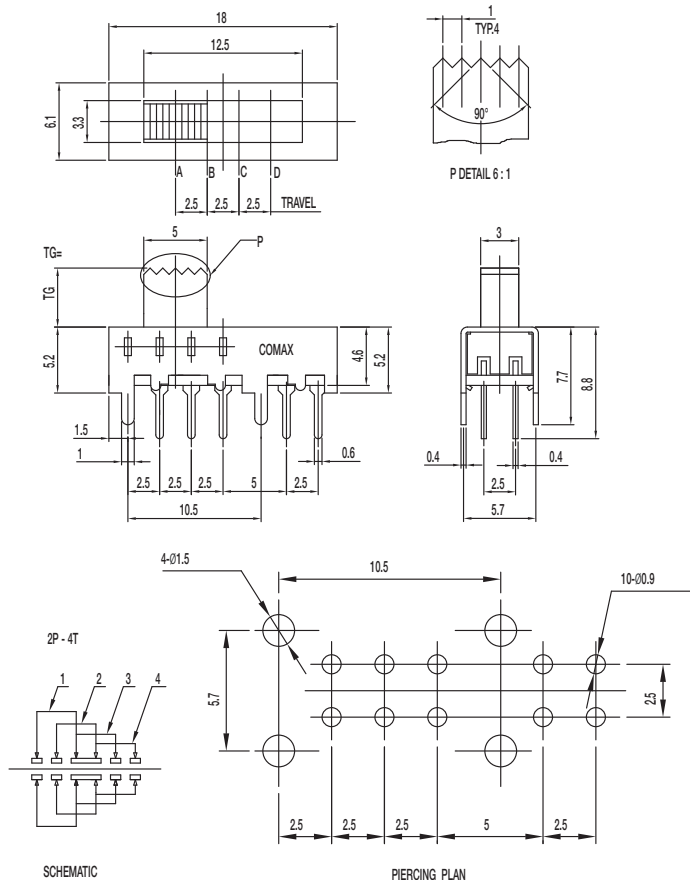
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Side

SS-24E19-TG 2P4T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -10°C to 60°C

Materials

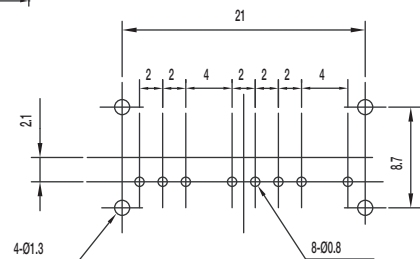
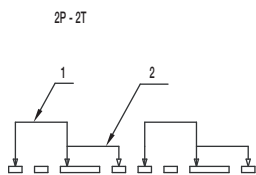
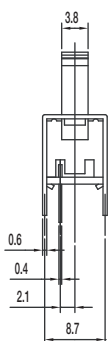
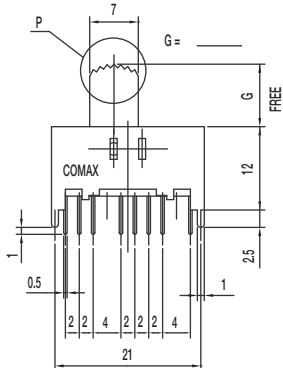
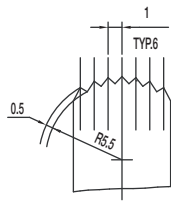
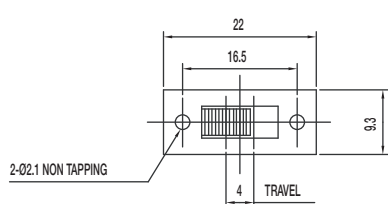
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-22H18-G DPDT NON-SHORTING



SCHEMATIC

PIERCING PLAN

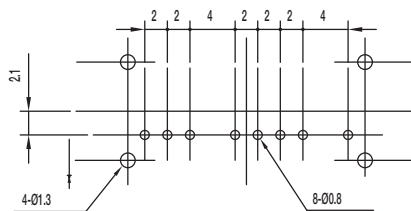
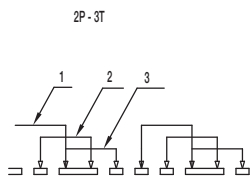
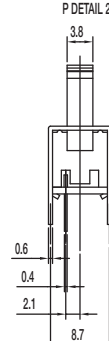
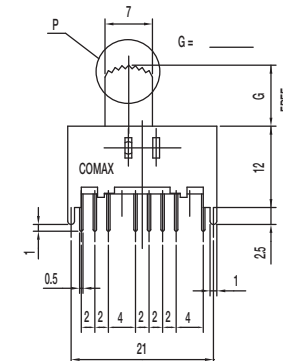
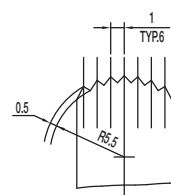
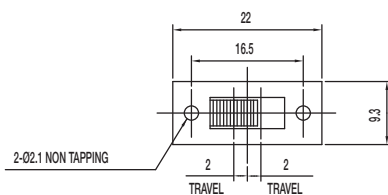
Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
- TRAVEL: 4 ± 0.3 mm
- OPERATING TEMPERATURE: -10°C to 60°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated

SS-23D10-G 2P3T



SCHEMATIC

PIERCING PLAN

Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles with load
- OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
300 ± 150 gf (2.94 ± 1.47N)
- TRAVEL: 2 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- KNOB: POM
- FRAME: SPCC
- CONTACT: Silver clad
- TERMINAL: Silver plated



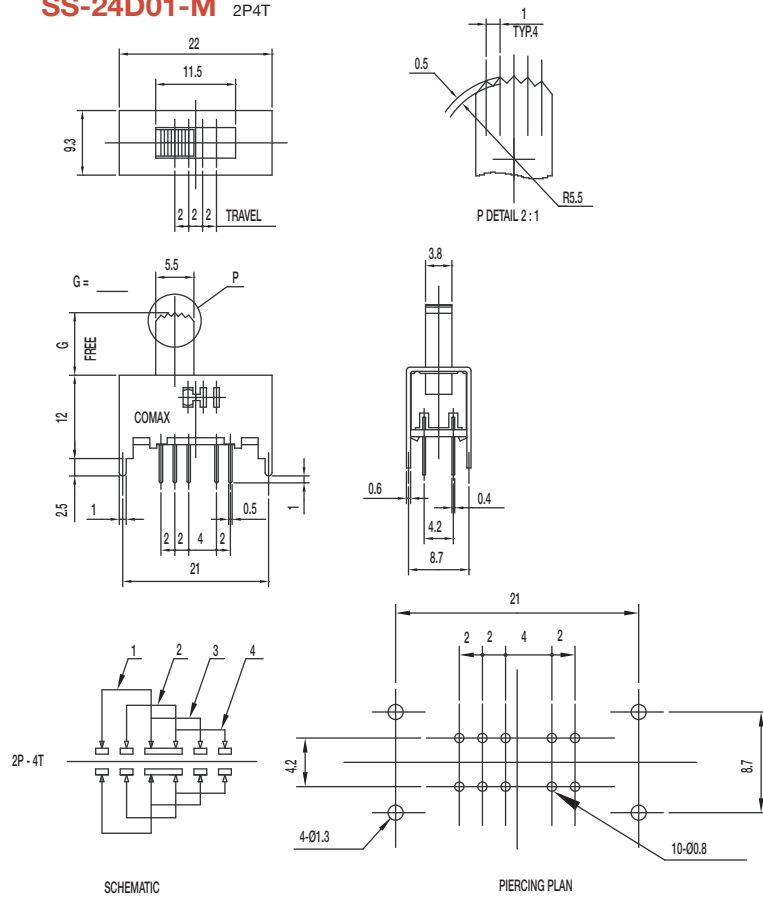
Dimensions are shown: mm
Specifications and dimensions subject to change

Slide



SS Series Miniature Slide Switches

SS-24D01-M 2P4T

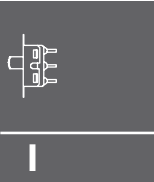


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 100 gf (2.94 ± 0.98N); 450 ± 150 gf (4.41 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

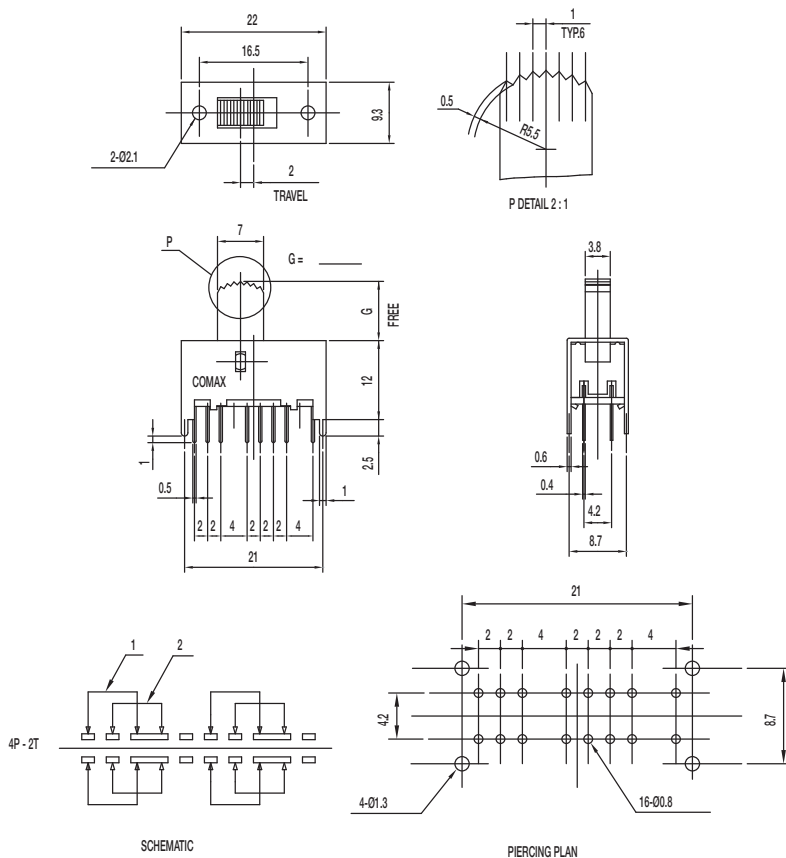
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Slide

SS-42D11-G 4P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

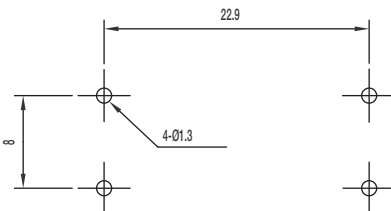
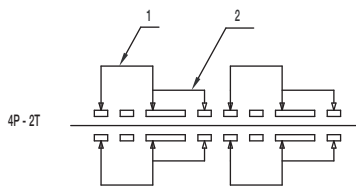
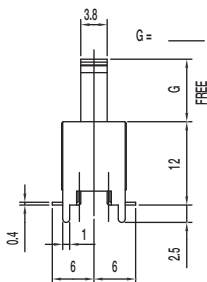
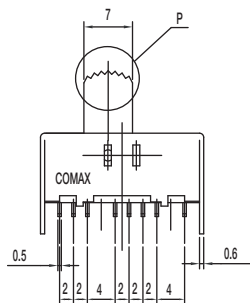
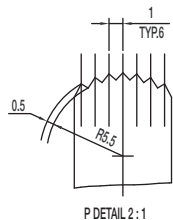
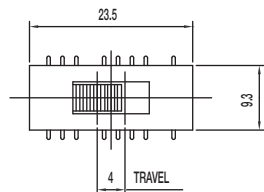
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

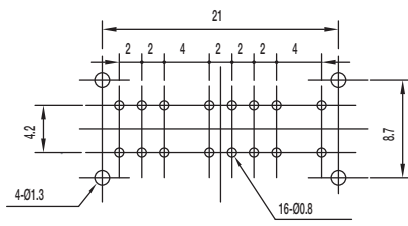
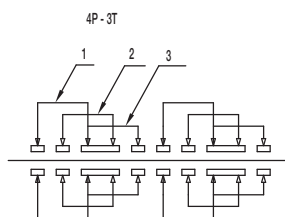
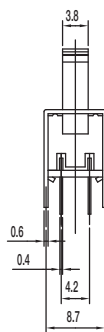
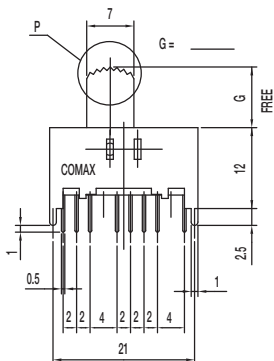
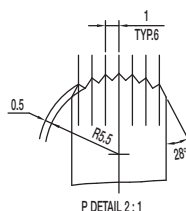
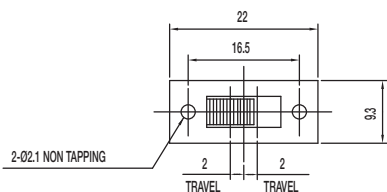
SS-42H06-G 4P2T NON-SHORTING



SCHMATIC

PIERCING PLAN

SS-43D01-G 4P3T



SCHMATIC

PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 TRAVEL: 4 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



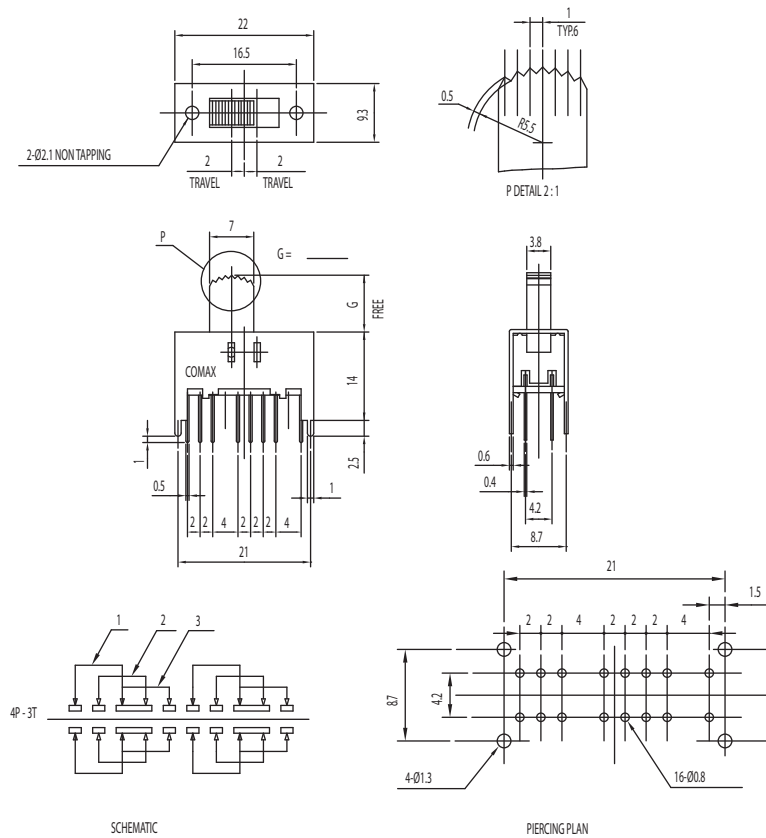
Dimensions are shown: mm
 Specifications and dimensions subject to change

Slide



SS Series Miniature Slide Switches

SS-43D02-G 4P3T

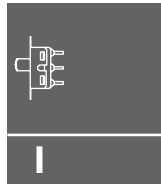


Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

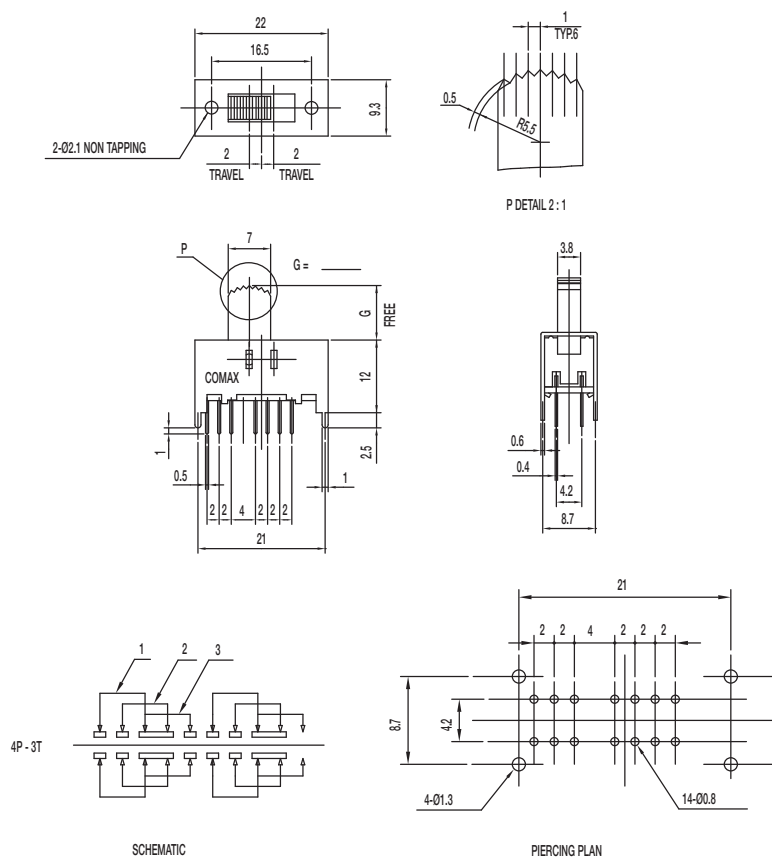
Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Slide

SS-43D03-G 4P3T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 300 ± 150 gf (2.94 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

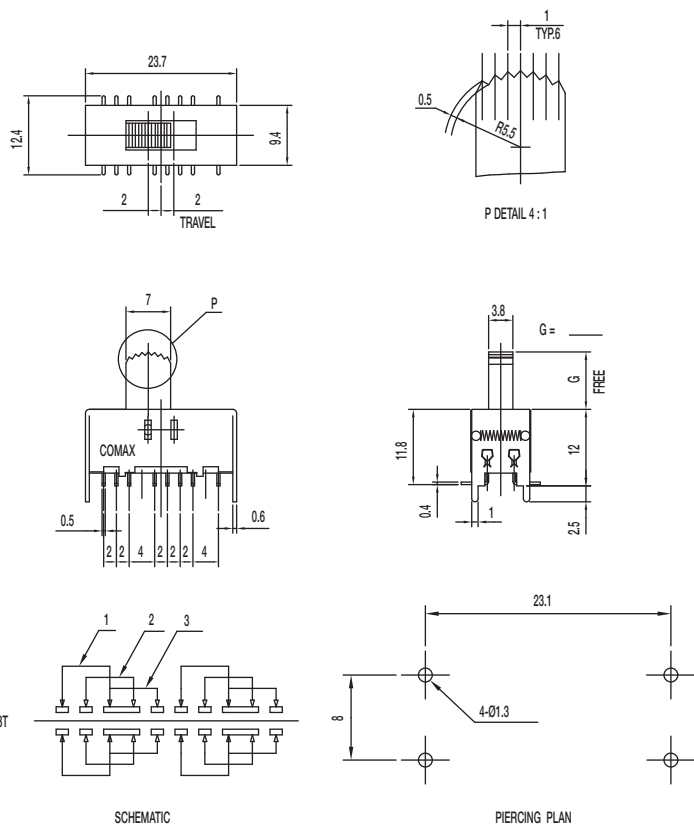
KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

SS Series Miniature Slide Switches

SS-43D06-G 4P3T



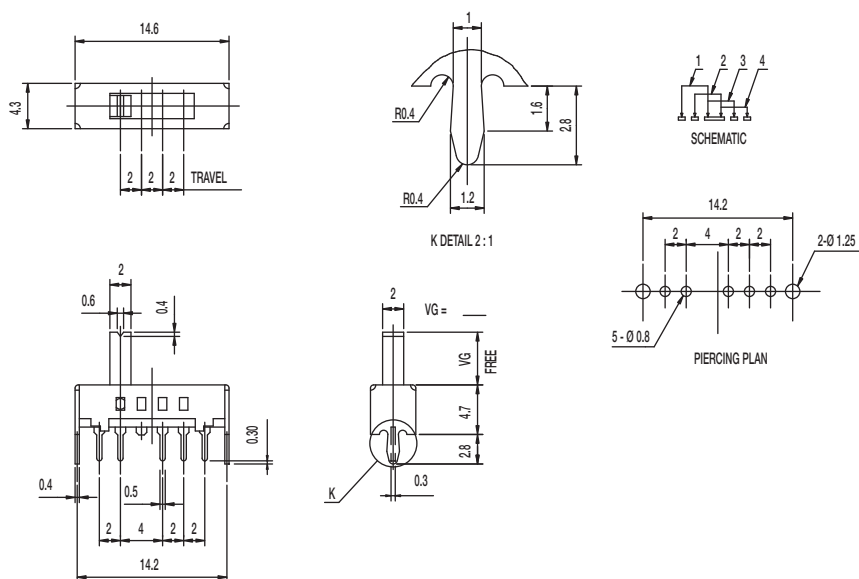
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N)
 350 ± 150 gf (3.43 ± 1.47N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated

SS-14D0839-VG 5 PA 1P4T



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load; 5,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials


KNOB: PA
 FRAME: SPCC
 CONTACT: Silver clad
 TERMINAL: Silver plated



Dimensions are shown: mm
 Specifications and dimensions subject to change

Snap-acting Product Selection Guide

Snap-acting





Snap-acting							
Series	TF	TFS	TF2	TM	LC	LCA	LCS
Switch Type	Miniature	Sealed Miniature	Sealed Miniature	Miniature	Subminiature Precision	Subminiature	Sealed Subminiature
Poles/Throws	SPST, SPDT	SPDT	SPDT	SPST, SPDT	SPST, SPDT	SPDT	SPST
Maximum Current	21 Amps	10 Amps	10 Amps	15 Amps	10.1 Amps	10 Amps	6 Amps
Terminations							
Solder	•		•	•	•	•	•
Turret							
Quick Connect	•	•	•	•	•	•	•
Screw			•	•			
Wire Leads		•			•		•
PC					•	•	•
Formed PC					•	•	
Extended Operations	•	•		•	•	•	
Sealed		•					•
Page No.	J-6	J-12 / J-16	J-20	J-26	J-32	J-36	J-40

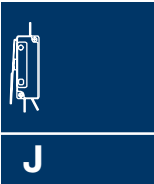
Snap-acting								
Series	MM	ZM	ZMA	ZMB	ZMS	ZMSM	MDS	HB
Switch Type	Subminiature Precision	Subminiature	Subminiature	Subminiature	Sealed Subminiature	Sealed Subminiature	Subminiature	Standard Precision
Poles/Throws	SPDT	SPDT	SPDT	SPDT	SPDT	SPDT	SPDT	SPST, SPDT
Maximum Current	7 Amps	3 Amps	3 Amps	0.1 Amps	3 Amps	3 Amps	300 m Amps	20 Amps
Terminations								
Solder			•	•	•	•	•	•
Quick Connect								•
Wire Leads					•	•		
Screw								•
PCB Thru-hole	•	•	•	•	•	•	•	
Flat & Step Base								•
Bushing								15/32-32
Sealed					•	•		
Page No.	J-44	J-47	J-50	J-54	J-57	J-61	J-65	J-71



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

Snap-acting Product Selection Guide

Snap-acting				
Series	A	TL	DS	LCB
Switch Type	General Purpose	Door Interlock	Door Interlock	Subminiature
Poles/Throws	SPST, SPDT, DP	SPDT	SPDT, DPDT	SPST, SPDT
Maximum Current	30.1 Amps	15 Amps	0.1, 10, 16A	5A
Terminations				
Solder				•
Quick Connect	•	•	•	•
Wire Leads				
Screw		•		
PCB Thru-hole				•
Flat & Step Base				
Bushing	3/8-23			
Page No.	J-77	J-82	J-85	J-88



Snap-acting






Snap-acting Technical Data

HOW TO CHOOSE PRECISION SNAP-ACTING SWITCHES AND ACTUATORS

This catalog describes electric switches that satisfy the following definition: "A precision snap-acting switch is a mechanically operated electric switch having predetermined and accurately controlled characteristics and having contacts other than blade-and-jaw, or mercury-type, where the maximum separation between any butting contacts is 1/8 inch."

In choosing a switch, the first thing to consider is its electrical rating. As a basic part of an electric control system, the switch must be able to carry the full load current in the system, to interrupt this current, and to handle any surge of current that may occur when the switch contacts close or any transients that occur when contacts open.

The method of applying mechanical force to operate the switch influences the choice of actuator. Basic switches are provided with leaf spring, levers, or other linkages between the switch plunger and the actuating device, which are typically used to provide additional overtravel and reduce the operating force. The differential travel measured at the free end of the leaf or lever is considerably greater than that measured at the switch plunger and max. operating force is adequately smaller. Table 1 relates types of actuators to means of applying operating force.

MOTION OF APPLIED OPERATING FORCES	ACTUATOR								
	Pin	Overtravel Plunger	Roller Plunger	Leaf	Roller Leaf	Hinged Lever	Hinged Roller Lever	Reverse-Acting Hinged Lever	Reverse-Acting Hinged Roller Lever
	Basic	D, Q, J	R	L	W	T	A	Y	F
 CAM Rotary			√	√	√	√	√	√ ¹	√ ¹
 LEVER Angular	√	√ ²	√ ²	√	√	√	√	√	√
 SLIDE Wedge			√		√		√		√
 PLUNGER In-Line	√ ³	√		√		√		√	
 BI-METAL or BELLOWS Slow In-Line	√	√							

√ Suitable for this actuating method.

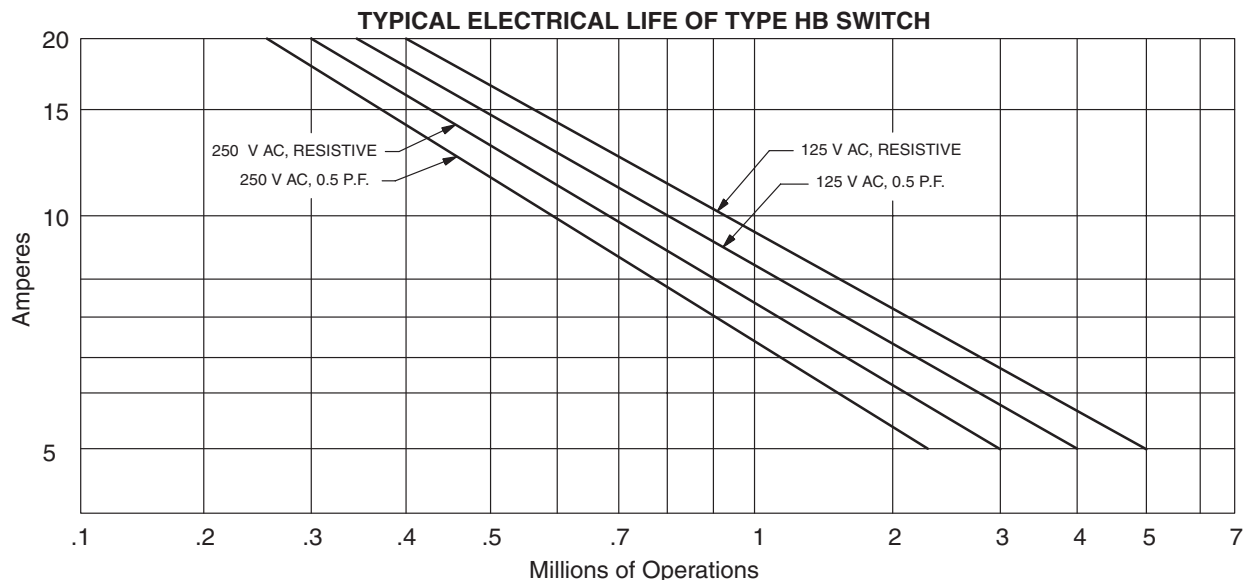
¹ Where large overtravel is required.

² Do not use when there is side thrust.

³ Use only where the actuating device contains provisions for absorbing excess over travel.

ELECTRICAL LIFE CHARACTERISTICS FOR SNAP-ACTING SWITCHES

The primary limitation to electrical life of a switch is wear of the contacts. In general, contacts wear out more quickly as current or voltage is increased and as power-factor is decreased. This is indicated by the graph below, which shows electrical life of switches tested under ordinary atmospheric conditions, operated 60 times a minute, with AC power handled on both the normally open and the normally closed contacts. The high inrush current encountered in lamp loads and in motor or other inductive loads is responsible for decreased contact life under such loading.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

Snap-acting Technical Data

MECHANICAL LIFE CHARACTERISTICS FOR SNAP-ACTING SWITCHES

Fatigue of the internal spring blade is the limiting factor in the mechanical life of a switch. This fatigue can often be reduced and the life thereby extended, by reducing overtravel. One method is to use a leaf or lever actuator or a plunger containing an overtravel-absorbing spring. Tests on switches of the types covered in this catalog indicate that the mechanical life of a lever actuated switch is more than double that of a switch having the operating force applied directly on the pin.

Mechanical life is also affected by the combination of total travel and operating force. Thus a high-sensitivity switch which has small travel and light force, has about twice the life expectancy of a high current type switch, in which the travel/ force combination is relatively high. Experience indicates that million of operations is a reasonable mechanical life expectancy for a basic snap switch.

For the best mechanical life, the applied overtravel force should not exceed three times the operating force.

AC RATINGS FOR SNAP-ACTING SWITCHES

Switches used to control alternating current loads, up to the ratings shown in this catalog, will maintain repeatability of characteristics and provide long electrical life (refer to graph on page K-3). In special circumstances, higher currents or voltages may be controlled, but changes in performance must be anticipated.

Switches used to control "dry circuits" can be furnished, but factory recommendations should be secured.

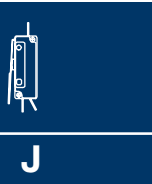
DC RATINGS FOR SNAP-ACTING SWITCHES

To use the table below, determine the contact separation of the switch and select the ratings from the appropriate line. The maximum current rating must be limited to the current value listed for that switch type in the body of the catalog.

CONTACT SEPARATION	DIRECT CURRENT VOLTAGE	ACTUATOR				INDUCTIVE			
		Heater Load		Lamp Load (tungsten)		Motor, Relay, or Solenoid Load			
		Normally Open Contact	Normally Closed Contact	Normally Open Contact	Normally Closed Contact	Sea Level		50,000 Feet	
						Normally Open Contact	Normally Closed Contact	Normally Open Contact	Normally Closed Contact
Inches	Volts	Amperes	Amperes	Amperes	Amperes	Amperes	Amperes	Amperes	Amperes
.010	6-8	15.0	20.0	1.5	3.0	8.0	8.0	7.0	7.0
	12-14	15.0	20.0	1.5	3.0	5.0	5.0	5.0	5.0
	24-30	2.0	2.0	1.5	2.0	1.0	1.0	1.0	1.0
	110-115	0.4	0.4	0.4	0.4	0.03	0.03	0.02	0.02
	220-230	0.2	0.2	0.2	0.2	0.02	0.02	0.01	0.01
.020	6-8	15.0	20.0	1.5	3.0	15.0	20.0	15.0	15.0
	12-14	15.0	20.0	1.5	3.0	10.0	10.0	8.0	8.0
	24-30	6.0	6.0	1.5	2.0	5.0	5.0	2.0	2.0
	110-115	0.4	0.4	0.4	0.4	0.05	0.05	0.03	0.03
	220-230	0.2	0.2	0.2	0.2	0.03	0.03	0.02	0.02
.040	6-8	15.0	20.0	1.5	3.0	15.0	20.0	15.0	15.0
	12-14	15.0	20.0	1.5	3.0	15.0	20.0	15.0	15.0
	24-30	10.0	10.0	1.5	2.0	10.0	10.0	5.0	5.0
	110-115	0.6	0.6	0.6	0.6	0.1	0.1	0.05	0.05
	220-230	0.3	0.3	0.3	0.3	0.05	0.05	0.03	0.03
.070	6-8	15.0	20.0	1.5	3.0	15.0	20.0	15.0	15.0
	12-14	15.0	20.0	1.5	3.0	15.0	20.0	15.0	15.0
	24-30	15.0	20.0	1.5	2.0	10.0	10.0	7.5	7.5
	110-115	0.75	0.75	0.75	0.75	0.4	0.4	0.2	0.2
	220-230	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Snap-acting

TF Series Miniature Snap-acting Switches



Features/Benefits

- Broad range of operating forces
- Ratings up to 21 AMPS
- Wide variety of actuator styles
- Quick connect terminations

Typical Applications

- Motor controls
- Thermostatics
- Portable tools



Specifications

CONTACT RATING: From low level* to 21 AMPS @ 277 V AC.
 ELECTRICAL LIFE: 300,000 cycles at 10 AMPS @ 250 V AC, consult Customer Service Center for typical life of higher rated switches.
 INSULATION RESISTANCE: 1,000 M ohm min.
 DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -40°F to 185°F (-40°C to 85°C).
 OPERATING FORCE: From 15 to 400 grams at actuator button available.
 MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max. Standard electrical life per UL 1054, rated for 6,000 operations.

Materials

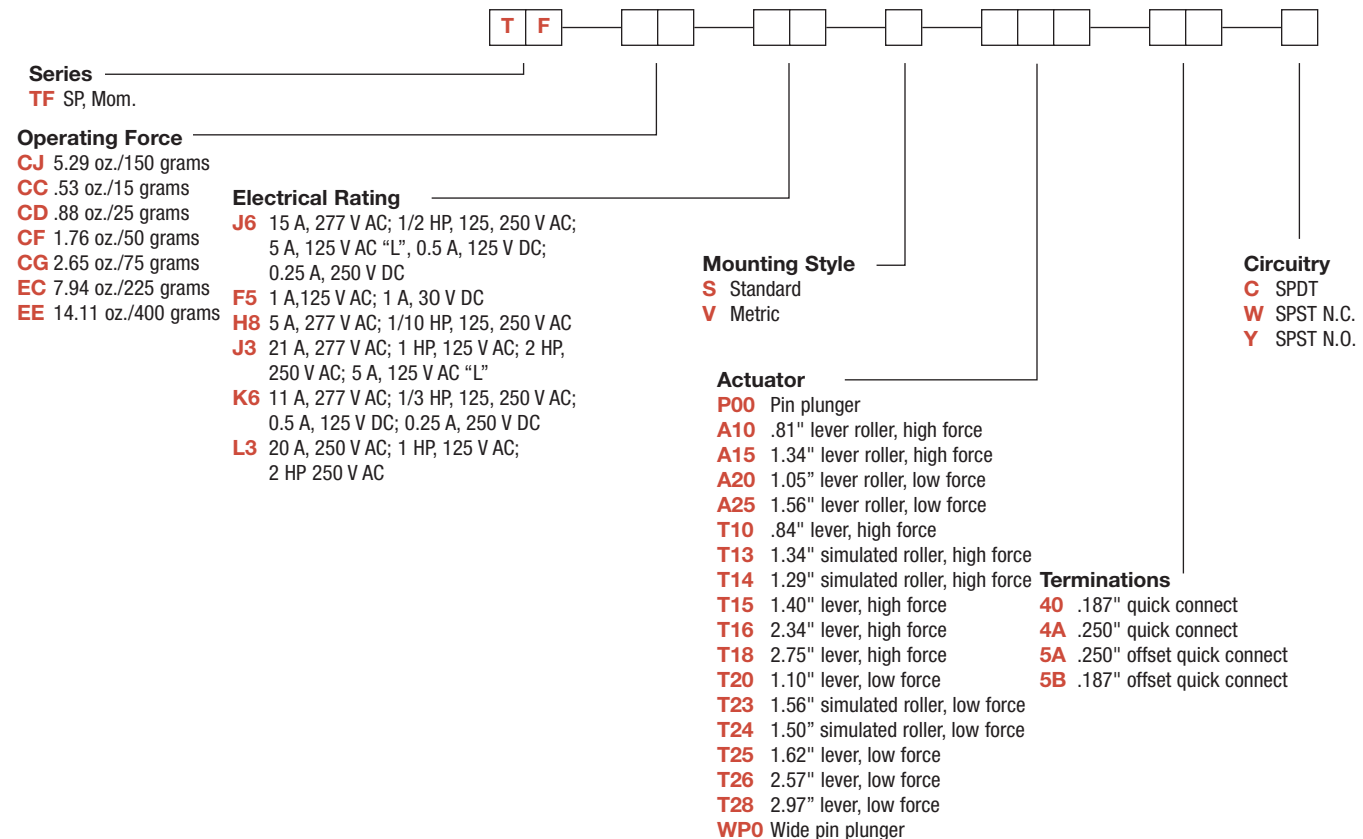
SWITCH HOUSING: Thermoplastic (UL 94V-0).
 ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
 SPRING: Copper alloy.
 PIVOT: Brass alloy.
 MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.
 Fine silver for ratings greater than 1 AMP up to 15 AMPS.
 Precious metal alloy for ratings greater than 15 AMPS.
 STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less.
 Fine silver for ratings greater than 1 AMP.
 TERMINALS: Brass alloy for ratings up to 10 AMPS.
 Copper alloy for ratings greater than 10 AMPS.

NOTE: Specifications and materials listed above are switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-6 through J-11. For additional options not shown in catalog, consult Customer Service Center.




Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

TF Series Miniature Snap-acting Switches

ELECTRICAL RATING

ELECTRICAL RATING	AMPS (REF.)	OPERATING FORCE						
		CC (15)	CD (25)	CF (50)	CG (75)	CJ (150)	EC (225)	EE (400)
F5	1	•	•	•	•	•	•	
H8	5	•	•	•	•	•	•	•
J3	21	X	X	X	X	•	•	•
J6	15	X	X	X	X	•	•	•
K6	11	X	•	•	•	•	•	•
L3	20	X	X	X	X	•	•	•

- AVAILABLE
- X NOT AVAILABLE
- ** Available with 4A & 5A terminations only, see page J-10.

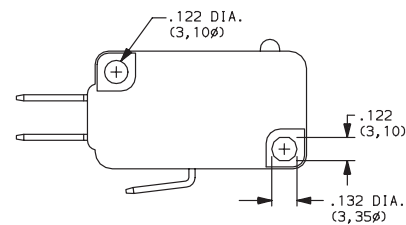
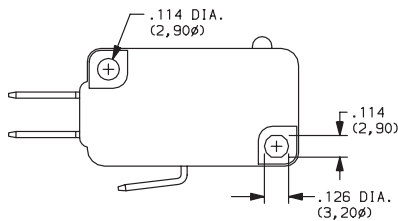
All models  us
Consult Customer Service center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

MOUNTING STYLE

S STANDARD
For 4-40 screw size

V Metric
For 3 mm screw size



Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TF Series Miniature Snap-acting Switches

ACTUATOR

OPTION CODE	FIG.	DIM. A	DIM. B	DIM. C	DIM. D
P00	1	.80 (20,3)	—	.578 ± .015 (14,68 ± 0,38)	—
A10	2	.81 (20,6)	.32 (8,1)	.810 ± .020 (20,57 ± 0,51)	.19 dia. (4,80)
A15	2	1.34 (34,0)	.32 (8,1)	.810 ± .030 (20,57 ± 0,76)	.19 dia. (4,80)
A20	2	1.05 (26,7)	.54 (13,7)	.810 ± .050 (20,57 ± 1,27)	.19 dia. (4,80)
A25	2	1.56 (39,6)	.54 (13,7)	.810 ± .075 (20,57 ± 1,91)	.19 dia. (4,80)
T10	3	.84 (21,3)	.32 (8,1)	.600 ± .020 (15,24 ± 0,51)	—
T15	3	1.40 (35,6)	.32 (8,1)	.600 ± .040 (15,24 ± 1,02)	—
T16	3	2.34 (59,4)	.32 (8,1)	.600 ± .065 (15,24 ± 1,65)	—
T18	3	2.75 (69,9)	.32 (8,1)	.600 ± .080 (15,24 ± 2,03)	—
T20	3	1.10 (27,9)	.54 (13,7)	.600 ± .050 (15,24 ± 1,27)	—
T25	3	1.62 (41,1)	.54 (13,7)	.600 ± .070 (15,24 ± 1,78)	—
T26	3	2.57 (65,3)	.54 (13,7)	.600 ± .150 (15,24 ± 3,81)	—
T28	3	2.97 (75,4)	.54 (13,7)	.600 ± .187 (15,24 ± 4,75)	—
T13	4	1.34 (34,0)	.32 (8,1)	.810 ± .030 (20,57 ± 0,76)	.19 dia. (4,80)
T14	4	1.29 (32,8)	.32 (8,1)	.730 ± .030 (18,54 ± 0,76)	.19 dia. (6,40)
T23	4	1.56 (39,6)	.54 (13,7)	.810 ± .065 (20,57 ± 1,65)	.19 dia. (4,80)
T24	4	1.50 (38,1)	.54 (13,7)	.730 ± .060 (18,54 ± 1,52)	.25 dia. (6,40)
WP0	5	.80 (20,3)	—	.635 ± .015 (16,13 ± 0,38)	—

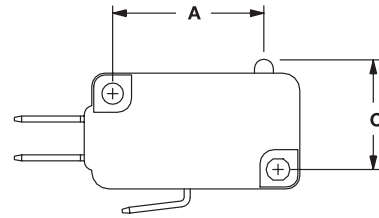


FIG. 1
Pin Plunger

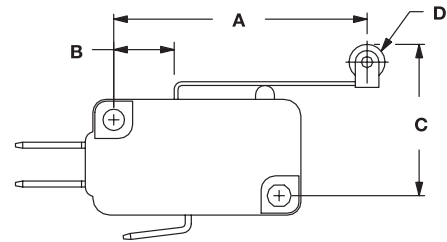


FIG. 2
Lever Roller

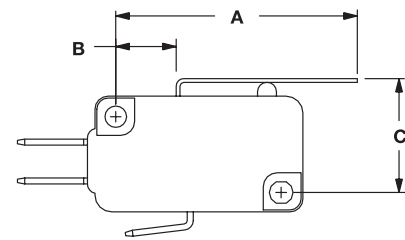


FIG. 3
Lever

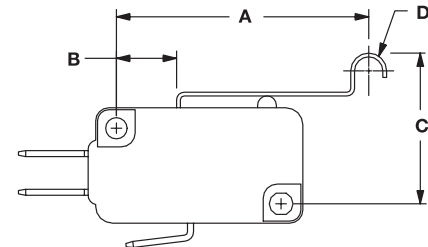


FIG. 4
Simulated Roller

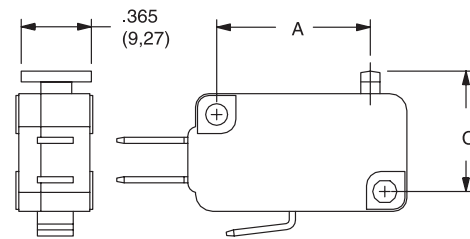
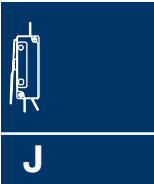
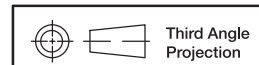


FIG. 5
Wide Pin

NOTE: Switch characteristics chart on following page.



Snap-acting



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TF Series Miniature Snap-acting Switches

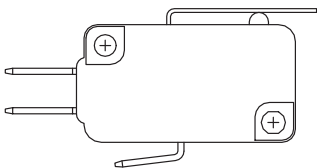
ACTUATOR 

SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)						MINIMUM RELEASE FORCE (OZ./GRAMS)						MAXIMUM DIFFERENTIAL TRAVEL	MAXIMUM PRETRAVEL	MINIMUM OVERTRAVEL		
	CC (15)	CD (25)	CF (50)	CG (75)	CJ (150)	EC (225)	EE (400)	CC (15)	CD (25)	CF (50)	CG (75)	CJ (150)	EC (225)	EE (400)	ALL FORCES	ALL FORCES	ALL FORCES
A10	.63 18	1.06 30	2.29 65	3.17 90	6.35 180	7.94 225	14.11 400	.21 6	.35 10	.35 10	.53 15	.71 20	1.98 56	3.88 110	.015 (0,38)	.060 (1,52)	.030 (0,76)
A15	.28 8	.42 12	1.06 30	1.59 45	3 85	4.59 130	7.94 225	.07 2	.14 4	.14 4	.18 5	.35 10	.71 20	2.82 80	.030 (0,76)	.100 (2,54)	.065 (1,65)
A20	0.53 15	0.71 20	1.41 40	2.12 60	4.23 120	6 170	9.7 275	0.07 2	0.11 3	0.11 3	0.18 5	0.42 12	0.71 20	1.41 40	0.025 (0,64)	0.12 (3,05)	0.055 (1,40)
A25	.18 5	.28 8	.56 16	.85 24	1.69 48	2.65 75	4.41 125	.04 1	.07 2	.07 2	.07 2	.21 6	.35 10	.71 20	.050 (1,27)	.250 (6,35)	.120 (3,05)
P00	.53 15	.88 25	1.76 50	2.65 75	5.29 150	7.94 225	14.11 400	.21 6	.35 10	.35 10	.53 15	1.23 35	1.98 56	3.88 110	.010 (0,25)	.047 (1,19)	.050 (1,27)
T10	.63 18	1.06 30	2.29 65	3.17 90	6.35 180	7.94 225	14.11 400	.21 6	.35 10	.35 10	.53 15	.71 20	1.98 56	3.88 110	.015 (0,38)	.060 (1,52)	.030 (0,76)
T13	.28 8	.42 12	1.06 30	1.59 45	3 85	4.59 130	7.94 225	.07 2	.14 4	.14 4	.18 5	.35 10	.71 20	2.82 80	.030 (0,76)	.100 (2,54)	.065 (1,65)
T14	.28 8	.42 12	1.23 35	1.76 50	3.17 90	4.76 135	7.94 225	.07 2	.14 4	.14 4	.18 5	.35 10	.71 20	2.82 80	.030 (0,76)	.100 (2,54)	.060 (1,52)
T15	.25 7	.42 12	1.06 30	1.41 40	2.82 80	4.41 125	7.94 225	.07 2	.14 4	.14 4	.18 5	.28 8	.63 18	2.82 80	.030 (0,76)	.110 (2,79)	.065 (1,65)
T16	.18 5	.28 8	.53 15	.78 22	1.59 45	2.47 70	4.23 120	.04 1	.07 2	.07 2	.07 2	.28 8	.35 10	.71 20	.045 (1,14)	.250 (6,35)	.125 (3,18)
T18	N/A	.21 6	.42 12	.71 20	1.41 40	2.12 60	3.53 100	N/A	.04 1	.04 1	.07 2	.18 5	.28 8	.56 16	.062 (1,57)	.300 (7,62)	.155 (3,94)
T20	.53 15	.71 20	1.41 40	2.12 60	4.23 120	6 170	9.70 275	.21 6	.35 10	.35 10	.53 15	.71 20	1.98 56	3.88 110	.030 (0,76)	.140 (3,56)	.060 (1,52)
T23	.18 5	.28 8	.56 16	.85 24	1.69 48	2.65 75	4.41 125	.04 1	.07 2	.07 2	.07 2	.21 6	.35 10	.71 20	.050 (1,27)	.250 (6,35)	.120 (3,05)
T24	0.18 5	0.28 8	0.56 16	0.88 25	1.76 50	2.65 75	4.76 135	0.04 1	0.07 2	0.07 2	0.11 3	0.21 6	0.35 10	0.71 20	.005 (1,27)	0.23 (5,84)	0.11 (2,79)
T25	.18 5	.28 8	.53 15	.88 25	1.59 45	2.47 70	4.23 120	.04 1	.07 2	.07 2	.07 2	.21 6	.35 10	.99 28	.055 (1,40)	.250 (6,35)	.125 (3,18)
T26	N/A	.14 4	.28 8	.42 12	.85 24	1.27 36	2.26 64	N/A	.04 1	.04 1	.05 1.5	.12 3.5	.21 6	.39 11	.100 (2,54)	.500 (12,70)	.235 (5,97)
T28	N/A	N/A	N/A	0.42 12	0.71 20	1.06 30	1.94 55	N/A	N/A	N/A	0.04 1	0.11 3	0.18 5	0.32 9	0.12 (3,05)	.0560 (14,22)	0.285 (7,24)
WP0	.53 15	.88 25	1.76 50	2.65 75	5.29 150	7.94 225	14.11 400	.21 6	.35 10	.35 10	.53 15	1.23 35	1.97 56	3.88 110	.010 (0,25)	.047 (1,19)	.030 (0,51)

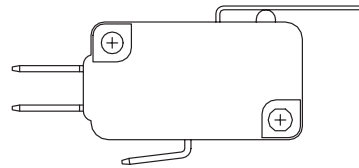
NOTE: For basic switch operating forces, see page J-6.

HIGH FORCE, LOW MOTION PIVOT POSITION



Available with actuators A10, A15, T10, T13, T14, T15, T16 and T18.

LOW FORCE, HIGH MOTION PIVOT POSITION



Available with actuators A20, A25, T20, T23, T24, T25, T26, and T28.

NOTE: Lever actuator options are available in either of two pivot positions. Levers located in the forward pivot position have lower forces and higher motions. Levers located in the rear pivot position have higher forces and lower motions.



Third Angle Projection

Dimensions are shown: Inch (mm)

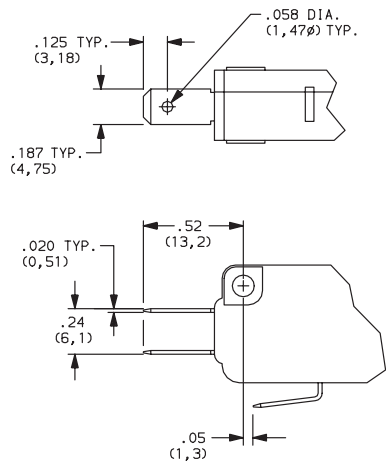
Specifications and dimensions subject to change



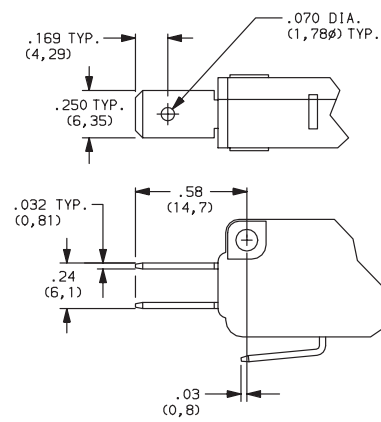
TF Series Miniature Snap-acting Switches

TERMINATIONS

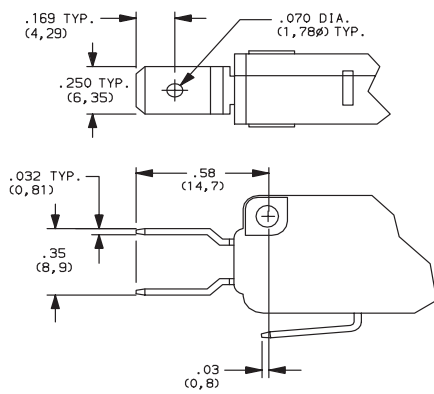
40 .187" QUICK CONNECT



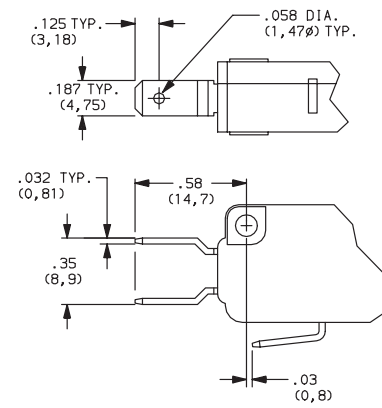
4A .250" QUICK CONNECT



5A OFFSET .250" QUICK CONNECT

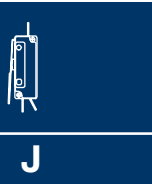


5B OFFSET .187" QUICK CONNECT

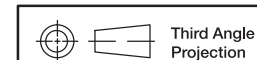


CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)



Snap-acting



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TFS Series Splash Proof Miniature Snap-acting Switches



Features/Benefits

- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible

Typical Applications

- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

UL61058-1  

Specifications

CONTACT RATING / ELECTRICAL LIFE:

- 0.1A @ 125/250 V AC / 10,000 operations
- 3A @ 125/250 VAC / 10,000 operations
- 6A @ 125/250 VAC / 10,000 operations
- 10A @ 125/250 VAC / 10,000 operations

ELECTRICAL OPERATING FREQUENCY: 10-30 operations per min.

MECHANICAL LIFE: 1,000,000 operations

MECHANICAL OPERATING FREQUENCY: 120 operations per min.

INSULATION RESISTANCE: (at 500 VDC/minute) 100 M ohm min.

DIELECTRIC STRENGTH: 1500 VAC (50 -60 Hz)

OPERATING TEMPERATURE: -40°C to 85°C (with no icing)

OPERATING FORCE: 200 grams.

Materials

CASE: Nylon

COVER: PBT

ACTUATOR: PBT

MOVABLE CONTACTS: Silver alloy

TERMINALS: Brass

LEVER: Stainless steel

WIRE: PVC+CU

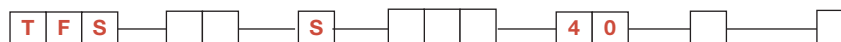
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-12 thru J-15. For additional options not shown in catalog, consult Customer Service Center.



Electrical Rating

ELECTRICAL RATING	AMPS (GRAMS)	OPERATING FORCE				
		S (200)	D (50)	J (100)	L (150)	H (300)
01	0.1	•	•	•	•	•
03	3	•	•	•	•	•
06	6	•	•	•	•	•
10	10	•	X	X	X	•

- Available
- X Not available

Operating Force

- S 200 grams
- D 50 grams
- J 100 grams
- L 150 grams
- H 300 grams

Actuator Lever Fixed

- P00 Button
- T10 Lever - high force
- T20 Lever - low force
- A05 Lever roller - High force, short lever
- A10 Lever roller - high force
- A20 Lever roller - low force
- A25 Lever roller - Low force, short lever

Circuit Arrangement

- C SPDT
- Y SPST N.O.
- W SPST N.C.

Mounting Hole Size

- NONE 3.1 mm (3 mm screw clearance hole)
- S 2.9 mm (4-40 screw clearance hole)

Terminal Type

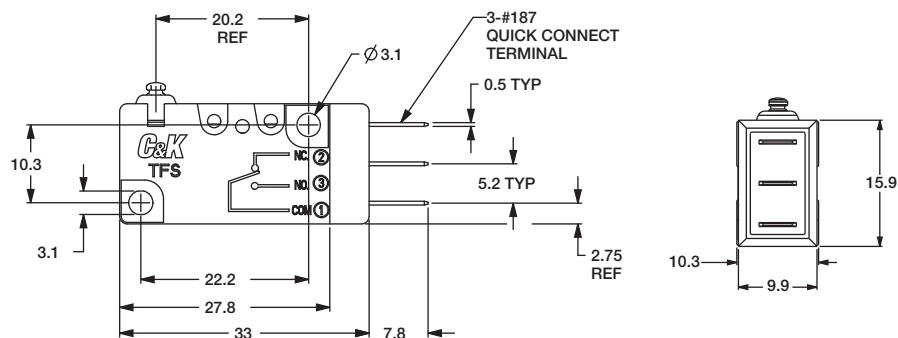
- 40 .187" quick connect



TFS Series Splash Proof Miniature Snap-acting Switches

SERIES

TFS SUB-MINIATURE SNAP-ACTING SWITCHES



ELECTRICAL RATING

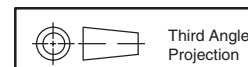
OPTION CODE	RoHS COMPLIANT	RoHS COMPATIBLE	ELECTRICAL RATING
10	Yes	Yes	10A @ 125/250 V AC / 10,000 operations
06	Yes	Yes	6A @ 125/250 VAC / 10,000 operations
03	Yes	Yes	3A @ 125/250 VAC / 10,000 operations
01	Yes	Yes	0.1A @ 125/250 VAC / 10,000 operations



Snap-acting

OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE
S	200 GRAMS
D	50 grams
J	100 grams
L	150 grams
H	300 grams



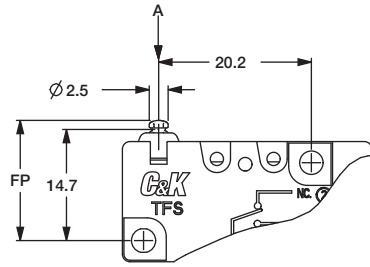
Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

TFS Series Splash Proof Miniature Snap-acting Switches

ACTUATOR

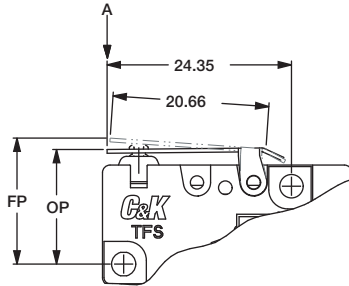
P00 BUTTON



Measure at Point "A"

Max. operating force	200 grams
Min. release force	30 grams
Operating position OP	14.7 ± 0.4 mm
Max. movement differential	0.4 mm
Min. over travel OT	1.0 mm
Max. pre-travel PT	1.2 mm

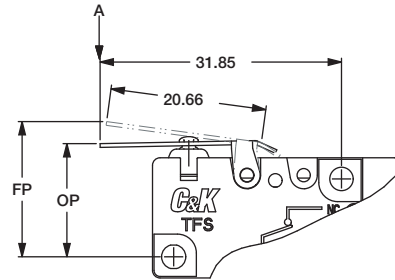
T10 LEVER, HIGH FORCE



Measure at Point "A"

Max. operating force	160 grams
Min. release force	25 grams
Operating position OP	15.1 ± 0.6 mm
Max. movement differential	0.6 mm
Min. over travel OT	1.1 mm
Max. pre-travel PT	2.6 mm

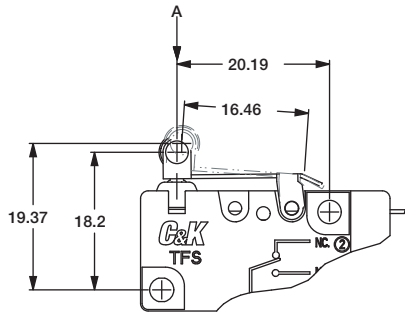
T20 LEVER, LOW FORCE



Measure at Point "A"

Max. operating force	90 grams
Min. release force	10 grams
Operating position OP	15 ± 1.1 mm
Max. movement differential	1.1 mm
Min. over travel OT	1.2 mm
Max. pre-travel PT	5.1 mm

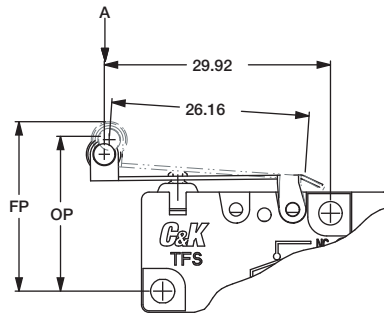
A05 LEVER ROLLER
HIGH FORCE, SHORT LEVER



Measure at Point "A"

Max. operating force	200 grams
Min. release force	30 grams
Operating position OP	20.6 ± 0.5 mm
Max. movement differential	0.5 mm
Min. over travel OT	1.0 mm
Max. pre-travel PT	2.1 mm

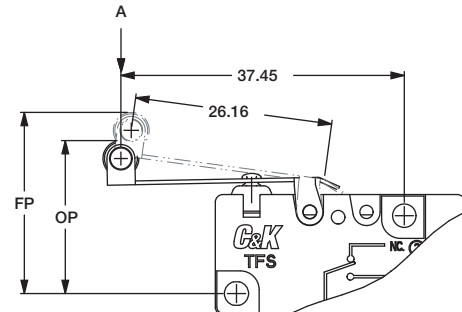
A10 LEVER ROLLER
HIGH FORCE



Measure at Point "A"

Max. operating force	130 grams
Min. release force	20 grams
Operating position OP	20.4 ± 0.7 mm
Max. movement differential	0.7 mm
Min. over travel OT	1.3 mm
Max. pre-travel PT	3.3 mm

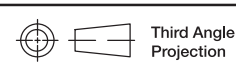
A20 LEVER ROLLER
LOW FORCE



Measure at Point "A"

Max. operating force	70 grams
Min. release force	10 grams
Operating position OP	20.2 ± 1.2 mm
Max. movement differential	1.4 mm
Min. over travel OT	1.5 mm
Max. pre-travel PT	6.5 mm

Snap-acting



Third Angle
Projection

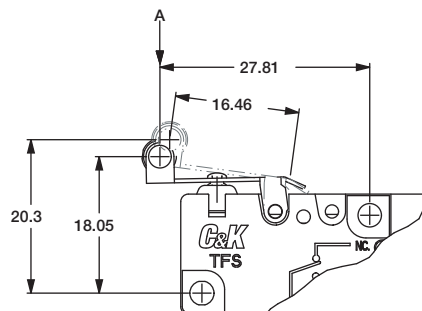
Dimensions are shown: mm
Specifications and dimensions subject to change



TFS Series Splash Proof Miniature Snap-acting Switches

ACTUATOR

A25 LEVER ROLLER
LOW FORCE, SHORT LEVER

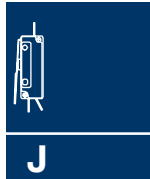
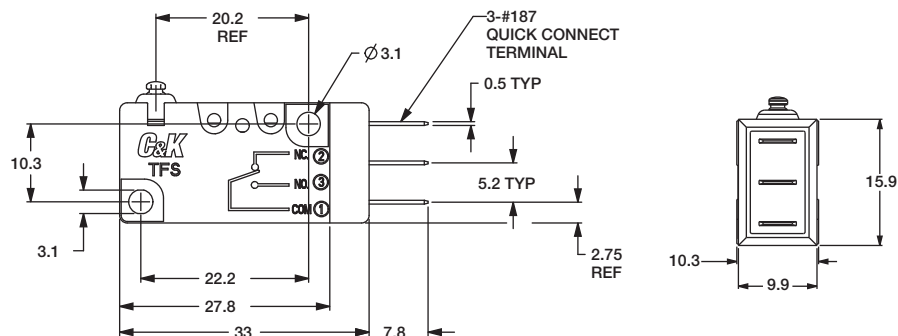


Measure at Point "A"

Max. operating force	150 grams
Min. release force	15 grams
Operating position OP	20.4 ± 0.9 mm
Max. movement differential	0.9 mm
Min. over travel OT	1.2 mm
Max. pre-travel PT	4.2 mm

TERMINAL TYPE

40 .187" QUICK CONNECT



Snap-acting

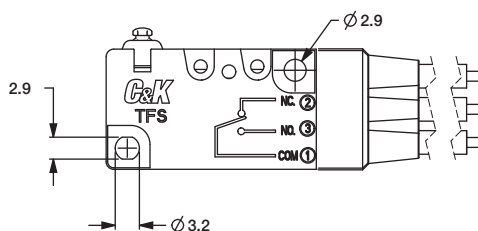
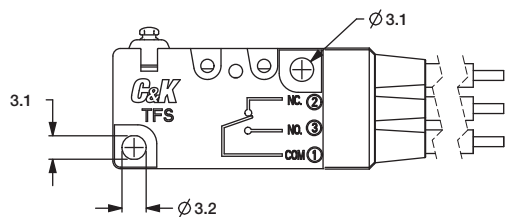
CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)

MOUNTING HOLE SIZE

NONE 3.1 mm (3mm SCREW CLEARANCE HOLE)

S 2.9 mm (4-40 SCREW CLEARANCE HOLE)



Third Angle
Projection
Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

TFS Series Sealed Miniature Snap-acting Switches (Water Proof)



Features/Benefits

- IP67
- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible

Typical Applications

- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

UL61058-1



Specifications

CONTACT RATING / ELECTRICAL LIFE:

- 0.1A @ 125/250 V AC / 10,000 operations
- 3A @ 125/250 VAC / 10,000 operations
- 6A @ 125/250 VAC / 10,000 operations
- 10A @ 125/250 VAC / 10,000 operations

ELECTRICAL OPERATING FREQUENCY: 10-30 operations per min.

MECHANICAL LIFE: 1,000,000 operations

MECHANICAL OPERATING FREQUENCY: 120 operations per min.

INSULATION RESISTANCE: (at 500 VDC/minute) 100 M ohm min.

DIELECTRIC STRENGTH: 1500 VAC (50 -60 Hz)

OPERATING TEMPERATURE: see wire type

OPERATING FORCE: 200 grams.

Materials

CASE: Nylon

COVER: PBT

ACTUATOR: PBT

MOVABLE CONTACTS: Silver alloy.

TERMINALS: Brass.

LEVER: Stainless steel

WIRE: PVC+CU

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-17 thru J-19. For additional options not shown in catalog, consult Customer Service Center.

Electrical Rating
see chart below

Operating Force

- S** 200 grams
- D** 50 grams
- J** 100 grams
- L** 150 grams
- H** 300 grams

Actuator Lever Fixed

- P00** Button
- T10** Lever - high force
- T20** Lever - low force
- A05** Lever roller - High force, short lever
- A10** Lever roller - high force
- A20** Lever roller - low force
- A25** Lever roller - Low force, short lever

Circuit Arrangement

- C** SPDT
- Y** SPST N.O.
- W** SPST N.C.

Wire UL #

- B** UL1015 (T55)

Mounting Hole Size

- NONE** 3.1 mm (3 mm screw clearance hole)
- S** 2.9 mm (4-40 screw clearance hole)

Terminal Type

- W** Wire

Wire Type

- C** 16 AWG
- D** 18 AWG
- E** 20 AWG
- F** 22 AWG
- G** 24 AWG
- H** 26 AWG

OPERATING TEMPERATURE

-40°C to + 85°C (with UL1015 wire)

ELECTRICAL RATING	AMPS	WIRE TYPE				
		C 16AWG	D 18AWG	E 20AWG	F 22AWG	G 24AWG H 26AWG
01	0.1	•	•	•	•	•
03	3	•	•	•	X	X
06	6	•	•	X	X	X
10	10	•	X	X	X	X

• Available
X Not available

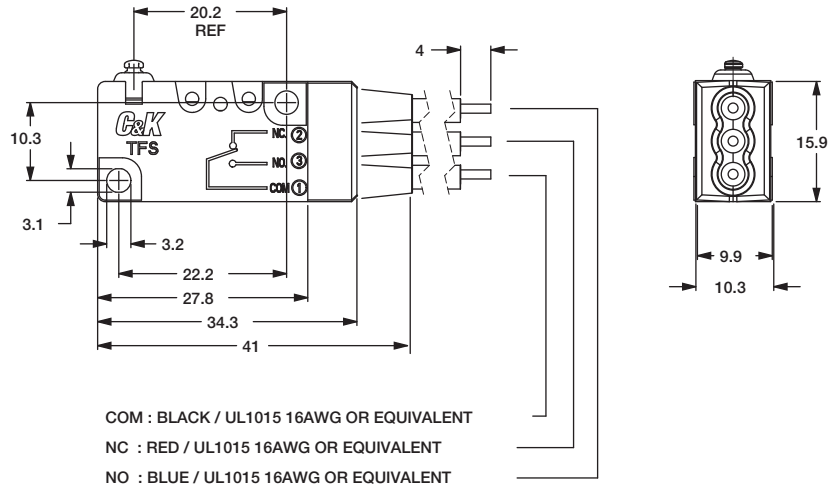


Dimensions are shown: mm
Specifications and dimensions subject to change

TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

SERIES

TFS SUB-MINIATURE SNAP-ACTING SWITCHES – WATERPROOF



ELECTRICAL RATING

OPTION CODE	RoHS COMPLIANT	RoHS COMPATIBLE	ELECTRICAL RATING
10	Yes	Yes	10A @ 125/250 V AC / 10,000 operations
06	Yes	Yes	6A @ 125/250 VAC / 10,000 operations
03	Yes	Yes	3A @ 125/250 VAC / 10,000 operations
01	Yes	Yes	0.1A @ 125/250 VAC / 10,000 operations

OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE
S	200 GRAMS
D	50 grams
J	100 grams
L	150 grams
H	300 grams



Third Angle Projection

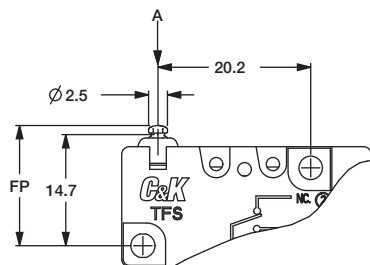
Dimensions are shown: mm
 Specifications and dimensions subject to change



TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

ACTUATOR

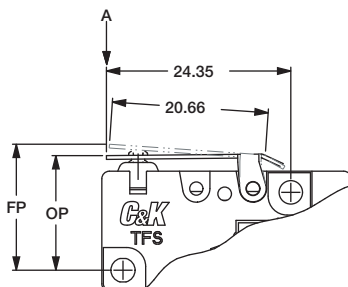
P00 BUTTON



Measure at Point "A"

Max. operating force	200 grams
Min. release force	30 grams
Operating position OP	14.7 ± 0.4 mm
Max. movement differential	0.4 mm
Min. over travel OT	1.0 mm
Max. pre-travel PT	1.2 mm

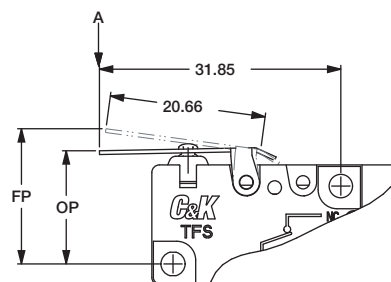
T10 LEVER, HIGH FORCE



Measure at Point "A"

Max. operating force	160 grams
Min. release force	25 grams
Operating position OP	15.1 ± 0.6 mm
Max. movement differential	0.6 mm
Min. over travel OT	1.1 mm
Max. pre-travel PT	2.6 mm

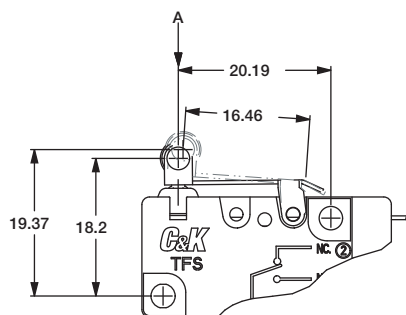
T20 LEVER, LOW FORCE



Measure at Point "A"

Max. operating force	90 grams
Min. release force	10 grams
Operating position OP	15 ± 1.1 mm
Max. movement differential	1.1 mm
Min. over travel OT	1.2 mm
Max. pre-travel PT	5.1 mm

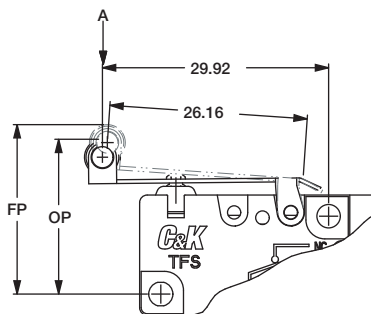
A05 LEVER ROLLER
HIGH FORCE, SHORT LEVER



Measure at Point "A"

Max. operating force	200 grams
Min. release force	30 grams
Operating position OP	20.6 ± 0.5 mm
Max. movement differential	0.5 mm
Min. over travel OT	1.0 mm
Max. pre-travel PT	2.1 mm

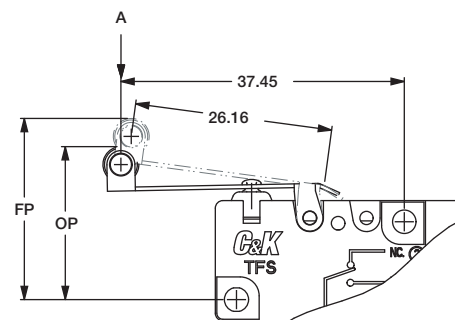
A10 LEVER ROLLER
HIGH FORCE



Measure at Point "A"

Max. operating force	130 grams
Min. release force	20 grams
Operating position OP	20.4 ± 0.7 mm
Max. movement differential	0.7 mm
Min. over travel OT	1.3 mm
Max. pre-travel PT	3.3 mm

A20 LEVER ROLLER
LOW FORCE



Measure at Point "A"

Max. operating force	70 grams
Min. release force	10 grams
Operating position OP	20.2 ± 1.2 mm
Max. movement differential	1.4 mm
Min. over travel OT	1.5 mm
Max. pre-travel PT	6.5 mm

Snap-acting



Snap-acting



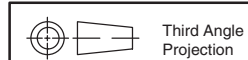
Snap-acting



Snap-acting



Snap-acting

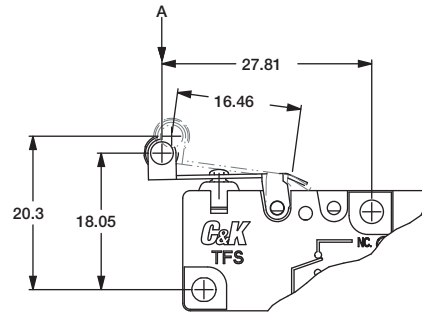


Dimensions are shown: (mm)
Specifications and dimensions subject to change

TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

ACTUATOR

A25 LEVER ROLLER
LOW FORCE, SHORT LEVER

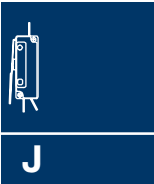
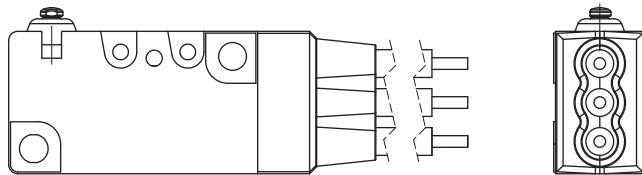


Measure at Point "A"

Max. operating force	150 grams
Min. release force	15 grams
Operating position OP	20.4 ± 0.9 mm
Max. movement differential	0.9 mm
Min. over travel OT	1.2 mm
Max. pre-travel PT	4.2 mm

TERMINAL TYPE

W WIRE UL1015



Snap-acting

CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)

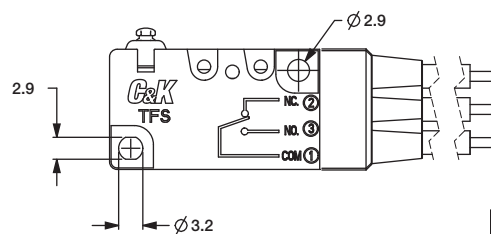
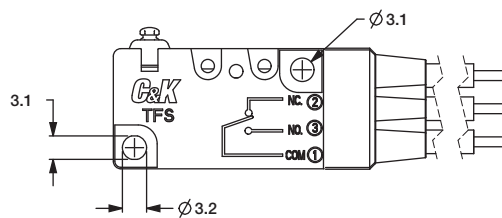
WIRE TYPE

- C** 16 AWG
- D** 18 AWG
- E** 20 AWG
- F** 22 AWG
- G** 24 AWG
- H** 26 AWG

MOUNTING HOLE SIZE

NONE 3.1 mm (3mm SCREW CLEARANCE HOLE)

S 2.9 mm (4-40 SCREW CLEARANCE HOLE)



Third Angle Projection

Dimensions are shown: (mm)
Specifications and dimensions subject to change

C&K

TF2 Series Miniature Snap-acting Switches



Features/Benefits

- Broad range of operating forces
- Ratings up to 10 AMPS
- Wide variety of actuator styles
- Quick connect terminations

Typical Applications

- Motor controls
- Thermostatics
- Portable tools
- Air Conditioner



Specifications

CONTACT RATING: From low level* to 10 AMPS @125/250 V AC.
 ELECTRICAL LIFE: 10,000 cycles
 MECHANICAL LIFE: 1,000,000 cycles at 0.1A and 6A
 400,000 cycles at 10A
 INSULATION RESISTANCE: 1,000 M ohm min.
 DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -40°C to 125°C (-40°C to 85°C).
 OPERATING FORCE: From 18 to 330 grams at actuator button available.
 MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max. Standard electrical life per UL 1054, rated for 6,000 operations.

Materials

SWITCH HOUSING: Nylon 6/6
 ACTUATOR BUTTON: Nylon 6/6
 SPRING: Stainless Steel
 PIVOT: Brass Alloy
 MOVABLE CONTACTS: See electric rating page J-21
 MOVABLE BLADE: BeCu
 STATIONARY CONTACTS: See electric rating page J-21
 TERMINALS: Brass Alloy

NOTE: Specifications and materials listed above are switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-21 through J-25. For additional options not shown in catalog, consult Customer Service Center.

Series **TF2** SP, Mom.

Operating Force
CC 18 grams
CF 45 grams
CG 75 grams
CH 110 grams
CJ 170 grams
EC 230 grams
EE 330 grams

Electrical Rating Chart

OPTION CODE	UL 61058-1	ENEC 15
F5	0.1A 125/250 V AC (T85) Min. 10,000 operations	0.1A 125/250 V AC μT125, 1E4
H8	6A 125/250 V AC (T85) Min. 10,000 operations	6A 125/250 V AC μT125, 1E4
K6	10A 125/250 V AC (T85) Min. 10,000 operations	10(4)A 125/250 V AC μT125, 1E4

Mounting Style
S Standard
V Metric

Actuator
P00 Pin plunger
A10 Lever roller 12.5 mm
A15 Lever roller 25.9 mm
A20 Lever roller 12.5 mm
A25 Lever roller 25.9 mm
T10 Lever 14 mm
T14 Simulated roller 24.5 mm
T15 Lever 27.5 mm
T16 Lever 31.7 mm
T17 Lever 35 mm
T20 Lever 14 mm
T24 Simulated lever 24.5 mm
T25 Lever 27.5 mm
T26 Lever 31.7 mm
T27 Lever 35 mm

Circuitry
C SPDT
W SPST N.C.
Y SPST N.O.

Terminations
40 .187" quick connect
4A .250" quick connect
5A .250" off set quick connect
5B .187" off set quick connect
60 Screw style *
10 Solder

* Note: No UL & ENEC 15 safety for Termination option "60"

see chart on following pages for detailed information

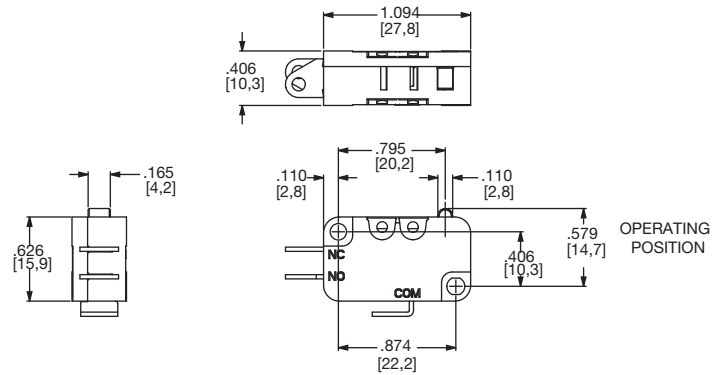


Dimensions are shown: mm
 Specifications and dimensions subject to change

TF2 Series Miniature Snap-acting Switches

SERIES

TF2 MINIATURE SNAP-ACTING SWITCHES



OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (grams)
CC	18
CF	45
CG	75
CH	110
CJ	170
EC	230
EE*	330

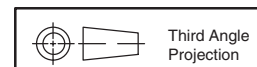
*Minimums may apply, consult Customer Service Center.

ELECTRICAL RATING

OPTION CODE	CONTACT MATERIAL		MOVABLE CONTACT	STATIONARY CONTACT
	RoHS COMPLIANT *	RoHS COMPATIBLE *		
F5	Yes	Yes	Silver alloy	Silver alloy
H8	Yes	Yes		
K6	Yes	Yes		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

All models  



Dimensions are shown: inches (mm)
Specifications and dimensions subject to change

www.ck-components.com



TF2 Series Miniature Snap-acting Switches

ELECTRICAL RATING

INTERNATIONAL RATING SYMBOLS	
μ	Microgap construction (less than 3 mm).
~	Alternating current.
T__	Maximum rated use temperature.
50E3	Cycles over 50,000 at rated current.
10E3	Cycles over 10,000 at rated current.
10(3)	Current Rating: First number represents resistive rating; second number represents inductive (motor) rating.

ELECTRICAL RATING	AMPS (REF.)	OPERATING FORCE						
		CC (18)	CF (45)	CG (75)	CH (110)	CJ (170)	EC (230)	EE (330)
F5	0.1	•	•	•	•	•	•	X
H8	6	X	•	•	•	•	•	•
K6	10	X	X	X	•	•	•	•

• AVAILABLE
X NOT AVAILABLE



Snap-acting

All models

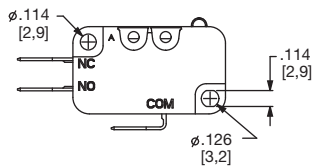
Consult Customer Service center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

MOUNTING STYLE

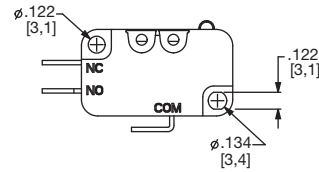
S STANDARD
For 4-40 screw size

V Metric
For 3 mm screw size



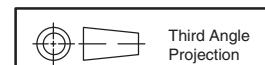
TF2 SWITCH WITH TYPE 40 (.187 QC) TERMINALS AND P00 ACTUATOR SHOWN

NOTE: TORQUE MOUNTING SCREWS 2-5 IN/LBS.



TF2 SWITCH WITH TYPE 10 (SOLDER) TERMINALS AND P00 ACTUATOR SHOWN

NOTE: TORQUE MOUNTING SCREWS 2-5 IN/LBS.



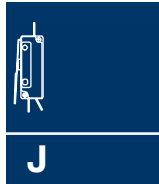
Dimensions are shown: inches (mm)
Specifications and dimensions subject to change

TF2 Series Miniature Snap-acting Switches

ACTUATOR

OPTION CODE	FIG	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E
P00	2	.795 (20,2)	-	.578 ± .019 (14,70 ± 0,05)	0.068 (1,72)	-
A10	1	.822 (20,9)	.33 (8,4)	.816 ± .050 (20,73 ± 1,27)	.106 (2,70)	∅.19 (∅ 4,8)
A15	1	1.35 (34,3)	.33 (8,4)	.816 ± .059 (20,73 ± 1,5)	.165 (4,20)	∅.19 (∅ 4,8)
A20	1	1.05 (26,8)	.56 (14,3)	.816 ± .050 (20,73 ± 1,27)	.183 (4,65)	∅.19 (∅ 4,8)
A25	1	1.58 (40,2)	.56 (14,3)	.816 ± .086 (20,73 ± 2,2)	.366 (9,30)	∅.19 (∅ 4,8)
T10	3	.882 (22,39)	.33 (8,4)	.602 ± .020 (15,3 ± 0,50)	.110 (2,80)	-
T14	4	1.295 (32,9)	.33 (8,4)	.737 ± .059 (18,72 ± 1,5)	.216 (5,50)	∅.275 (∅ 7,0)
T15	3	1.405 (35,69)	.33 (8,4)	.600 ± .059 (15,24 ± 1,5)	.232 (5,90)	-
T16	3	1.58 (40,01)	.33 (8,4)	.604 ± .068 (15,35 ± 1,75)	.196 (5,0)	-
T17	3	1.708 (43,39)	.33 (8,4)	.603 ± .062 (15,33 ± 1,57)	.216 (5,50)	-
T20	3	1.11 (28,3)	.56 (14,3)	.604 ± .045 (15,34 ± 1,14)	.204 (5,20)	-
T24	4	1.527 (38,8)	.56 (14,3)	.742 ± .090 (18,84 ± 2,29)	.342 (8,70)	∅.275 (∅ 7,0)
T25	3	1.631 (41,43)	.56 (14,3)	.609 ± .090 (15,47 ± 2,3)	.381 (9,70)	-
T26	3	1.811 (46,00)	.56 (14,3)	.616 ± .125 (15,65 ± 3,18)	.389 (9,90)	-
T27	3	1.94 (49,3)	.56 (14,3)	.598 ± .150 (15,2 ± 3,8)	.433 (11,0)	-

NOTE: Switch characteristics chart on following page.



Snap-acting

Lever Roller

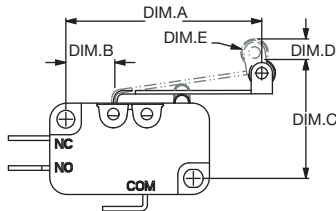


FIG. 1
LEVER ROLLER
TF2XXXXMA1510C

Pin Roller

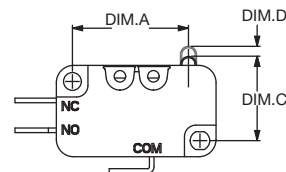


FIG. 2
PIN ROLLER
TF2XXXXMP0010C

Lever

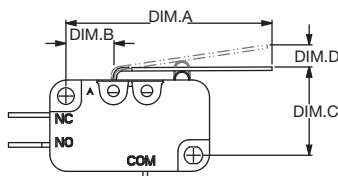


FIG. 3
LEVER
TF2XXXXST1510C SHOWN

Simulated Roller

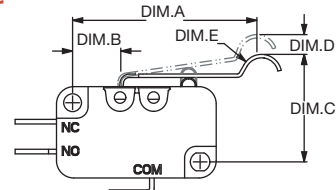


FIG. 4
SIMULATED ROLLER
TF2XXXXST1410C



Third Angle Projection

Dimensions are shown: inches (mm)
Specifications and dimensions subject to change

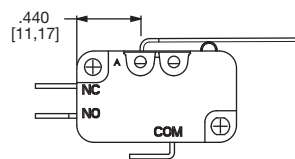


TF2 Series Miniature Snap-acting Switches

ACTUATOR 

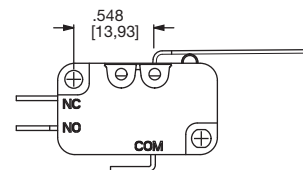
Lever Type		CC	CF	CG	CH Grams	CJ	EC	EE	Pre-Travel max. mm	Max Differential max. mm	Over Travel Min. mm
P00	OF	18	45	75	110	170	230	330	1.72	0.4	0.8
	RF	3	7	14	20	34	42	60			
T10	OF	18	45	75	110	170	230	330	2.8	0.5	0.6
	RF	-	6	11	17	25	35	50			
T20	OF	8	27	43	50	85	120	175	5.2	0.9	1.55
	RF	-	3	5	7	13	17	25			
T14	OF	10	28	43	65	110	140	205	5.5	1.1	1.4
	RF	-	3	5	8	14	17	31			
T24	OF	7	16	24	35	56	70	100	8.7	1.7	3.2
	RF	-	-	-	4	5	9	12			
A10	OF	20	55	80	110	170	230	330	2.7	0.45	0.6
	RF	-	5	11	16	28	31	45			
A20	OF	8	35	55	70	100	120	175	4.65	0.8	1.4
	RF	-	3	5	7	14	18	28			
A15	OF	8	30	45	65	100	125	180	4.2	1.25	1.6
	RF	-	-	5	7	12	16	25			
A25	OF	7	20	30	40	51	65	90	9.3	1.8	2.8
	RF	-	-	-	-	6	8	9			
T17	OF	16	25	35	50	80	100	140	5.5	1.2	0.55
	RF	-	2	4	6	11	14	20			
T27	OF	13	18	24	32	45	55	90	11	2.3	3.6
	RF	-	-	2	3	5	7	10			
T16	OF	15	17	32	55	85	110	150	5	1.05	1.8
	RF	-	-	4	6	12	15	22			
T26	OF	10	12	18	35	45	65	90	9.9	2.05	3.6
	RF	-	-	2	4	6	8	11			
T15	OF	18	22	37	50	86	125	180	5.9	1	1.6
	RF	-	3	5	9	14	17	24			
T25	OF	5	16	25	30	51	65	90	9.7	2.2	3.1
	RF	-	-	3	4	6	8	11			

HIGH FORCE, LOW MOTION PIVOT POSITION



Available with actuators A10, A15, T10, T13, T14, T15, T16 and T18.

LOW FORCE, HIGH MOTION PIVOT POSITION



Available with actuators A20, A25, T20, T23, T24, T25, T26, and T28.

NOTE: Lever actuator options are available in either of two pivot positions. Levers located in the forward pivot position have lower forces and higher motions. Levers located in the rear pivot position have higher forces and lower motions.



Third Angle
Projection

Dimensions are shown: mm

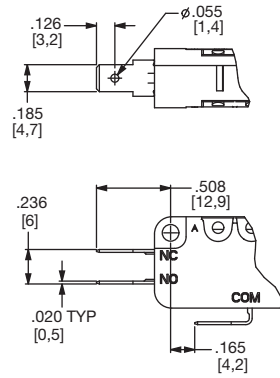
Specifications and dimensions subject to change



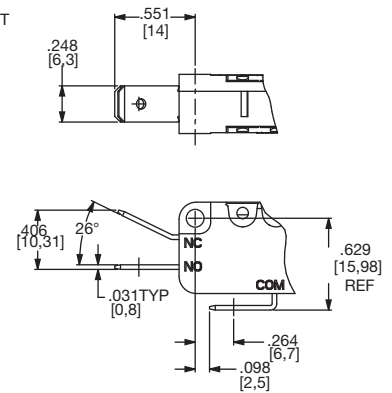
TF2 Series Miniature Snap-acting Switches

TERMINATIONS

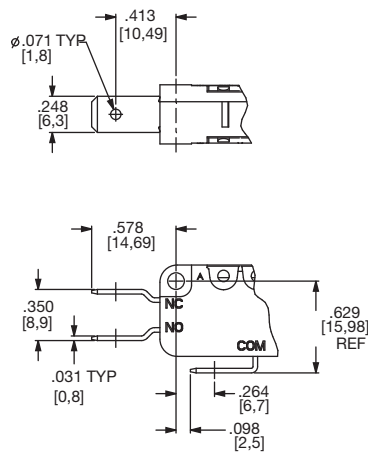
40 .187" QUICK CONNECT



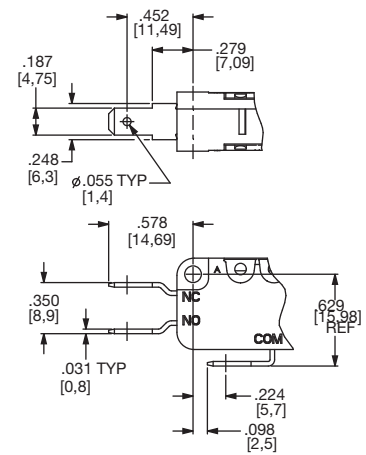
4A .250" QUICK CONNECT



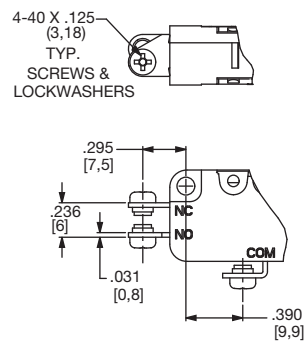
5A .250" OFF SET QUICK CONNECT



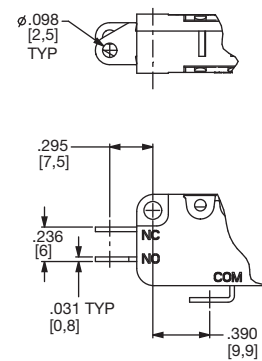
5B .187" OFF SET QUICK CONNECT



60 SCREW STYLE

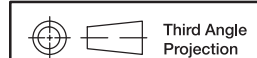


10 SOLDER



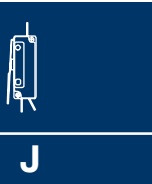
CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)



Dimensions are shown: inches (mm)
Specifications and dimensions subject to change

C&K



Snap-acting

TM Series Miniature Snap-acting Switches



Features/Benefits

- Broad range of operating forces available
- Wide variety of actuator and terminal styles
- Cost-effective solution

Typical Applications

- Pumps and motors
- White goods
- Consumer appliances



Specifications

CONTACT RATING: From low level* to 15 AMPS @ 250 V AC.
 ELECTRICAL LIFE: 150,000 cycles at 15 AMPS @ 250 V AC, models with 150 grams operating force. 350,000 cycles at 10 AMPS @ 250 V AC, models with 75 grams operating force.
 INSULATION RESISTANCE: 1,000 M ohms min.
 DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).
 OPERATING FORCE: 50, 75 and 150 grams at actuator available; refer to chart for lever style forces.
 MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

Materials

SWITCH HOUSING: Thermoplastic or general purpose phenolic (UL 94V-0).
 ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
 SPRING: Copper alloy.
 PIVOT: Brass alloy.
 MOVABLE CONTACTS: Gold alloy for ratings 1 AMP @ 125 V AC or less. Fine silver for ratings greater than 1 AMP @ 125 V AC.
 STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less. Fine silver for ratings greater than 1 AMP.
 TERMINALS: Brass alloy for ratings up to 10 AMPS @ 250 V AC. Copper alloy for 15 AMPS @ 250 V AC ratings.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



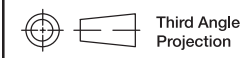
Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-26 through J-31. For additional options not shown in catalog, consult Customer Service Center. Available extended electrical life per UL 1054, rated for 100,000 operations, consult factory.

<p>Series</p> <p>TM SP, Mom.</p> <p>Operating Force</p> <p>CG 2.65 oz./75 grams</p> <p>CJ 5.29 oz./150 grams</p> <p>CF 1.76 oz./50 grams</p> <p>Electrical Rating</p> <p>D6 10 A @ 125 & 250 V AC; 1/3 HP @ 125 & 250 V AC; 1/2 A @ 125 V DC; 1/4 A @ 250 V DC</p> <p>G6 15 A @ 125 & 250 V AC; 1/4 A @ 250 V DC; 1/2 A @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 A @ 125 V AC "L"</p> <p>F5 1 A @ 125 V AC; 1 A @ 30 V DC</p> <p>H3 5 A @ 250 V AC; 1/6 HP @ 125 & 250 V AC</p>	<p>Mounting Style</p> <p>S Standard</p> <p>V Metric</p> <p>Actuator</p> <p>P00 Pin plunger</p> <p>A10 .81" lever roller, high force</p> <p>A15 1.34" lever roller, high force</p> <p>A20 1.02" lever roller, low force</p> <p>A25 1.56" lever roller, low force</p> <p>T10 .84" lever, high force</p> <p>T13 1.34" simulated roller, high force</p> <p>T14 1.29" simulated roller, high force</p> <p>T15 1.40" lever, high force</p> <p>T16 2.34" lever, high force</p> <p>T17 2.00" lever, high force</p> <p>T18 2.75" lever, high force</p> <p>T20 1.06" lever, low force</p> <p>T23 1.56" simulated roller, low force</p> <p>T24 1.50" simulated roller, low force</p> <p>T25 1.62" lever, low force</p> <p>T26 2.56" lever, low force</p> <p>T27 2.22" lever, low force</p> <p>T28 2.97" lever, low force</p>	<p>Terminations</p> <p>40 .187" quick connect</p> <p>10 Solder</p> <p>4A .250" quick connect</p> <p>60 Screw</p> <p>Circuitry</p> <p>C SPDT</p> <p>W SPST N.C.</p> <p>Y SPST N.O.</p>
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* All models



Third Angle Projection

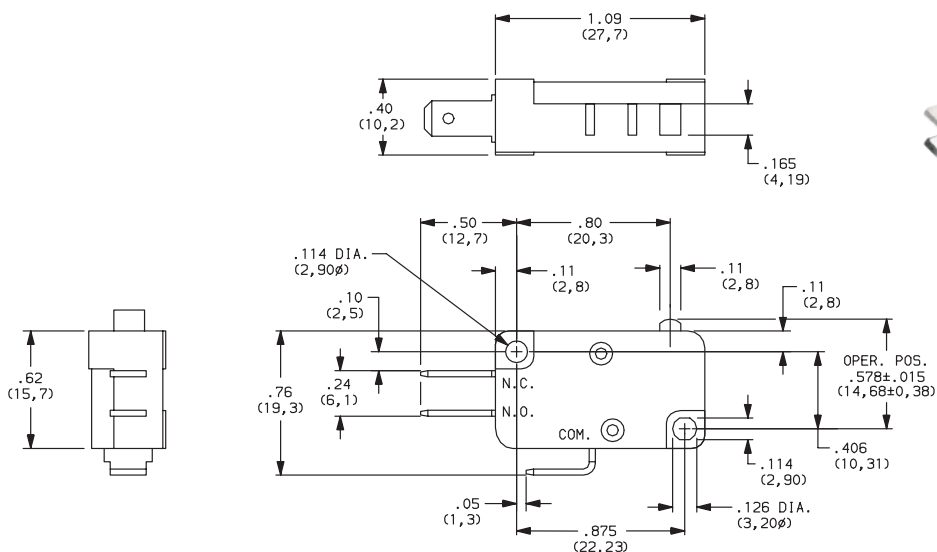
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



TM Series Miniature Snap-acting Switches

SERIES

TM MINIATURE SNAP-ACTING SWITCHES – SP MOMENTARY



OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
CG	2.65 75
CJ	5.29 150
CF	1.76 50

Operating Force option 'CF' not available with 'T18, T27 and T28' actuator options. Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL		ELECTRICAL RATING
			MOVABLE CONTACT	STATIONARY CONTACT	
D6	Yes	Yes	Fine Silver	Fine Silver	10 AMPS @ 125 & 250 V AC; 1/3 HP @ 125 & 250 V AC; 1/2 AMP @ 125 V DC; 1/4 AMP @ 250 V DC.
F5	Yes	Yes	Gold alloy	Gold alloy	From low level* to 1 AMP @ 125 V AC, 1 AMP @ 30 V DC.
G6	Yes	Yes	Fine Silver	Fine Silver	15 AMPS @ 125 & 250 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 AMPS @ 125 V AC "L".
H3	Yes	Yes			5 AMPS @ 250 V AC; 1/6 HP @ 125 & 250 V AC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

* All models us

Contact Customer Service Center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Snap-acting

TM Series Miniature Snap-acting Switches

ELECTRICAL RATING

AVAILABLE COMBINATIONS

ELECTRICAL RATING	MAXIMUM OPERATING FORCE (OZ./GRAMS)		
	1.76/50 CF	2.65/75 CG	5.29/150 CJ
D6	•	•	•
F5	•	•	•
G6	X	X	•
H3	•	•	•

• AVAILABLE
X NOT AVAILABLE



* All models US

Contact Customer Service Center for availability and delivery of nonstandard ratings.

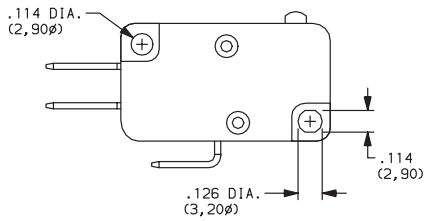
* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

MOUNTING STYLE

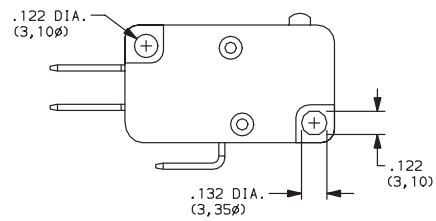
Snap-acting

S Standard

V Metric



Recommended maximum screw size: 4-40.



Recommended maximum screw size: 3 mm.

NOTE: Torque mounting screws 2-5 in/lbs.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TM Series Miniature Snap-acting Switches

ACTUATOR

OPTION CODE	FIG.	DIM. A	DIM. B	DIM. C	DIM. D
P00	2	.80 (20,3)	—	.578 ± .015 (14,68 ± 0,38)	—
A10	1	.81 (20,6)	.36 (9,1)	.810 ± .020 (20,57 ± 0,51)	.19 dia. (4,80)
A15	1	1.34 (34,0)	.36 (9,1)	.810 ± .040 (20,57 ± 1,02)	.19 dia. (4,80)
A20	1	1.03 (26,2)	.58 (14,7)	.810 ± .050 (20,57 ± 1,27)	.19 dia. (4,80)
A25	1	1.56 (39,6)	.58 (14,7)	.810 ± .080 (20,57 ± 2,03)	.19 dia. (4,80)
T10	3	.84 (21,3)	.36 (9,1)	.600 ± .020 (15,24 ± 0,51)	—
T13	4	1.34 (34,0)	.36 (9,1)	.810 ± .040 (20,57 ± 1,02)	.19 dia. (4,80)
T14	4	1.28 (32,5)	.36 (9,1)	.743 ± .050 (18,9 ± 1,3)	.236 dia. (6,00)
T15	3	1.40 (35,6)	.36 (9,1)	.600 ± .040 (15,24 ± 1,02)	—
T16	3	2.34 (59,4)	.36 (9,1)	.600 ± .062 (15,24 ± 1,57)	—
T17	3	2.00 (50,8)	.36 (9,1)	.600 ± .052 (15,24 ± 1,57)	—
T18	3	2.75 (69,9)	.36 (9,1)	.600 ± .093 (15,24 ± 2,36)	—
T20	3	1.06 (26,9)	.58 (14,7)	.600 ± .045 (15,24 ± 1,14)	—
T23	4	1.56 (39,6)	.58 (14,7)	.810 ± .065 (20,57 ± 1,65)	.19 dia. (4,80)
T24	4	1.50 (38,1)	.58 (14,7)	.743 ± .090 (18,80 ± 2,29)	.236 dia. (6,00)
T25	3	1.62 (41,1)	.58 (14,7)	.600 ± .080 (15,24 ± 2,03)	—
T26	3	2.56 (65,0)	.56 (14,7)	.600±.125 (15,24±3.18)	—
T27	3	2.22 (56,4)	.58 (14,7)	.600±.125 (15,24±3.18)	—
T28	3	2.97 (75,4)	.58 (14,7)	.600±.187 (15,24±4.75)	—

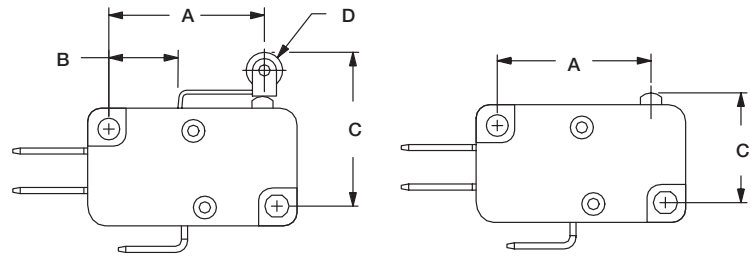


FIG. 1
Lever Roller

FIG. 2
Pin Roller

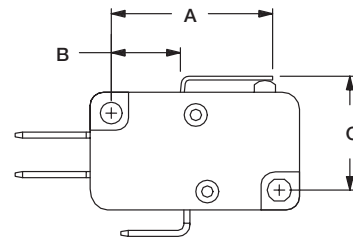


FIG. 3
Lever

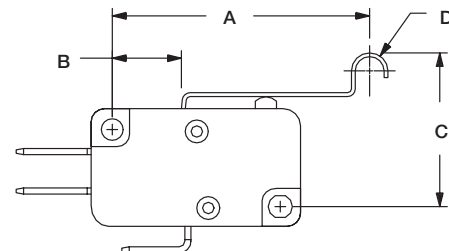
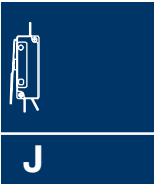
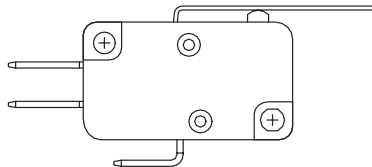


FIG. 4
Simulated Roller



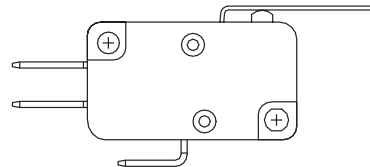
Snap-acting

HIGH FORCE, LOW MOTION PIVOT POSITION



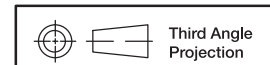
Available with actuators A10, A15, T10, T13, T14, T15, T16, T17 and T18.

LOW FORCE, HIGH MOTION PIVOT POSITION



Available with actuators A20, A25, T20, T23, T24, T25, T26, T27 and T28.

NOTE: Lever actuator options are available in either of two pivot positions.
Levers located in the forward pivot position have lower forces and higher motions.
Levers located in the rear pivot position have higher forces and lower motions.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TM Series Miniature Snap-acting Switches

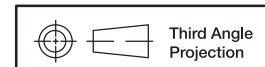
ACTUATOR 

SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)			MINIMUM RELEASE FORCE (OZ./GRAMS)			MINIMUM RETURN FORCE (OZ./GRAMS)			MAXIMUM DIFFERENTIAL TRAVEL	MAXIMUM PRETRAVEL	MINIMUM OVERTRAVEL
	CF (50)	CG (75)	CJ (150)	CF (50)	CG (75)	CJ (150)	CF (50)	CG (75)	CJ (150)	ALL FORCES	ALL FORCES	ALL FORCES
T10	2.12 60	3.17 90	6.35 180	.49 14	.99 28	1.69 48	.25 7	.53 15	1.06 30	.013 (0,33)	.080 (2,03)	.035 (0,89)
T13	1.06 30	1.59 45	2.82 80	.21 6	.35 10	.71 20	.11 3	.14 4	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
T13	1.06 30	1.76 50	3.17 90	.25 7	.35 10	.71 20	.11 3	.14 4	.35 10	.050 (1,27)	.140 (3,56)	.062 (1,57)
T15	1.06 30	1.59 45	2.28 80	.21 6	.32 9	.71 20	.11 3	.14 4	.35 10	.032 (0,81)	.160 (4,06)	.075 (1,90)
T16	.53 15	.71 20	1.41 40	.11 3	.18 5	.35 10	.05 1.5	.07 2	.18 5	.090 (2,29)	.312 (7,92)	.140 (3,56)
T17	.71 20	.88 25	1.76 50	.14 4	.21 6	.42 12	.07 2	.07 2	.21 6	.062 (1,57)	.220 (5,59)	.110 (2,79)
T18	N/A	.71 20	1.23 35	N/A	.14 4	.28 8	N/A	.04 1	.14 4	.078 (1,98)	.375 (9,52)	.160 (4,06)
T20	1.06 30	1.59 45	3.17 90	.21 6	.32 9	.71 20	.11 3	.18 5	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
T23	.53 15	1.06 30	1.59 45	.11 3	.18 5	.35 10	.04 1	.07 2	.18 5	.070 (1,78)	.312 (7,92)	.125 (3,18)
T24	.53 15	1.23 35	1.76 50	.11 3	.18 5	.35 10	.05 1.5	.07 2	.18 5	.080 (2,03)	.312 (7,92)	.110 (2,79)
T25	.71 20	1.06 30	1.41 40	.07 2	.14 4	.32 9	.04 1	.07 2	.16 4.5	.070 (1,78)	.330 (8,38)	.100 (2,54)
T26	N/A	.35 10	.71 20	N/A	.07 2	.18 5	N/A	.04 1	.07 2	.110 (2,79)	.500 (12,7)	.250 (6,35)
T27	N/A	.60 17	.88 25	N/A	.11 3	.21 6	N/A	.04 1	.11 3	.125 (3,18)	.500 (12,70)	.200 (5,08)
T28	N/A	.42 12	.63 18	N/A	.07 2	.14 4	N/A	.04 1	.07 2	.187 (4,75)	.750 (19,05)	.280 (7,11)
A10	2.12 60	3.17 90	6.35 180	.49 14	.99 28	1.69 48	.25 7	.53 15	1.06 30	.013 (0,33)	.070 (1,78)	.035 (0,89)
A15	1.06 30	1.59 45	2.82 80	.21 6	.35 10	.71 20	.11 3	.14 4	.35 10	.030 (0,76)	.160 (4,06)	.065 (1,65)
A20	1.06 30	1.76 50	3.17 90	.25 7	.35 10	.71 20	.11 3	.18 5	.35 10	.025 (0,64)	.140 (3,56)	.060 (1,52)
A25	.53 15	1.06 30	1.59 45	.11 3	.18 5	.35 10	.04 1	.07 2	.18 5	.070 (1,78)	.312 (7,92)	.125 (3,18)
P00	1.76 50	2.65 75	5.29 150	.71 20	.99 28	2.12 60	.35 10	.53 15	1.06 30	.013 (0,33)	.056 (1,42)	.035 (0,89)

Snap-acting

NOTE: For basic switch operating forces, see page J-26.

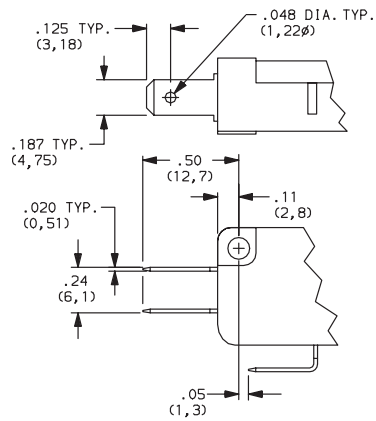


Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

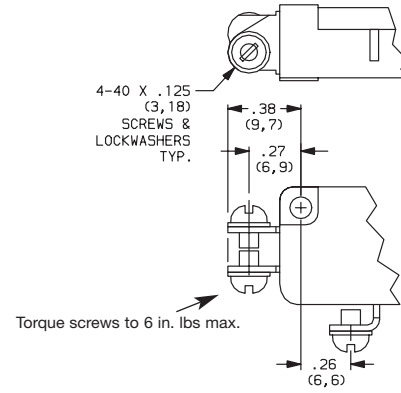
TM Series Miniature Snap-acting Switches

TERMINATIONS

40 .187" QUICK CONNECT

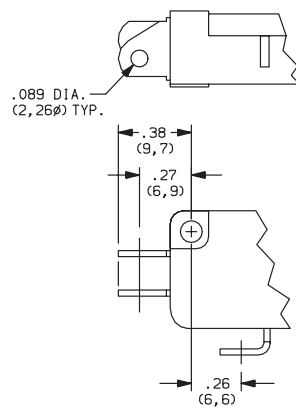


60 SCREW TERMINALS



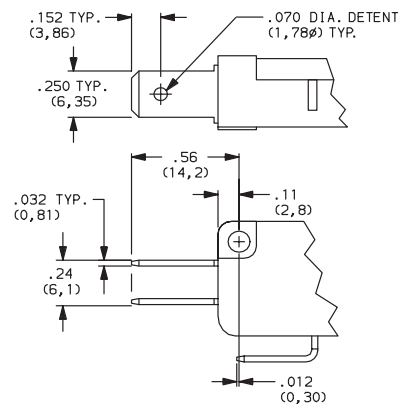
Not available with 'F5' rating option.

10 SOLDER



Not available with 'F5' rating option.

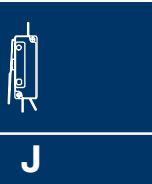
4A .250" QUICK CONNECT



Not available with 'F5' rating option.

CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)



Snap-acting



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

LC Series Subminiature Precision Snap-acting Switches



Features/Benefits

- Compact design
- Long life and high electrical capacity
- Quick connect, wire lead or PC mounting
- Wide variety of actuator styles

Typical Applications

- Motorized equipment
- Sump pump
- Thermostatic controls

UL61058-1  

Specifications

CONTACT RATING: From low level* to 10.1 AMPS @ 250 V AC.
 ELECTRICAL LIFE: 100,000 cycles
 INSULATION RESISTANCE: 1,000 M Ω min.
 DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -17°F to 185°F (-25°C to 85°C).
 OPERATING FORCE: From 142 to 170 grams at actuator button.
 Forces are less at free end of lever actuators; (see OPERATING FORCE and ACTUATOR option sections).
 MOUNTING: 2-56 screws, torque 2.3 in/lbs max.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service center.

Materials

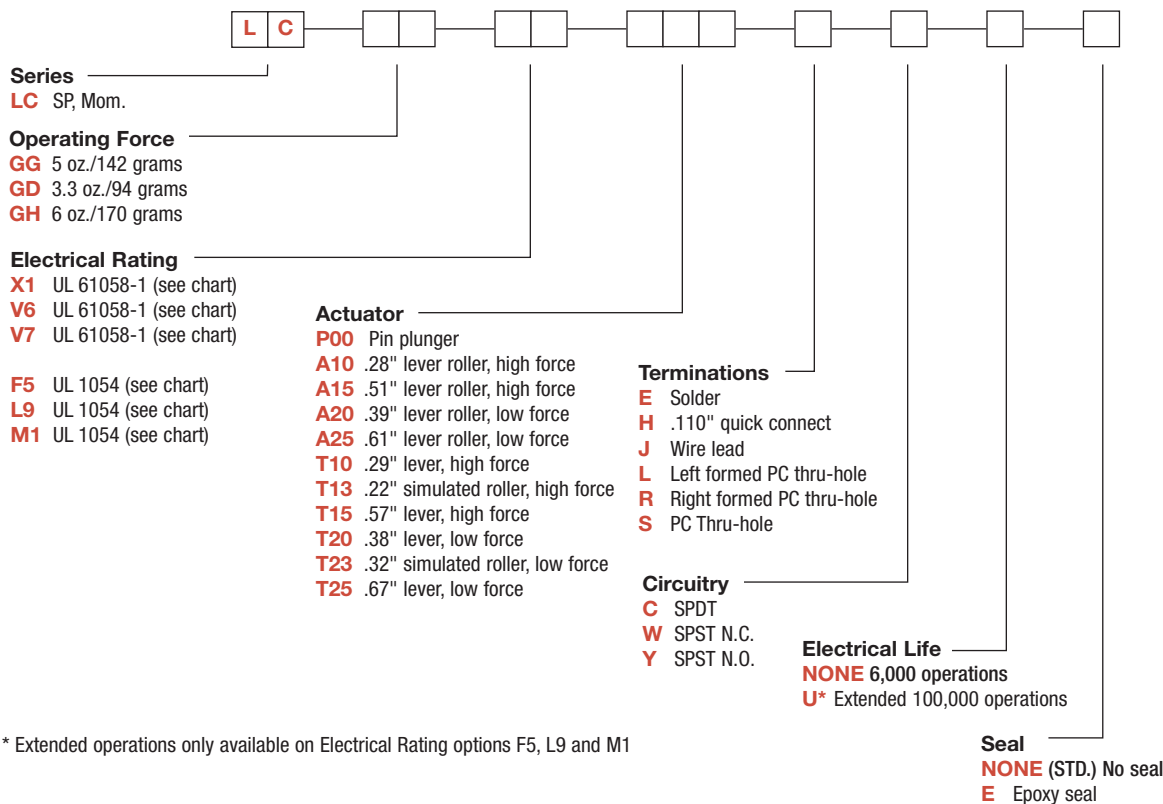
SWITCH HOUSING: Thermoplastic polyester or high temperature thermoplastic (PTS) (UL 94V-0).
 ACTUATOR BUTTON: Thermoplastic polyester (UL 94V-0).
 SPRING: Copper alloy.
 PIVOT: Copper alloy.
 MOVABLE CONTACTS: Fine silver for ratings greater than 1 AMP @ 125 V AC. Fine silver with 24K gold plate for 1 AMP @ 125 V AC or less.
 STATIONARY CONTACTS: Fine silver welded on copper alloy for ratings greater than 1 AMP @ 125 V AC. Gold alloy welded on copper alloy for ratings less than 1 AMP @ 125 V AC.
 TERMINALS: Copper alloy.
 TERMINAL SEAL: Epoxy.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-33 through J-35. For additional options not shown in catalog, consult Customer Service Center.



* Extended operations only available on Electrical Rating options F5, L9 and M1

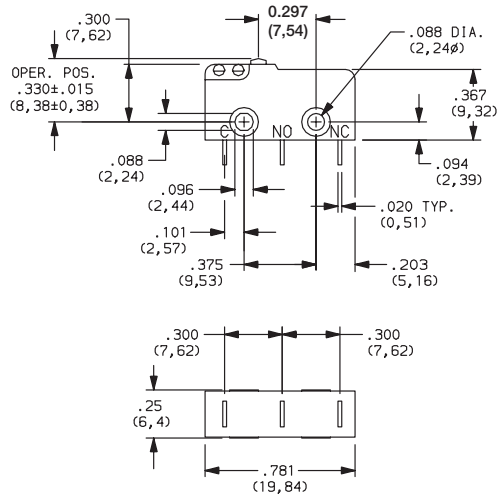


Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

LC Series Subminiature Precision Snap-acting Switches

SERIES

LC SUBMINIATURE PRECISION SNAP-ACTING SWITCHES
SP MOMENTARY



OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCES (OZ./GRAMS)
GG	5 142
GD	3.3 94
GH	6 170

NOTE: Operating force varies with actuator option, see ACTUATOR option section.

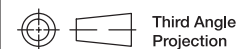
ELECTRICAL RATING

OPTION CODE	ELECTRICAL RATING	CONTACT MATERIAL		RoHS COMPLIANT*	RoHS COMPATIBLE*
		MOVABLE CONTACT	STATIONARY CONTACT		
X1	1A GP, 250 Vac, 50/60 Hz, 25E3, T85 1RA, 30 Vdc, 1E4, T85	Fine silver with 24K gold plate	Fine silver with 24K gold plate on copper base alloy	Yes	Yes
V6	5(2)A RM, 250 Vac, 50/60 Hz, 1E4, T85 5A GP, 250 Vac, 50/60 Hz, 1E4, T85 5RA, 30 Vdc, 1E4, T85 1/3 HP, 125/250 Vac, 50/60 Hz, 1E4, T85	Fine silver	Fine silver welded on copper base alloy	Yes	Yes
V7	10(2)A RM, 250 Vac, 50/60 Hz, 1E4, T85 10A GP, 250 Vac, 50/60 Hz, 1E4, T85 10RA, 30 Vdc, 1E4, T85 1/3 HP, 125/250 Vac, 50/60 Hz, 1E4, T85	Fine silver	Fine silver welded on copper base alloy	Yes	Yes

OPTION CODE	ELECTRICAL RATING	CONTACT MATERIAL		RoHS COMPLIANT*	RoHS COMPATIBLE*
		MOVABLE CONTACT	STATIONARY CONTACT		
F5	1A, 125 V AC, 30 VDC 100,000 cycles ("U" option)	Fine silver with 24K gold plate	Fine silver with 24K gold plate on copper base alloy	Yes	Yes
L9	5A, 1/3 HP @ 125 and 250 V AC 100,000 cycles ("U" option)	Fine silver	Fine silver welded on copper base alloy	Yes	Yes
M1	10.1A, 1/3 HP @ 125 and 250 V AC 100,000 cycles ("U" option)	Fine silver	Fine silver welded on copper base alloy	Yes	Yes



* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.
Consult Customer Service Center for availability and delivery of nonstandard ratings.
*Low Level = conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

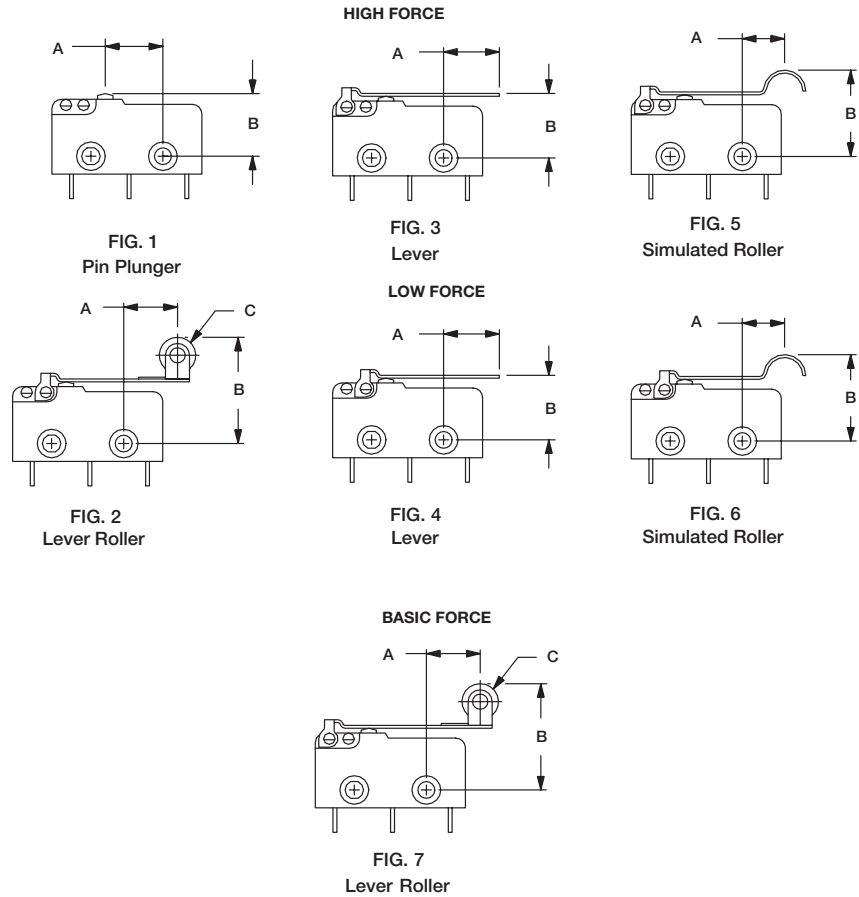


Snap-acting

LC Series Subminiature Precision Snap-acting Switches

ACTUATOR

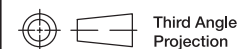
OPTION CODE	FIG.	DIM. A	DIM. B	DIM. C
P00	1	0.297 (7,6)	.330 ± .015 (8,38 ± 0,38)	—
A10	7	0.28 (7,1)	.570 ± .070 (14,48 ± 1,78)	.19 dia. (4,80)
A25	2	0.61 (15,5)	.570 ± .175 (14,22 ± 4,45)	.19 dia. (4,80)
T10	3	0.29 (7,4)	.340 ± .070 (8,64 ± 1,78)	—
T13	5	0.220 (5,3)	.455 ± .065 (11,56 ± 1,65)	—
T20	4	0.39 (9,9)	.340 ± .140 (8,64 ± 3,56)	—
T23	6	0.32 (8,1)	.455 ± .125 (11,56 ± 3,18)	—
T25	4	0.67 (17,0)	.340 ± .091 (8,64 ± 4,70)	—
A15	7	0.51 (13,0)	.560 ± .090 (14,22 ± 2,29)	.19 dia. (4,80)
A20	2	0.38 (9,7)	.560 ± .135 (14,22 ± 2,29)	.19 dia. (4,80)
T15	3	0.57 (14,51)	.340 ± .100 (8,64 ± 2,54)	—



SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)			MINIMUM RELEASE FORCE (OZ./GRAMS)			MAXIMUM DIFFERENTIAL TRAVEL	MAXIMUM PRETRAVEL	MINIMUM OVERTRAVEL
	GG	GD	GH	GG	GD	GH	ALL FORCES	ALL FORCES	ALL FORCES
A10	1.69 48	1 28	2.0 57	.21 6	.11 3	.42 12	.034 (0,86)	.140 (3,56)	.029 (0,74)
A15	1.3 37	.68 19	1.6 44	.16 4.5	.07 2	.32 9	.044 (1,12)	.180 (4,57)	.037 (0,94)
A20	0.9 26	.52 15	1.1 31	.11 3	.05 15	.21 6	.067 (1,70)	.272 (6,91)	.053 (1,53)
A25	.70 20	.42 12	.85 24	.07 2	.04 1	.16 4.5	.086 (2,18)	.351 (8,92)	.068 (1,73)
P00	5 142	3.3 95	6 170	1 28	.05 14	2.0 57	.004 (0,10)	.030 (0,76)	.010 (0,25)
T10	1.7 48	1 28	2.1 60	.21 6	.10 3	.39 11	.035 (0,90)	.140 (3,56)	.029 (0,74)
T13	1.8 52	1.2 34	2.2 62	.21 6	.03 1	.42 12	.032 (0,81)	.130 (3,30)	.026 (0,66)
T20	0.9 26	.52 15	1.1 30	.10 3	.03 1	.21 6	.067 (1,70)	.276 (7,01)	.053 (1,35)
T23	1.0 28	.52 15	1.2 34	.10 3	.03 1	.21 6	.062 (1,57)	.252 (6,40)	.049 (1,24)
T25	0.7 19	.05 14	0.8 24	.07 2	.03 1	.14 4	.090 (2,29)	.372 (9,45)	.072 (1,83)
T15	1.2 35	1.3 39	1.5 42	0.14 4	.21 6	.28 81	.047 (1,19)	.190 (4,83)	.040 (1,02)

NOTE: For basic switch operating forces, see page J-32.



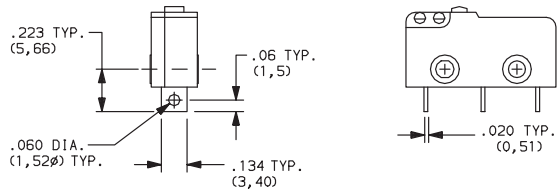
Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K

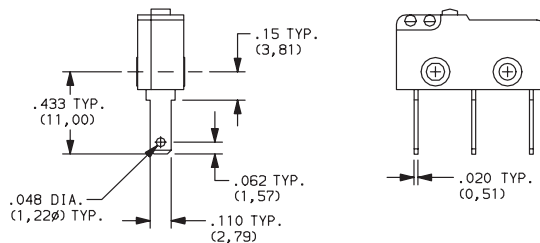
LC Series Subminiature Precision Snap-acting Switches

TERMINATIONS

E SOLDER

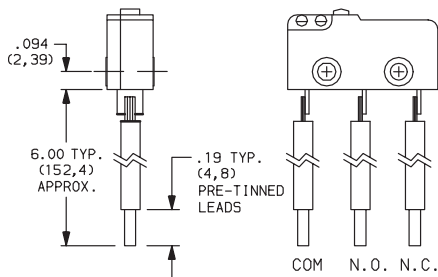


H .110" QUICK CONNECT



NOTE: Use Amp Quick Connect Part No. 640932-1.

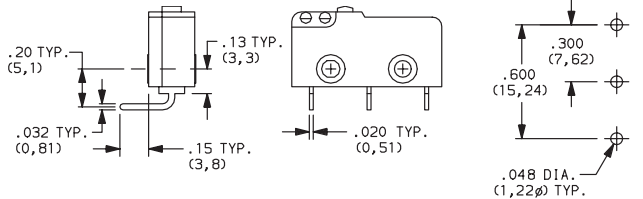
J WIRE LEAD



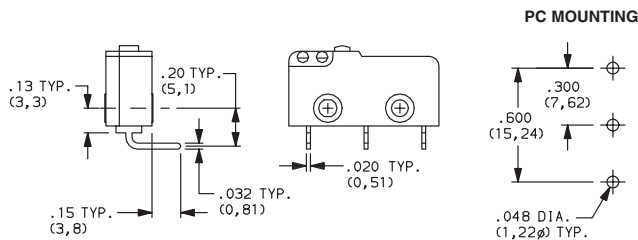
RATING	WIRE SIZE
1 AMP	22 AWG
5 AMPS	20 AWG
10.1 AMPS	18 AWG

TERMINAL	WIRE COLOR
COMMON	BLACK
NORMALLY OPEN	WHITE
NORMALLY CLOSED	RED

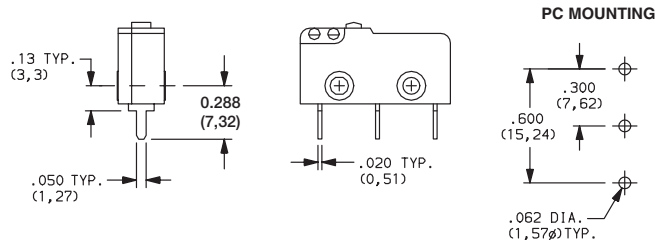
L LEFT FORMED PC THRU-HOLE



R RIGHT FORMED PC THRU-HOLE



S PC THRU-HOLE



CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST N.C. (Single Pole, Single Throw, Normally Closed)

Y SPST N.O. (Single Pole, Single Throw, Normally Open)

ELECTRICAL LIFE

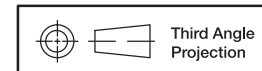
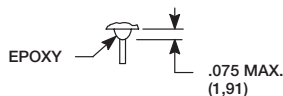
NONE 6,000 OPERATIONS

U EXTENDED 100,000 OPERATIONS

SEAL

NONE NO SEAL

E EPOXY SEAL



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



Snap-acting

LCA Series Subminiature Snap-acting Switches



Features/Benefits

- Compact design
- Long life and high electrical capacity
- Quick connect, solder terminals, PC terminals
- Wide variety of actuator styles
- RoHS compatible

Typical Applications

- Motorized equipment
- Sump pump
- Thermostatic controls

UL61058-1  

Specifications

CONTACT RATING: From low level to 10.1 AMPS @ 125/250 V AC
 ELECTRICAL LIFE: see chart below
 MECHANICAL LIFE: 300,000 cycles.
 INSULATION RESISTANCE: 100 M ohm min.
 DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -40°C to +125°C
 OPERATING FORCE: 150 grams at actuator button MAX.
 Forces are less at free end of lever actuators; (see ACTUATOR'S option sections).
 MOUNTING: 2-56 screws, torque 2.3 in/lbs max.

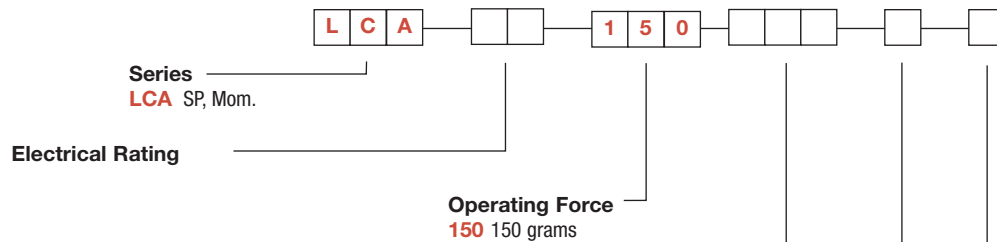
Materials


SWITCH HOUSING: Thermoplastic polyester
 ACTUATOR BUTTON: Thermoplastic polyester.
 SPRING: Copper alloy.
 PIVOT: Copper alloy.
 MOVABLE CONTACTS: Silver alloy
 STATIONARY CONTACTS: Silver alloy
 TERMINALS: Copper alloy.
 ACTUATOR LEVER: Stainless steel.

NOTE: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-36 thru J-39. For additional options not shown in catalog, consult Customer Service Center.



Option Code	UL 1054	UL 61058-1	
01	0.1 A 125/250 V AC 1E4	0.1 A 125/250 V AC 1E4	0.1 A 125/250 V AC 1E4
06	6 A 125/250 V AC 1E4	6 A 125/250 V AC 1E4	6 (2)A 125/250 V AC 1E4
10	10.1 A 125/250 V AC 1E4	10.1 A 125/250 V AC 1E4	10.1 A 125/250 V AC 1E4
S5	NA	5 A 125/250 V AC 1E5	NA

Actuator

- P00 Pin plunger
- T05 4.8 mm short lever
- T06 6.8 mm lever
- T09 8.8 mm lever
- T12 12.9 mm lever
- T16 15.2 mm lever
- T18 18.1 mm lever
- T21 20.1 mm lever
- T23 23.4 mm lever
- T43 43.5 mm lever
- S06 6.0 mm simulated lever
- S09 9.2 mm simulated lever
- A05 5.0 mm lever roller

Terminations

- S Solder
- Q .110 Quick Connect
- P PC Thru Hole
- L Left Form PC
- R Right Form PC

Circuitry

- C SPDT
- W SPST N.C.
- Y SPST N.O.

Snap-acting

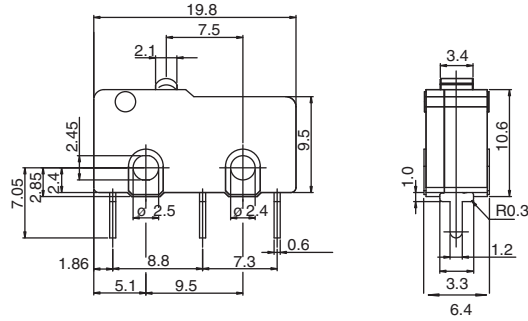


Dimensions are shown: mm
 Specifications and dimensions subject to change

LCA Series Subminiature Snap-acting Switches

SERIES 

LCA



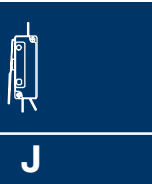
ELECTRICAL RATING 

RoHS COMPLIANT *	RoHS COMPATIBLE *	OPTION CODE	ELECTRICAL RATING
YES	YES	01	0.1A, 125/250 VAC
YES	YES	06	6A, 125/250 VAC
YES	YES	10	10.1A, 125/250 VAC
YES	YES	S5	5A, 125/250 VAC

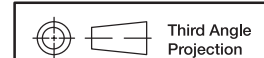
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

OPERATING FORCE 

OPTION CODE	OPERATING FORCES (grams)
150	150 grams max.



Snap-acting



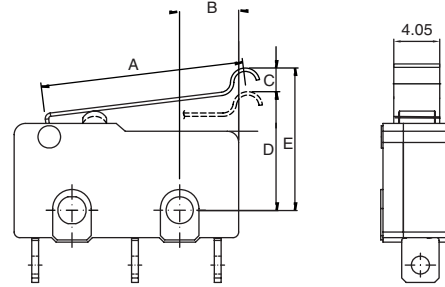
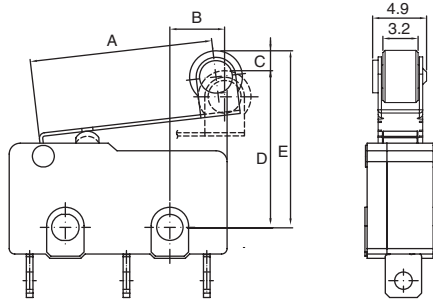
Dimensions are shown: mm
Specifications and dimensions subject to change

LCA Series Subminiature Snap-acting Switches

ACTUATOR

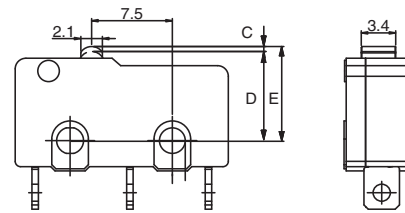
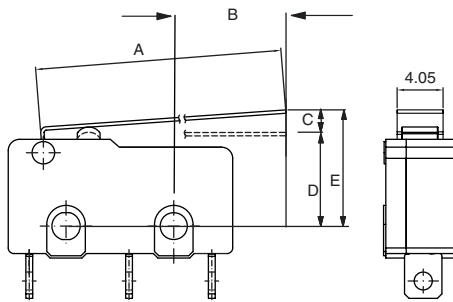
A05 LEVER ROLLER

SXX SIMULATED ROLLER



TXX LEVER

P00



ACTUATOR OPTION CODE	A mm	B r mm	eC mm	D mm	E mm	Diff. Motion mm max	Oper. Force max. grams	Release Force min. grams	Over Travel min.
	LENGTH OF LEVER	Lever length for front mtg. hole to OP	PRE TRAVEL (MAX)	OPERATING POSITION	FREE POSITION (MAX)				
P00	NA	NA	1.10	8.55 ± 0.3	9.35	0.20	150	25	0.4
T05	16.70	4.80	3.60	8.95 ± 0.8	11.75	0.80	50	6	0.6
T06	18.70	6.80	4.03	8.9 ± 0.9	12.09	0.90	45	5	0.67
T09	20.60	9.10	5.64	9.15 ± 1.35	13.45	1.83	33	2	0.75
T12	24.80	12.90	3.35	8.95 ± 1.5	13.10	1.19	34	2	0.89
T16	27.10	15.20	7.20	9.15 ± 1.7	15.15	1.30	40	1	0.70
T18	30.00	18.10	7.70	8.95 ± 1.9	14.65	1.50	32	1	1.2
T21	32.00	20.10	8.00	8.15 ± 1.85	15.55	1.60	35	1	1.0
T23	35.20	23.40	8.60	8.95 ± 2.0	15.55	1.80	25	1	1.5
T43	55.20	43.50	10.45	8.95 ± 3.0	19.25	2.90	15	1	1.0
S06	17.90	6.00	3.86	10.85 ± 0.9	17.81	0.86	47	5	0.64
S09	21.10	9.20	5.7	16.15 ± 1.5	20.35	1.00	42	2	1.0
A05	16.60	5.00	3.8	14.65 ± 0.8	17.65	0.80	50	6	0.6



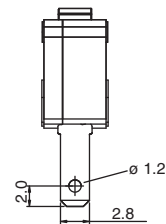
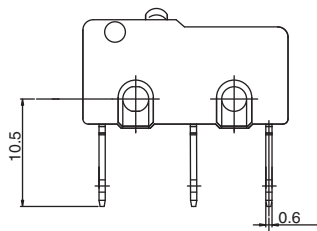
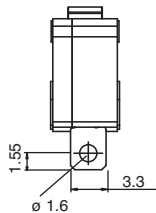
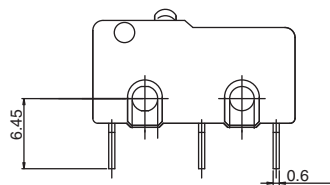
Dimensions are shown: mm
Specifications and dimensions subject to change

LCA Series Subminiature Snap-acting Switches

TERMINATIONS

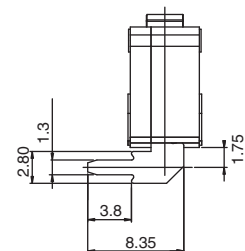
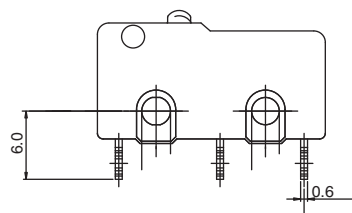
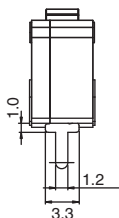
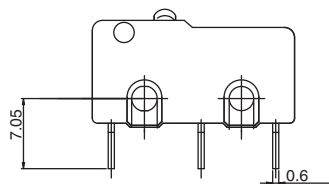
S SOLDER

Q QUICK CONNECT

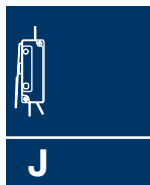
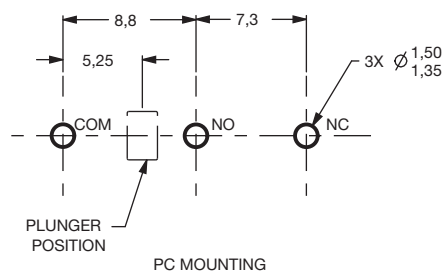
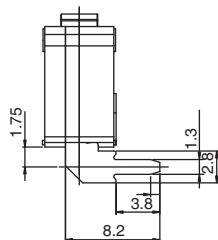
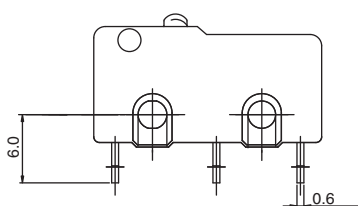


P PC THRU HOLE

L LEFT FORM PC



R RIGHT FORM PC



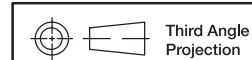
Snap-acting

CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST N.C. (Single Pole, Single Throw, Normally Closed)

Y SPST N.O. (Single Pole, Single Throw, Normally Open)



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

LCS Series Subminiature Sealed Snap-acting Switches



UL61058-1  

Features/Benefits

- Compact design
- Long life and high electrical capacity
- Quick connect, solder terminals, PC terminals, wire leads
- Wide variety of actuator styles
- RoHS compatible, RoHS compliant
- IP67

Typical Applications

- Motorized equipment
- Sump pump
- Thermostatic controls
- Computers
- Air conditioners

Specifications

CONTACT RATING: from low level to 5 Amp
 ELECTRICAL LIFE: 10,000 cycles
 INSULATION RESISTANCE: 100 M ohm min.
 DIELECTRIC STRENGTH: 1,000 VAC
 OPERATING TEMPERATURE:
 -40°C to +120°C (without wire)
 -40°C to +85°C (with UL1007 wire)
 -40°C to +105°C (with UL1015 wire)
 -40°C to +105°C (with UL1430 wire)
 -40°C to +80°C (with UL1061 wire)
 -40°C to +120°C (with UL1330 wire)
 OPERATING FORCE: (see ACTUATOR'S option sections).
 MOUNTING: 2-56 screws, torque 2.3 in/lbs max.

Materials


SWITCH HOUSING: Thermoplastic polyester or high temperature thermoplastic (PTS) (UL 94V-0).
 ACTUATOR BUTTON: Thermoplastic polyester.
 SPRING: Copper alloy.
 PIVOT: Copper alloy.
 MOVABLE CONTACTS: Option "01" Gold plating over silver alloy
 Option "05" Silver alloy
 STATIONARY CONTACTS: Option "01" Gold plating over silver alloy
 Option "05" Silver alloy
 TERMINALS: Copper alloy.
 ACTUATOR LEVEL: Stainless steel.

NOTE: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service center.

Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-40 thru J-43. For additional options not shown in catalog, consult Customer Service Center.

<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Series</div> <div style="border: 1px solid black; padding: 2px;">L</div> <div style="border: 1px solid black; padding: 2px;">C</div> <div style="border: 1px solid black; padding: 2px;">S</div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 15px; margin-left: 5px;"></div> </div>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Electrical Rating</div> <div style="border: 1px solid black; padding: 2px;">2</div> </div>		
Option Code	UL 61058-1	
01	0.1 A 125/250 V AC	NA
05	5 A 125/250 V AC	6 A 250 V AC

Operating Force
 2 203 grams

Actuator
 P00 Pin plunger
 T00 11.9 mm short lever
 T05 17.4 mm short lever
 T07 19.4 mm short lever
 T13 25.5 mm lever
 T19 33.3 mm lever
 T28 40.7 mm lever
 T43 55.9 mm lever
 S26 18.6 mm simulated lever
 A05 17.2 mm lever roller

Terminations
 S Solder
 Q 0.110 Quick Connect
 P PC Thru Hole
 W Wire leads potted
 Z Wire leads non-potted

Wire Type AWG
 20 20 AWG
 22 22 AWG
 24 24 AWG
 26 26 AWG

Wire UL # (when required)
 A UL1007
 B UL1015
 C UL1430
 D UL1061

Circuitry
 C SPDT
 W SPST N.C.
 Y SPST N.O.

Wire Side (when required)
 A Wire out the bottom
 B Wire out the right side
 C Wire out the left side
 D None

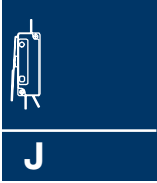
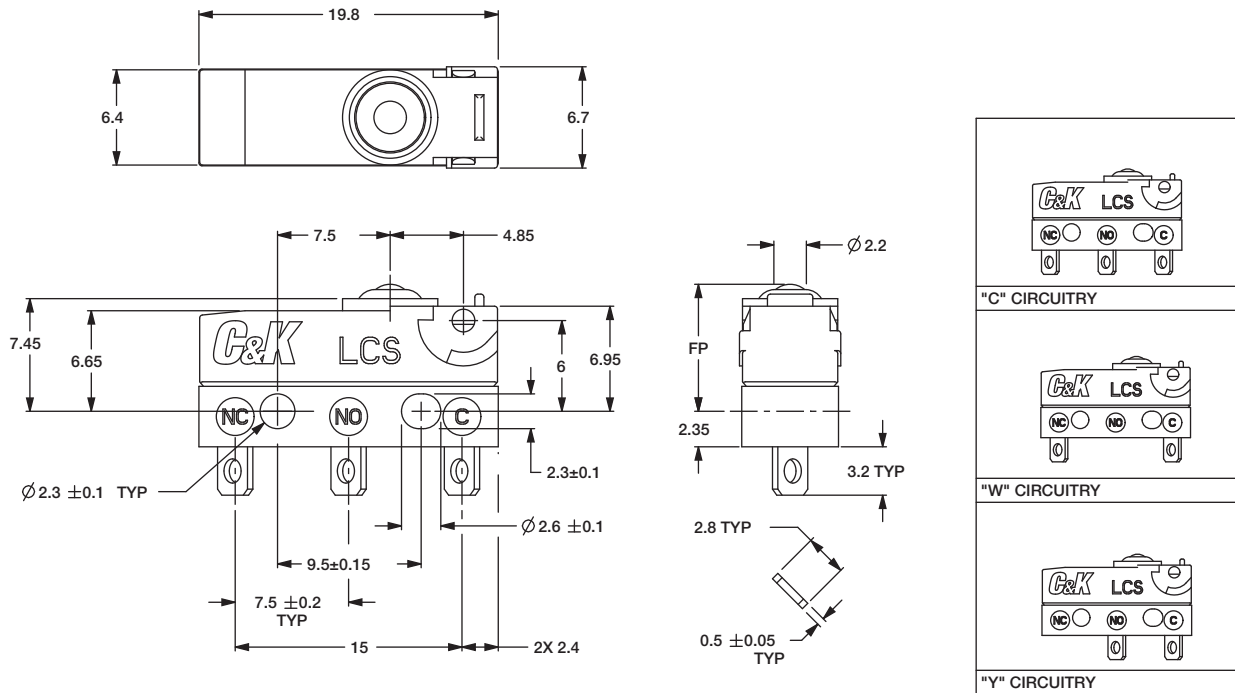


Dimensions are shown: mm
 Specifications and dimensions subject to change

LCS Series Subminiature Sealed Snap-acting Switches

SERIES

LCS



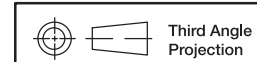
Snap-acting

ELECTRICAL RATING

RoHS COMPLIANT *	RoHS COMPATIBLE *	OPTION CODE	ELECTRICAL RATING
YES	YES	05	5 AMP, 125/250 V AC
YES	YES	01	0.1 AMP, 125/250 V AC

OPERATING FORCE

OPTION CODE	OPERATING FORCES (grams)
2	203 g. max.

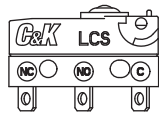


Third Angle Projection
Dimensions are shown: mm
Specifications and dimensions subject to change

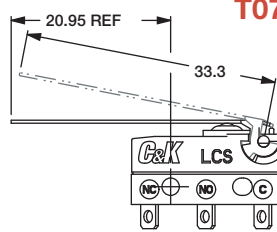
LCS Series Subminiature Sealed Snap-acting Switches

ACTUATOR 

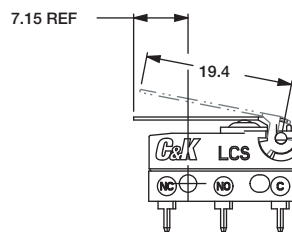
P00



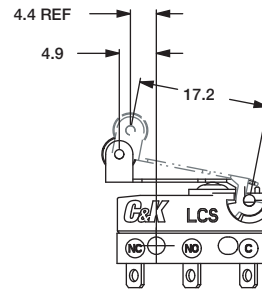
T19



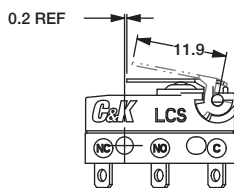
T07



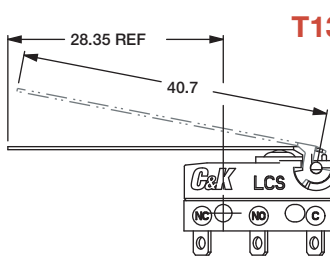
A05



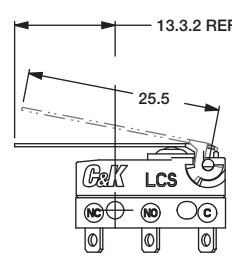
T00



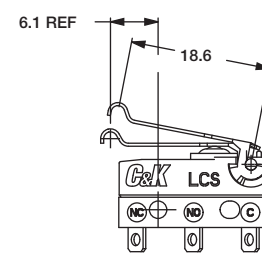
T28



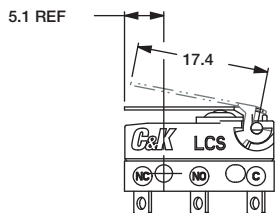
T13



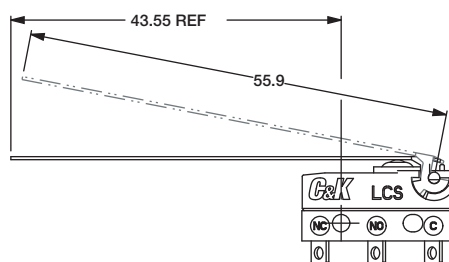
S26



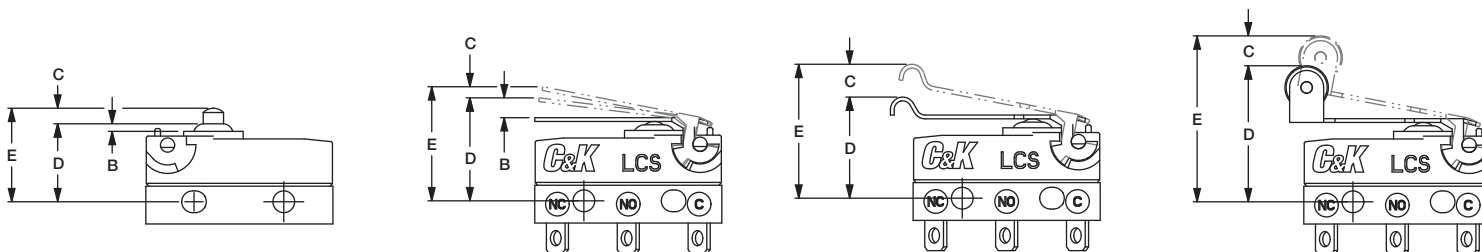
T05



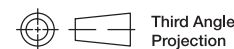
T43



Snap-acting



ACTUATOR OPTION CODE	A	B	C	D	E	DIFFERENTIAL MOTION (MAX)	OPERATING FORCE (MAX)	RELEASE FORCE (MIN)
	LENGTH OF LEVER	OVER TRAVEL (MIN)	PRE TRAVEL (MAX)	OPERATING POSITION	FREE POSITION (MAX)	203	203	203
P00	N/A	0.6	1.2	8.4 ± 0.3	9.9	0.2	203	50
T00	11.9	0.6	3.2	8.8 ± 0.9	11.1	0.5	98	21
T05	17.40	0.9	4.3	8.8 ± 1.1	12	0.6	82	16
T07	19.40	1	4.8	8.8 ± 1.2	12.4	0.7	66	13
T13	25.5	1.6	6.3	8.8 ± 1.6	13.5	0.9	54	11
T19	33.3	1.95	8	8.8 ± 2.0	15	1.75	40	5
T28	40.7	2.1	10.1	8.8 ± 2.6	16.3	2.3	39	8
T43	55.9	2.9	13.8	8.8 ± 3.5	19.1	3.6	33	7
S26	18.6	1	4.6	10.7 ± 1.2	14.1	0.65	68	14
A05	17.20	0.9	4.3	14.5 ± 1.1	17.7	0.6	72	15



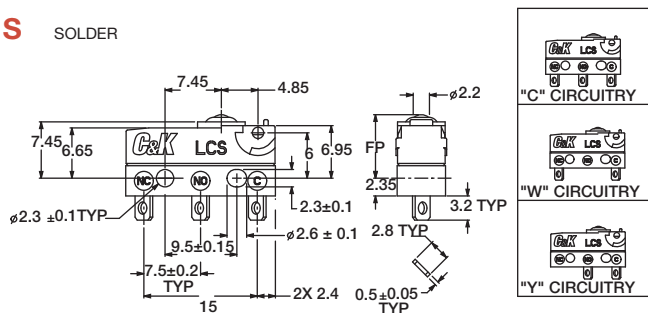
Third Angle
Projection
Dimensions are shown: mm
Specifications and dimensions subject to change



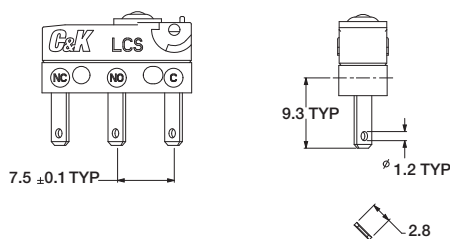
LCS Series Subminiature Sealed Snap-acting Switches

TERMINATIONS

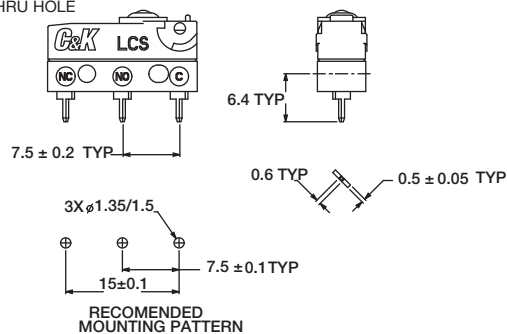
S SOLDER



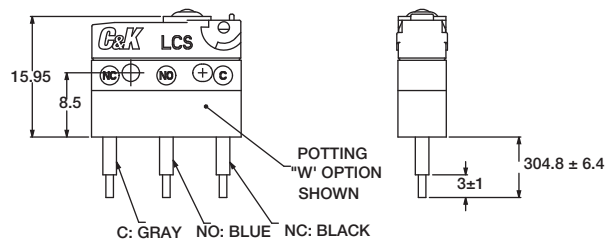
Q QUICK CONNECT 2.8mm / 0.110"



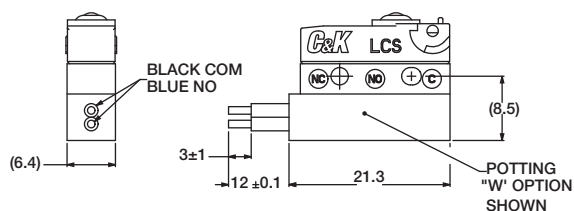
P PC THRU HOLE



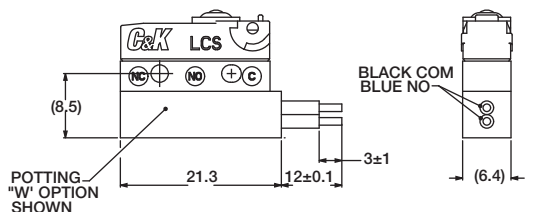
Z or W "A" WIRE ORIENTATION



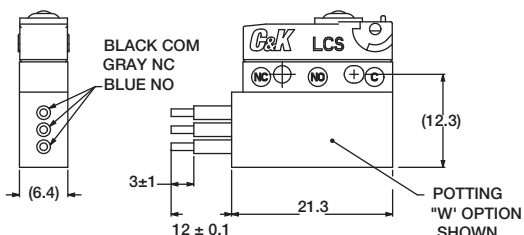
Z or W "B" WIRE ORIENTATION
"Y" OR "W" CIRCUITRY



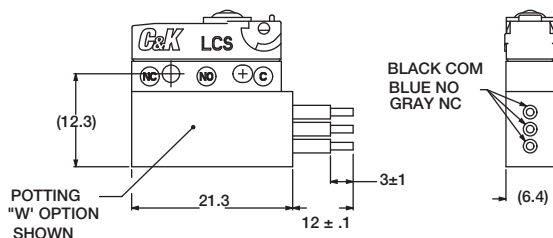
Z or W "C" WIRE ORIENTATION
"Y" OR "W" CIRCUITRY



Z or W "B" WIRE ORIENTATION
"C" CIRCUITRY

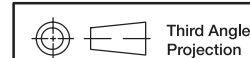


Z or W "C" WIRE ORIENTATION
"C" CIRCUITRY



CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



Snap-acting

MM Series Subminiature Precision Snap-acting Switches



Features/Benefits

- Low level and power switching
- Long electrical and mechanical life
- Increased overtravel
- Reliable snap-acting mechanism

Typical Applications

- Limited space constraints
- Communication devices

Specifications

CONTACT RATING: From low level* to 7 AMPS @ 250 V AC.
 ELECTRICAL LIFE: 100,000 cycles at full rated load.
 INSULATION RESISTANCE: 1,000 ohm min.
 DIELECTRIC STRENGTH: 1,000 V RMS min. @ sea level.
 OPERATING TEMPERATURE: -67 F to 275 F (-55 C to 135 C).
 OPERATING FORCE: 5 oz. (142 grams) max. at actuator button.
 MOUNTING: 2-56 screws, torque 2 in/lbs max.

*Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service center.

Materials

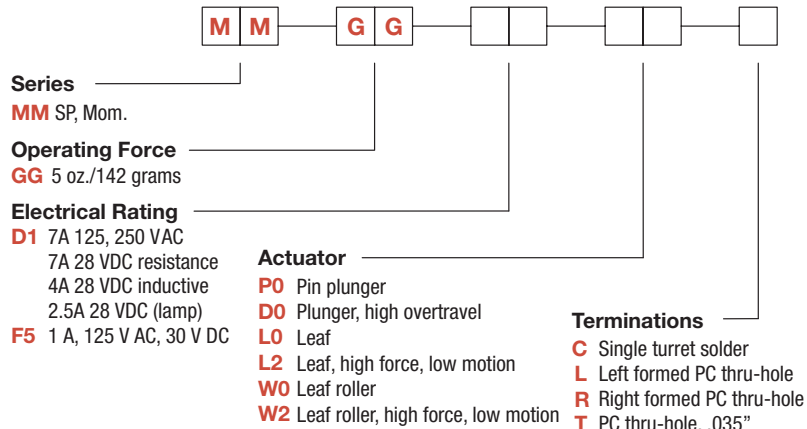
SWITCH HOUSING: Heat resistant phenolic (UL 94V-0).
 ACTUATOR BUTTON: Heat resistant phenolic (UL 94V-0).
 SPRING: Beryllium copper CDA alloy C17200.
 PIVOT: Brass CDA alloy 260.
 MOVABLE CONTACTS: Fine silver for ratings greater than 1 AMP @ 125 V AC. 24K gold for 1 AMP @ 125 V AC or less.
 STATIONARY CONTACTS: Fine silver inlay on copper CDA alloy C10200 for ratings greater than 1 AMP @ 125 V AC. 24K gold on copper CDA alloy C10200 for 1 AMP @ 125 V AC or less.
 TERMINALS: Copper CDA alloy C18700.



Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-44 through J-49. For additional options not shown in catalog, consult Customer Service Center.

Snap-acting



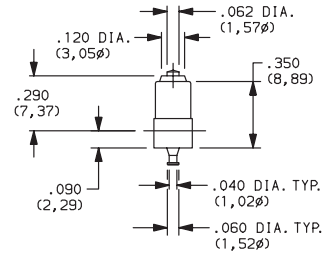
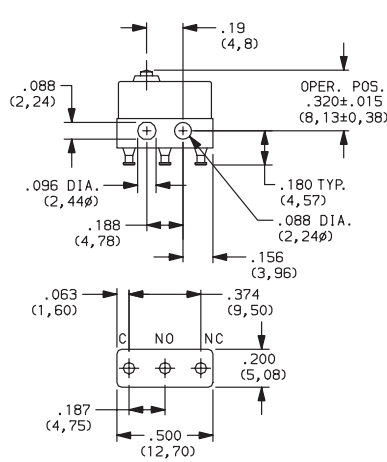
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

MM Series Subminiature Precision Snap-acting Switches

SWITCH WITH STANDARD OPTIONS



MMGGD1P0C



PART NUMBER	BASIC OPERATING FORCE (OZ./GRAMS)	ELECTRICAL RATING
MMGGD1P0C	5 142	7 AMPS @ 250 V AC.

SERIES ■ ■ ■ ■ ■ ■ ■ ■

MM SPDT MOMENTARY

OPERATING FORCE ■ ■ ■ ■ ■ ■ ■ ■

OPTION CODE	BASIC SWITCH OPERATING FORCE
GG	5 oz. (142 grams) maximum for basic switch with pin plunger actuator ('PO' actuator option).

NOTE: Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING ■ ■ ■ ■ ■ ■ ■ ■

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL		ELECTRICAL RATING
			MOVABLE CONTACT	STATIONARY CONTACT	
D1	Yes	Yes	Fine silver.	Fine silver inlay on copper alloy.	7A 125, 250 VAC; 7A 28 VDC resistance 4A 28 VDC inductive; 2.5A 28 VDC (lamp)
F5	Yes	Yes	24K Gold.	24K Gold on copper alloy.	From low level* to 1 AMP @ 125 V AC, 30 V DC.

Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

All models with all options.

Consult Customer Service Center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

ACTUATOR ■ ■ ■ ■ ■ ■ ■ ■

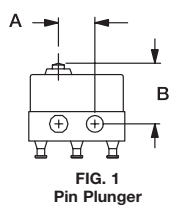


FIG. 1
Pin Plunger

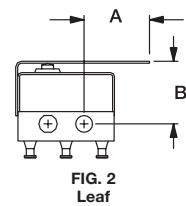


FIG. 2
Leaf

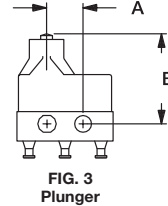


FIG. 3
Plunger

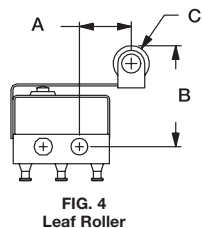


FIG. 4
Leaf Roller

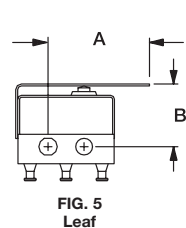


FIG. 5
Leaf

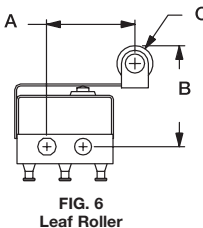


FIG. 6
Leaf Roller

OPTION CODE	FIG.	DIM. A	DIM. B	DIM. C
P0	1	.19 (4,8)	.320 ± .015 (8,13 ± 0,38)	—
D0	3	.19 (4,8)	.475 ± .031 (12,07 ± 0,79)	—
L0	2	.34 (8,6)	.330 ± .015 (8,38 ± 0,38)	—
L2	5	.53 (13,5)	.330 ± .015 (8,38 ± 0,38)	—
W0	4	.27 (6,9)	.532 ± .025 (13,51 ± 0,64)	.188 dia. (4,780)
W2	6	.46 (11,7)	.532 ± .025 (13,51 ± 0,64)	.188 dia. (4,780)



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



MM Series Subminiature Precision Snap-acting Switches

ACTUATOR

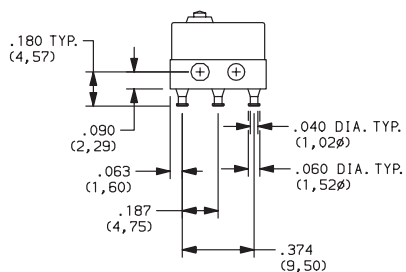
SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)	MINIMUM RELEASE FORCE (OZ./GRAMS)	MAXIMUM DIFFERENTIAL TRAVEL	MAXIMUM PRETRAVEL	MINIMUM OVERTRAVEL
D0	5 142	.7 20	.004 (0,10)	.030 (0,76)	.040 (1,02)
L0	4 115	.7 20	.025 (0,64)	.090 (2,29)	.045 (1,14)
L2	6 170	.7 20	.012 (0,30)	.075 (1,90)	.015 (0,38)
P0	5 142	1 28	.002 (0,05)	.020 (0,51)	.004 (0,10)
W0	4 115	.7 20	.025 (0,64)	.090 (2,29)	.045 (1,14)
W2	6 170	.7 20	.012 (0,30)	.075 (1,90)	.015 (0,38)

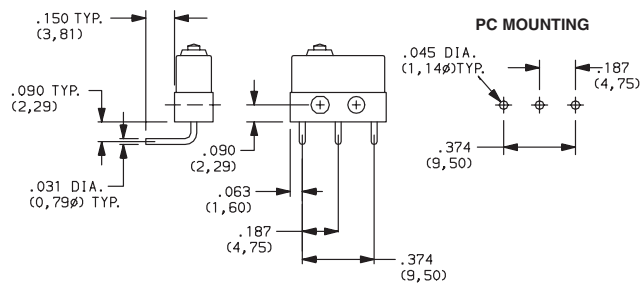
NOTE: For basic switch operating forces, see page J-44

TERMINATIONS

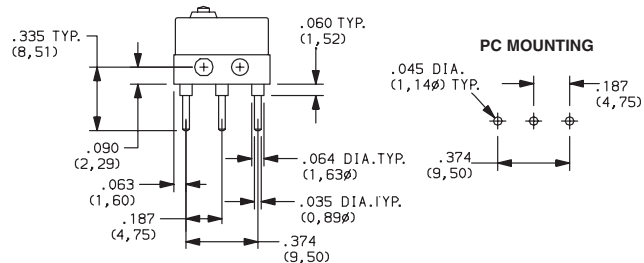
C SINGLE TURRET SOLDER



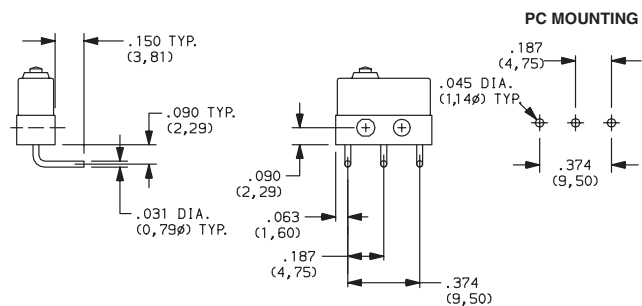
L LEFT FORMED PC THRU-HOLE



T PC THRU-HOLE, .035"



R RIGHT FORMED PC THRU-HOLE



Snap-acting



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

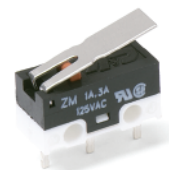
ZM Series Subminiature Snap-acting Switches

Features/Benefits

- **Reliable snap-acting mechanism**
- **Long electrical and mechanical life**
- **Compact size—Ideal when space is limited**
- **Various PCB terminals and actuators**
- **RoHS compliant / compatible**

Typical Applications

- **PCB detection switch**
- **Communication devices**
- **Testing equipment**
- **Security/Alarm systems**
- **Consumer electronics**



UL61058-1  

Specifications

CONTACT RATING: F7: 3A @ 125 VAC
M9: 0.2A @ 60 VDC.
ELECTRICAL LIFE: 10,000 Cycles. @ 3A
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: 1000 Vrms.
OPERATING TEMPERATURE: -30°C to 85°C.
OPERATING FORCE: CJ: 150 grams, CH: 90 grams.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

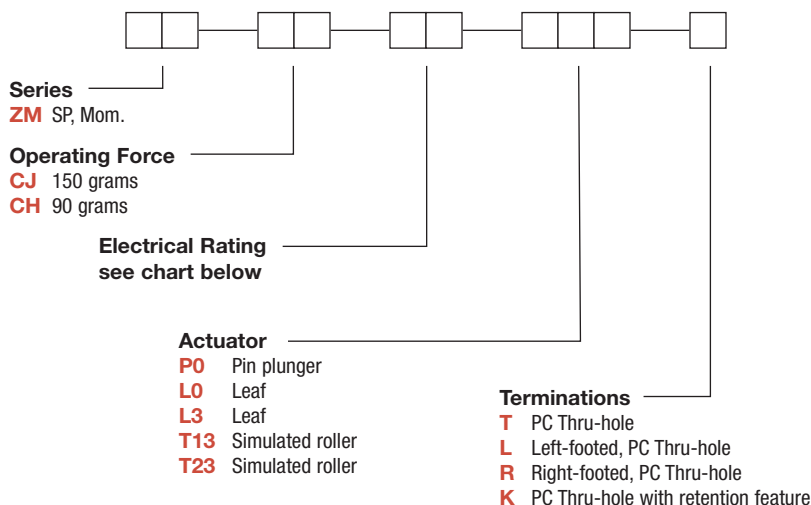
Materials




COVER: Nylon 6/6
ACTUATOR BUTTON: Nylon 6/6
CASE: Nylon 6/6
SPRING: SUS
MOVABLE BLADE: BeCu
MOVABLE CONTACT: Silver alloy (M9 option gold plated)
FIXED CONTACTS: Silver alloy (M9 option gold plated)
FIXED TERMINALS: Brass - Ag plated.
ACTUATOR (Leaf / Roller options): SUS

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-48 and J-49. For additional options not shown in catalog, consult Customer Service Center.



Option Code	 1054	 61058-1	
F7	3 A 125 V AC	3 A 125 V AC 3 A 30 V DC	3 A 125 V AC
M9	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

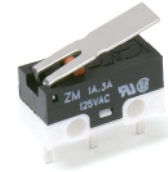
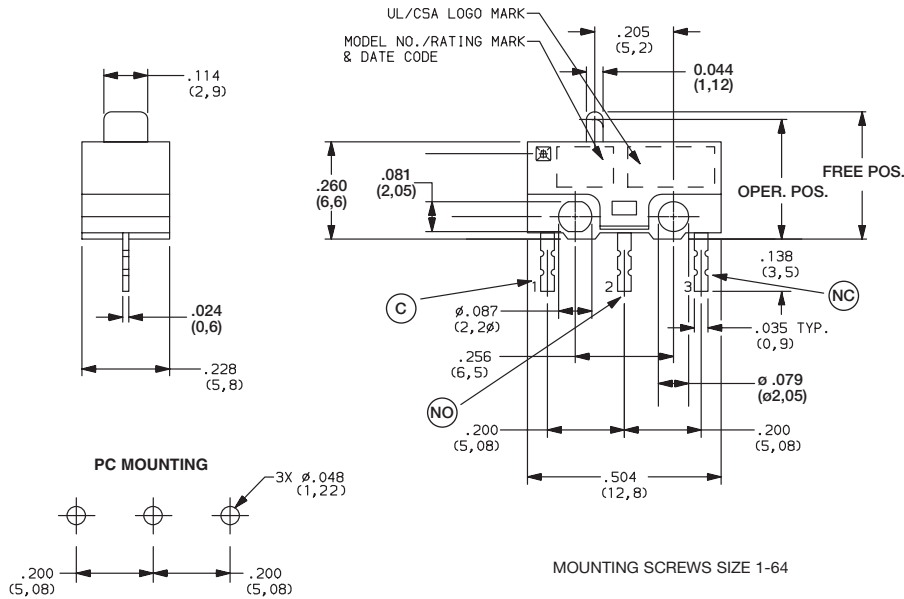


Snap-acting

ZM Series Subminiature Snap-acting Switches

SERIES **ZM** ■ ■ ■ ■ ■ ■ ■ ■

ZM SUBMINIATURE SNAP-ACTING SWITCHES – SP MOMENTARY



ZMCJF7L0T
SPDT

OPERATING FORCE ■ ■ ■ ■ ■ ■ ■ ■

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
CJ	5.29 150
CH	3.15 90

ELECTRICAL RATING ■ ■ ■ ■ ■ ■ ■ ■

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL		ELECTRICAL RATING
			MOVABLE CONTACT	STATIONARY CONTACT	
F7	Yes	Yes	Silver alloy		see chart
M9	Yes	Yes	Gold plating or silver alloy		see chart

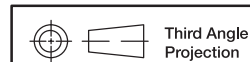
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

All models **cULus** with all options.

Consult Customer Service center for availability and delivery of nonstandard ratings.

Option Code	cULus 1054	cULus 61058-1	
F7	3 A 125 V AC	3 A 125 V AC 3 A 30 V DC	3 A 125 V AC
M9	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC	0.1 A 48 V DC 0.2 A 60 V DC 0.1 A 125 V AC

Snap-acting

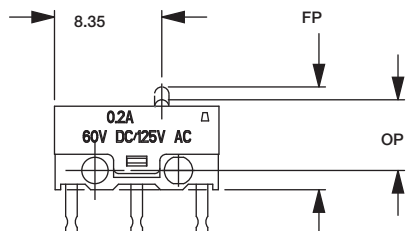


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

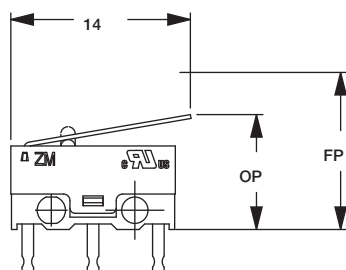
ZM Series Subminiature Snap-acting Switches

ACTUATOR

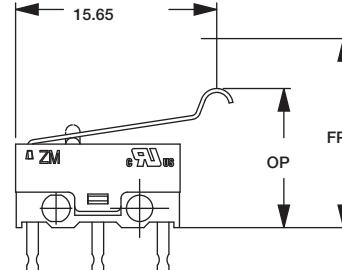
P0 PIN PLUNGER



L0 LEAF, 50 GRAMS (CJ ONLY)
L3 LEAF, 30 GRAMS (CH ONLY)



T13 SIMULATED ROLLER, 40 GRAMS (CJ ONLY)
T23 SIMULATED ROLLER, 25 GRAMS (CH ONLY)



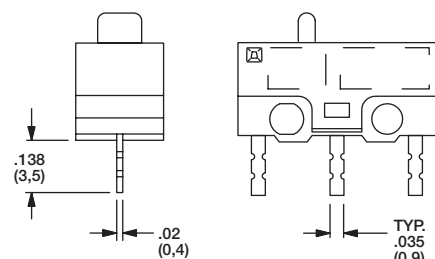
ACTUATOR OPTION CODE	A (mm)	B Ref (mm)	C (mm)	D (mm)	E (mm)	DIFF. MOTION mm MAX	OPER. FORCE grams MAX		RELEASED FORCE Grams MAX	OVER TRAVEL MIN
	LENGTH OF LEVER	LEVER LENGTH MTG. HOLE TO OP	PRE- TRAVEL MAX	OPERATING POSITION	FREE POSITION MAX		CJ	CH		
P0 PIN PLUNGER	NA	NA	1.3	7.0 ±0.3	8.0	0.3	150	90	15-20	0.2
L0 LEAF	13.0	4.03	3.4	8.4 ±0.8	11.0	1.3	50	-	8	0.6
L3 LEAF	13.0	4.03	3.4	8.4 ±0.8	11.0	1.3	-	30	5	0.6
T13 SIMULATED ROLLER	15.0	5.36	3.8	10.5 ±0.8	13.0	1.5	40	-	7	0.6
T23 SIMULATED ROLLER	15.0	5.36	3.8	10.5 ±0.8	13.0	1.5	-	25	4	0.6



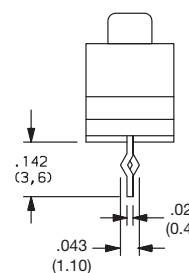
Snap-acting

TERMINATIONS

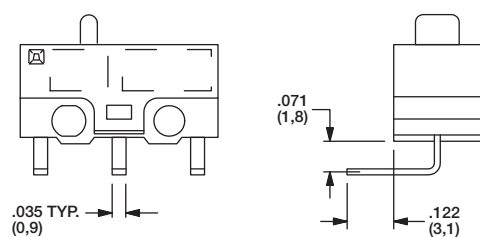
T (STD.) PC THRU-HOLE



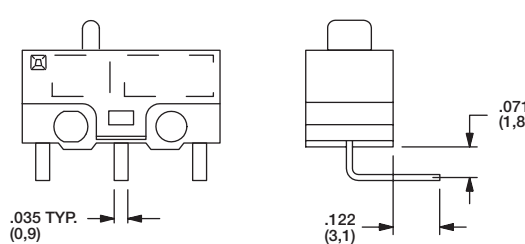
K PC THRU-HOLE WITH RETENTION FEATURE



L LEFT FOOTED, PC THRU-HOLE



R RIGHT FOOTED, PC THRU-HOLE

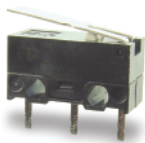


Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K

ZMA Series Subminiature Snap-acting Switches



Features/Benefits

- **Reliable snap-acting mechanism**
- **Long electrical and mechanical life**
- **Compact size—Ideal when space is limited**
- **Various PCB terminals and actuators**
- **RoHS compatible & compliant**

Typical Applications

- **PCB detection switch**
- **Communication devices**
- **Testing equipment**
- **Security/Alarm systems**
- **Consumer electronics**

UL61058-1



Specifications

CONTACT RATING: 3A @ 125 V AC 24 V DC
 1 A @125 / 250 V AC 24 V DC
 0.1A @ 125 V AC 60 V DC

ELECTRICAL LIFE: 300,000 cycles @ 0.1A / 10,000 cycles @ 3A.
 MECHANICAL LIFE: 1,000,000 cycles.
 INSULATION RESISTANCE: 100 M ohm min.
 DIELECTRIC STRENGTH: 500 Vrms.
 OPERATING TEMPERATURE: -40°C to 85°C
 OPERATING FORCE: 80 or 150 grams.

Materials

CASE/COVER: PBT
 ACTUATOR: Button nylon 6/6
 MOVABLE CONTACTS: Silver alloy or gold plated
 STATIONARY CONTACTS: Silver alloy or gold plated
 TERMINALS: Brass, silver plated.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

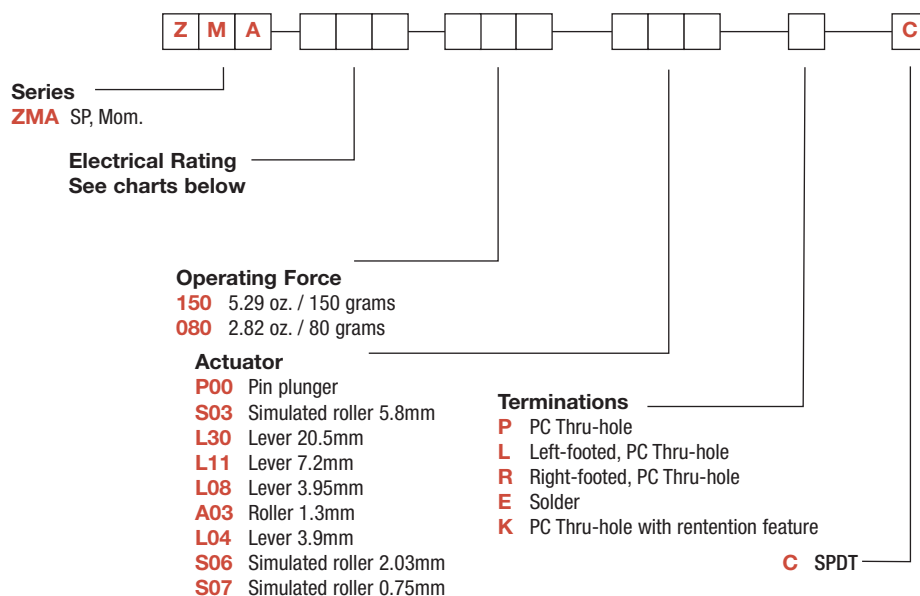
* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max.
 @ 20 V AC or DC max.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-51 and J-53. For additional options not shown in catalog, consult Customer Service Center.



Silver Contacts

Option Code	UL 1054	UL 61058-1	14	15
00A	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
03A	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
01A		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

Gold Plated Contacts

Option Code	UL 1054	UL 61058-1	14	15
G00	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
G03	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
G01		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

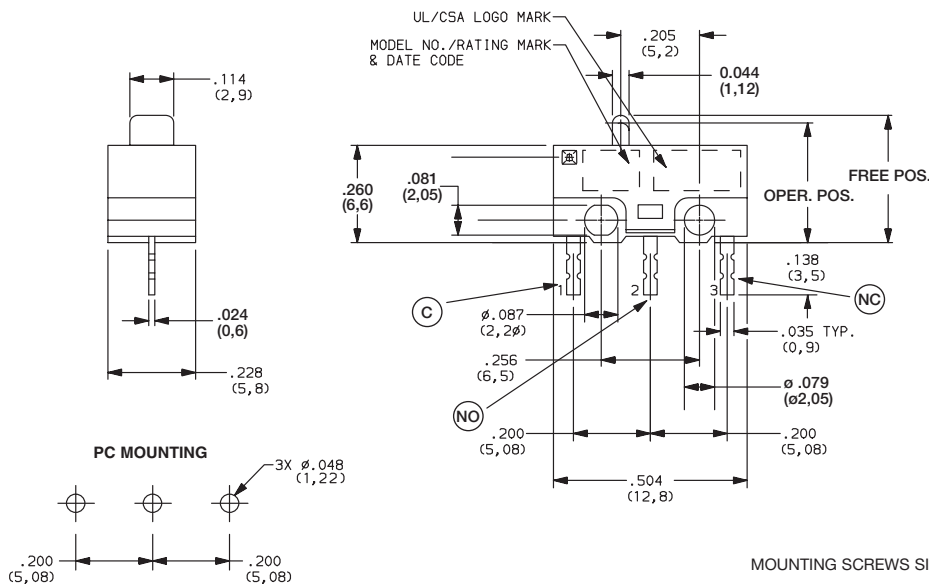


Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

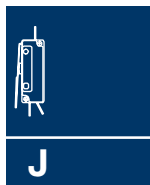
ZMA Series Subminiature Snap-acting Switches

SERIES **Z M** ■ ■ ■ ■ ■ ■ ■ ■

ZMA SUBMINIATURE SNAP-ACTING SWITCHES – SP MOMENTARY



ZMA03A150L04PC
SPDT



ELECTRICAL RATING ■ ■ ■ ■ ■ ■ ■ ■

Snap-acting

Silver Contacts

Gold Plated Contacts

Option Code	UL cUL ^{us} 1054	UL cUL ^{us} 61058-1	UL ¹⁴	UL ¹⁵	Option Code	UL cUL ^{us} 1054	UL cUL ^{us} 61058-1	UL ¹⁴	UL ¹⁵
00A	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC		G00	0.1A 60 V DC 0.1A 125 V AC	0.1A 60 V DC 0.1A 125 V AC	0.1A 125 V AC	
03A	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC		G03	3 A 125 V AC	3 A 125 V AC 3 A 24 V DC	3A 125 V AC	
01A		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC	G01		1 A 24 V DC 1 A 125 / 250 V AC		1 A 24 V DC 1 A 125 / 250 V AC

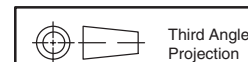
* Note: See Technical Data in section N of this catalog for RoHS compliant and compatible definition and specifications.

All models **cUL^{us}** with all options.

Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE ■ ■ ■ ■ ■ ■ ■ ■

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
150	5.29 150
080	2.82 80



Third Angle
Projection

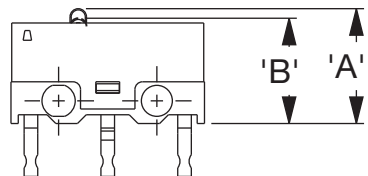
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



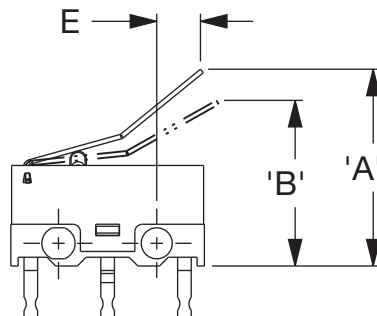
ZMA Series Subminiature Snap-acting Switches

ACTUATOR

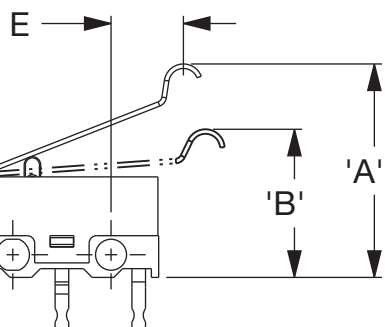
P00 PIN PLUNGER



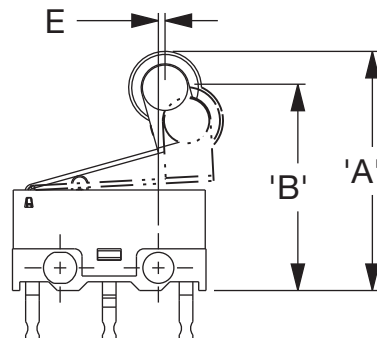
L08 LEVER
3.95MM



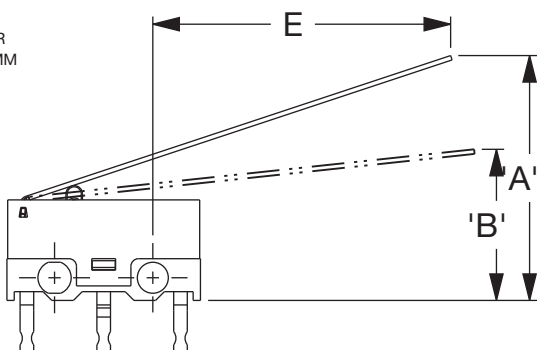
S03 SIMULATED ROLLER
5.8MM



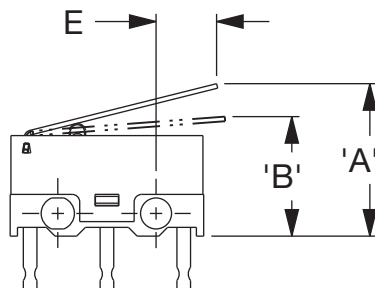
A03 ROLLER
1.3MM



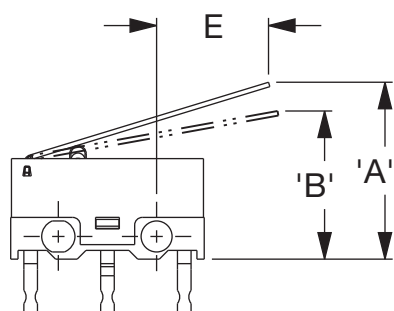
L30 LEVER
20.5MM



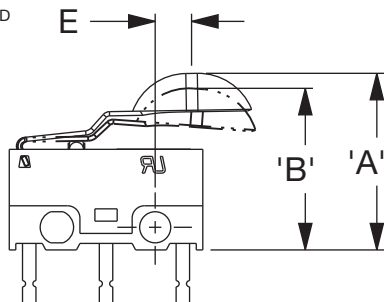
L04 LEVER
3.49MM



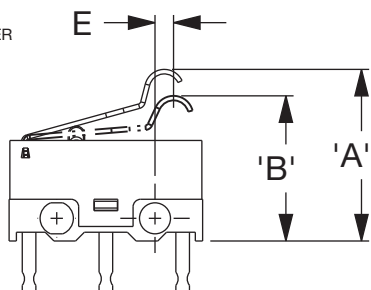
L11 LEVER
7.2MM



S06 SIMULATED ROLLER
2.03MM



S07 SIMULATED ROLLER
0.75MM



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

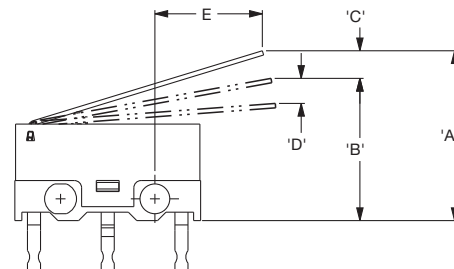


Snap-acting

ZMA Series Subminiature Snap-acting Switches

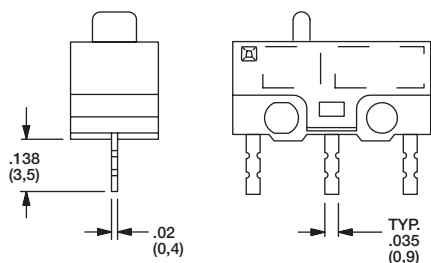
SWITCH CHARACTERISTICS

CODE	OPER. FORCE MAX. (GRAMS)		REL. FORCE MIN. (GRAMS)		'A' FP MAX. (MM)	'B' OP MAX. (MM)	'C' PT MAX. (MM)	'D' OT MIN. (MM)	'E' MIN. (MM)
P00	80	150	21	35	7.35	6.9 ±0.3	0.62	0.2	
S03	25	43	5	7	14.2	9.8 ±0.9	3.5	0.7	5.41
L30 (80gf)	13	21	2	3	16.8	9.5 ±1.9	6.9	0.55	20.15
L30 (150 gf)	13	21	2	3	16.8	9.75 ±1.9	6.9	0.55	20.15
L11	25	39	4	6	11.7	8.68 ±1	4.4	0.6	7.33
L08	27	48	3	8	13.5	10.75 ±0.8	3.5	0.3	3.82
A03	34	65	6	10	16.55	13.65 ±1	3.9	0.5	0.56
L04	30	50	5	8	10.1	7.9 ±0.7	3.0	0.5	3.49
S06	33	49	5	11	12.43	10.7 ±0.8	1.43	1.25	1.97
S07	40	65	2	5	13.0	9.7 ±1	4.3	0.5	0.49

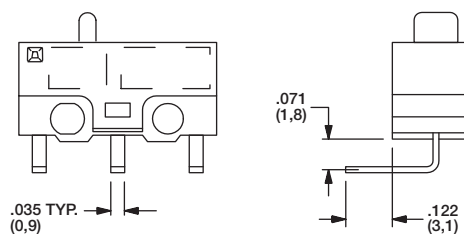


TERMINATIONS

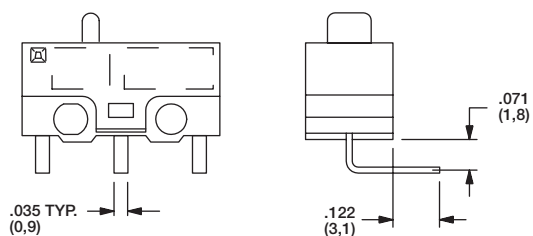
P PC THRU-HOLE



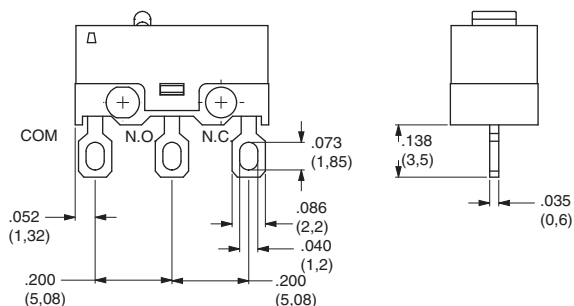
L LEFT FOOTED, PC THRU-HOLE



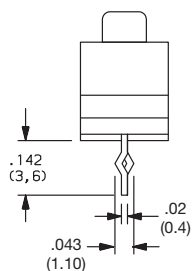
R RIGHT FOOTED, PC THRU-HOLE



E SOLDER



K PC THRU-HOLE WITH RETENTION FEATURE



Snap-acting



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



ZMB Series Subminiature Snap-acting Switches



Features/Benefits

- **Compact design**
- **Various operating forces**
- **Different lever options**
- **PCB or solder terminal options**
- **Detect interlock and movement**

Typical Applications

- **Consumer electronics**
- **Communications**
- **Industrial meters**
- **Security systems**
- **Office equipment**

Specifications

CONTACT ARRANGEMENT: SPDT
 CONTACT RATING: 0.1 A @ 30 V DC
 INITIAL CONTACT RESISTANCE: 50 mΩ max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500 VDC
 DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
 MECHANICAL LIFE: 500,000 cycles
 ELECTRICAL LIFE: 50,000 cycles
 PRE-TRAVEL: 0.5 mm max.
 OVER-TRAVEL: 0.5 mm min.
 OPERATING TEMPERATURE: -20°C to + 70°C

Materials

COVER / HOUSING: PBT (black)
 KNOB: PBT (red)
 CONTACT: Copper alloy, silver plated
 TERMINALS: Copper alloy, silver plated
 LEVER: Stainless steel

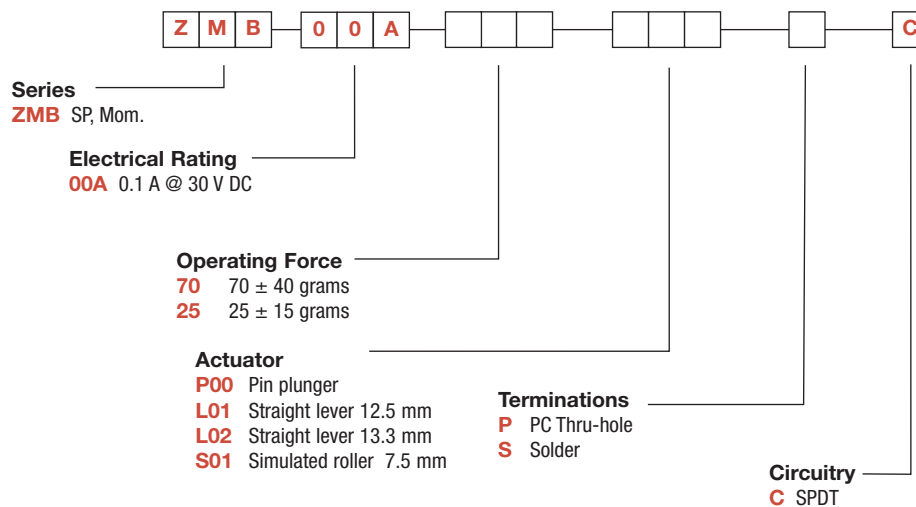
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-55 and J-56. For additional options not shown in catalog, consult Customer Service Center.

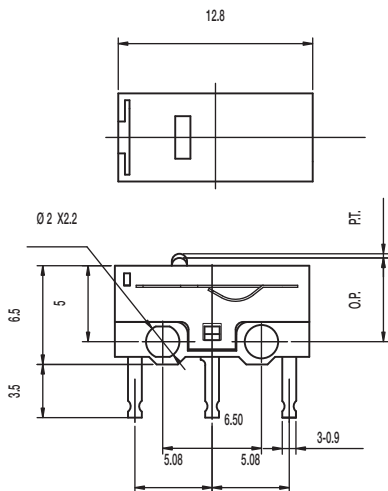


Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

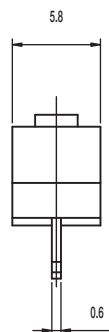
ZMB Series Subminiature Snap-acting Switches

ZMB00A70P00PC

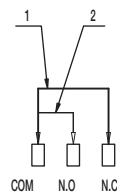
PIN PLUNGER, PC THRU-HOLE



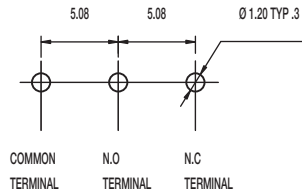
OPERATING FORCE: 70 ± 40 gf
 OPERATING POSITION (OP): 5.5 ± 0.30 mm
 FREE POSITION (FP): N/A



1 P - 2 T



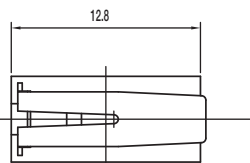
SCHEMATIC



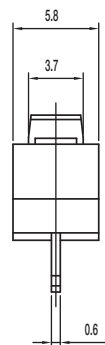
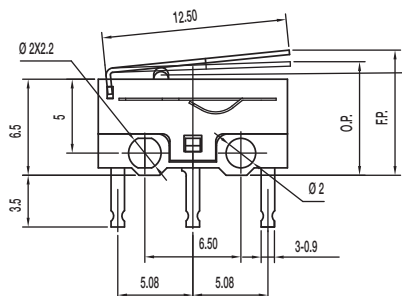
PIERCING PLAN

ZMB00A25L01PC

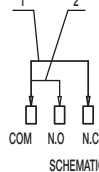
STRAIGHT LEVER 12.5 MM, PC THRU-HOLE



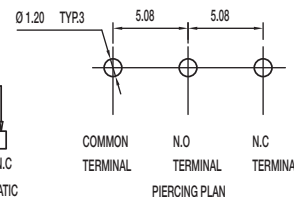
OPERATING FORCE: 25 ± 15 gf
 OPERATING POSITION (OP): 7.2 ± 0.8 mm
 FREE POSITION (FP): 10 mm max.



1 P - 2 T



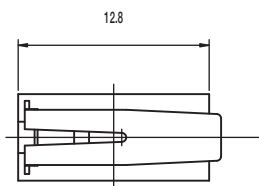
SCHEMATIC



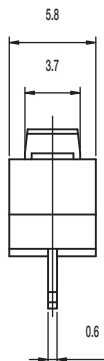
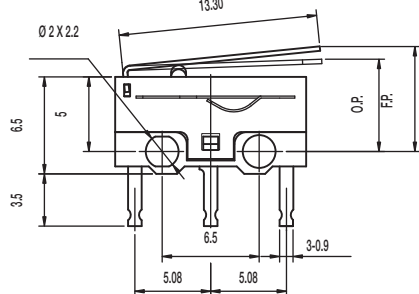
PIERCING PLAN

ZMB00A25L02PC

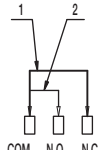
STRAIGHT LEVER 13.3 MM, PC THRU-HOLE



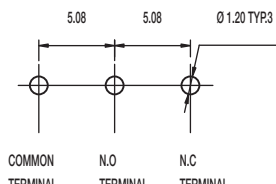
OPERATING FORCE: 25 ± 15 gf
 OPERATING POSITION (OP): 6.0 ± 0.8 mm
 FREE POSITION (FP): 8.5 mm max.



1 P - 2 T



SCHEMATIC



PIERCING PLAN



Snap-acting

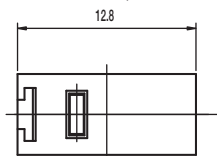


Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

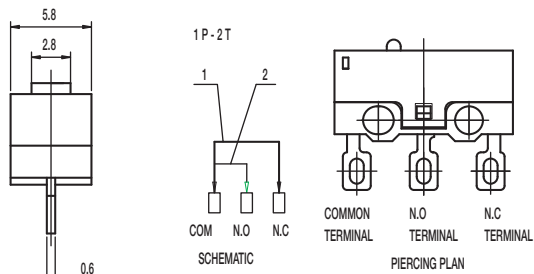
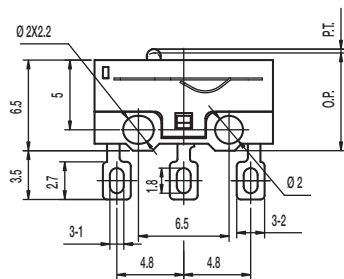
ZMB Series Subminiature Snap-acting Switches

ZMB00A70P00SC

PIN PLUNGER, SOLDER



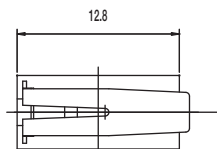
OPERATING FORCE: 70 ± 40 gf
 OPERATING POSITION (OP): 7.0 ± 0.30 mm
 FREE POSITION (FP): N/A



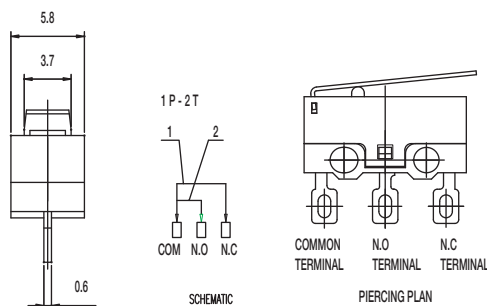
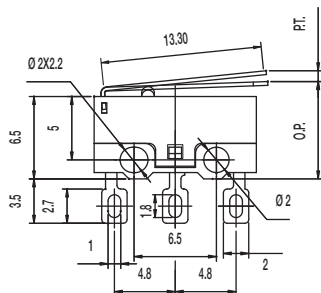
Snap-acting

ZMB00A25L02SC

STRAIGHT LEVER 13.3 MM, SOLDER

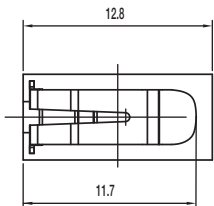


OPERATING FORCE: 25 ± 15 gf
 OPERATING POSITION (OP): 7.5 ± 0.8 mm
 FREE POSITION (FP): 10 mm max.

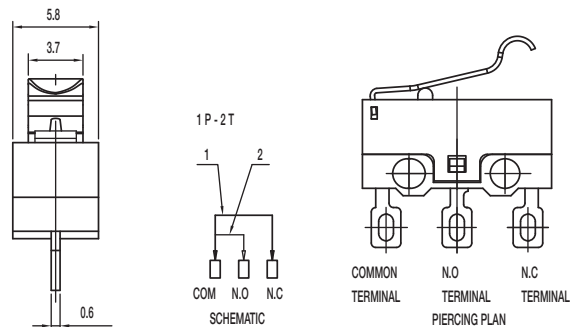
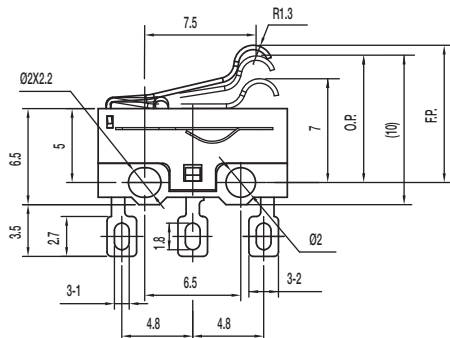


ZMB00A25S01SC

SIMULATED ROLLER 7.5 MM, SOLDER



OPERATING FORCE: 25 ± 15 gf
 OPERATING POSITION (OP): 8.5 ± 0.8 mm
 FREE POSITION (FP): 9.5 mm max.



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

ZMS Series Subminiature Snap-acting Switches (IP65)

Features/Benefits

- **Reliable snap-acting mechanism**
- **Long electrical and mechanical life**
- **Compact size—Ideal when space is limited**
- **Various PCB terminals and actuators**
- **RoHS compatible**
- **IP67 with potted wires only**

Typical Applications

- **PCB detection switch**
- **Communication devices**
- **Testing equipment**
- **Security/Alarm systems**
- **Consumer electronics**



UL61058-1
UL1054



Specifications

CONTACT RATING: 3A@ 125 V AC/ 3A@ 12 V DC, 0.01A @ 12 V DC
ELECTRICAL LIFE: 100,000 cycles @ 0.01A 12V DC
100,000 cycles @ 3A 12 V DC
6,000 cycles @ 3A 125 V AC
MECHANICAL LIFE: 500,000 cycles
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: 500 Vrms.
OPERATING TEMPERATURE: -40°C + 85°C.
OPERATING FORCE: 130 grams.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max.
@ 20 V AC or DC max.

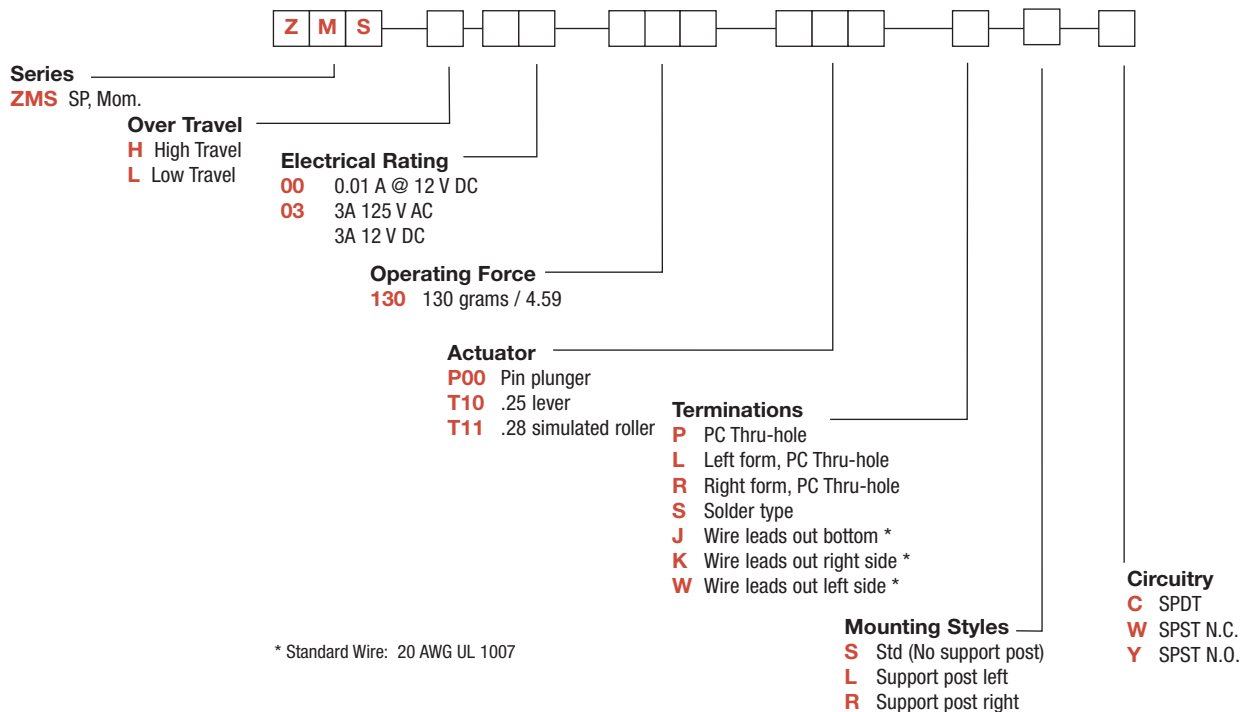
Materials

CASE: Nylon
COVER/ACTUATOR: PBT
MOVABLE CONTACTS: 3 Amp silver alloy, 0.01A gold plating over silver alloy
STATIONARY CONTACTS: 3 Amp silver alloy, 0.01 A gold plating over silver alloy
TERMINALS: Brass, silver plated
LEVER: Stainless steel

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-58 through J-60. For additional options not shown in catalog, consult Customer Service Center.

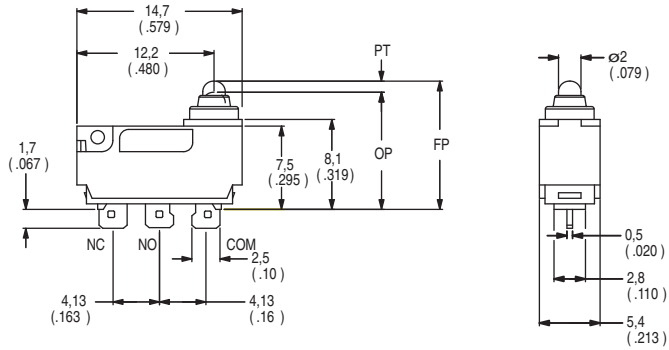


Snap-acting

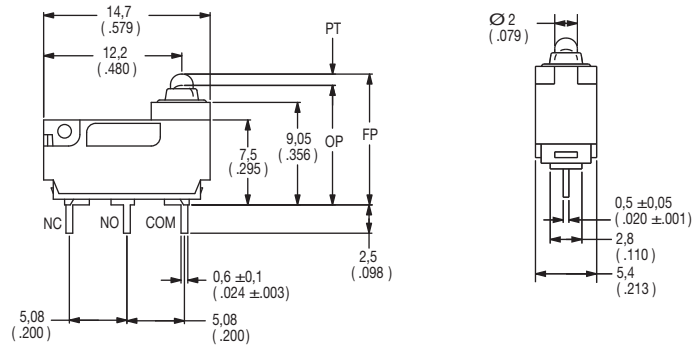
ZMS Series Subminiature Snap-acting Switches (IP65)

SERIES Z M S

ZMSH HIGH OVER TRAVEL
Switch option shown: ZMSH00P00SSC



ZMSL LOW OVER TRAVEL
Switch option shown: ZMSL00P00PSC



Snap-acting

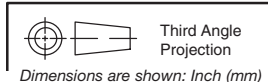
ELECTRICAL RATING

OPTION CODE	CONTACT MATERIAL	UL61058-1 UL1054	ENEC
	MOVABLE CONTACT / STATIONARY CONTACT	ELECTRICAL RATING	ELECTRICAL RATING
00	Gold plating over silver alloy	0.01 AMP @ 12 V DC 0.1 AMP @ 12 V DC	10m AMP @ 12 V DC 5E5
03	Silver alloy	3 AMPS @ 125 V AC 3 AMPS @ 12 V DC	3 AMPS @ 12 V DC 1E5

Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
130	130 4.59

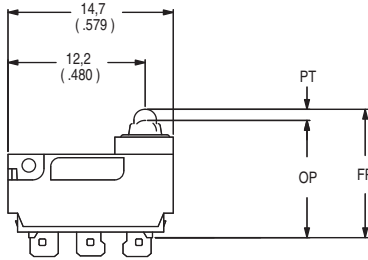


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

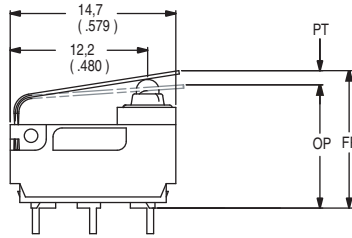
ZMS Series Subminiature Snap-acting Switches (IP65)

ACTUATOR

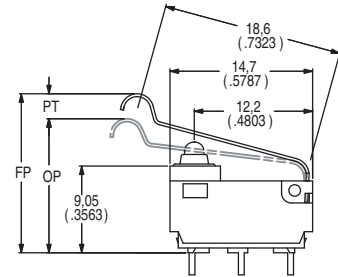
P00 PIN PLUNGER (IP65)



T10 .25 LEVER (IP65)



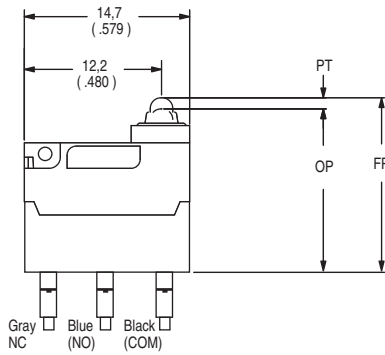
T11 LEVER (IP65)



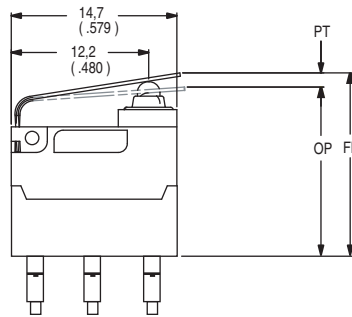
SWITCH CHARACTERISTICS

Actuator code	Maximum Operate Force (grams/oz.)	Minimum Release Force (grams/oz.)	Free Position Max	Maximum Pre-travel	Operate Position	Maximum Differential	Low Overtravel min. (L)	High Overtravel min. (H)
P00	130 4.59	13 0.45	.472 (12)	0.032 (0,8)	.415 ± .012 (10.55 ± .3)	.012 (0,3)	0.031 (0,8)	0.068 (1,72)
T10	195 6.88	55 1.93	.604 (15.35)	0.152 (3.85)	.440 ± .020 (11.2 ± .5)	0.020 (0,5)	0.053 (1,35)	0.084 (2,14)
T11	160 5.64	45 1.58	.726 (18.45)	0.186 (4.8)	.539 ± .032 (13.7 ± .8)	0.030 (0,7)	0.062 (1,65)	0.101 (2,57)

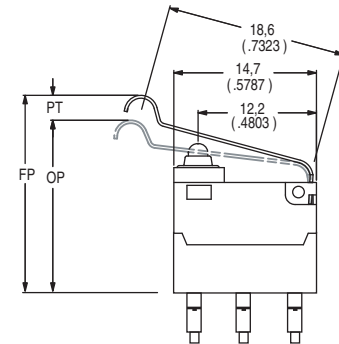
P00 PIN PLUNGER (IP67)



T10 .25 LEVER (IP67)



T11 .28 LEVER (IP67)



SWITCH CHARACTERISTICS "J" TERMINATION ONLY

Actuator code	Maximum Operate Force (grams/oz.)	Minimum Release Force (grams/oz.)	Free Position Max	Maximum Pre-travel	Operate Position	Maximum Differential	Low Overtravel min. (L)	High Overtravel min. (H)
P00	130 4.59	13 0.45	.650 (16.50)	0.032 (0,8)	.593 ± .020 (15.05 ± 0.5)	.012 (0,3)	0.031 (0,8)	0.068 (1,72)
T10	195 6.88	55 1.93	.781 (19.85)	0.152 (3.85)	.618 ± .028 (15.7 ± .7)	0.020 (0,5)	0.053 (1,35)	0.084 (2,14)
T11	160 5.64	45 1.58	.904 (22.95)	0.188 (4.8)	.717 ± .039 (18.2 ± 1.0)	0.030 (0,7)	0.062 (1,65)	0.101 (2,57)



Third Angle Projection

Dimensions are shown: mm (inch)
Specifications and dimensions subject to change

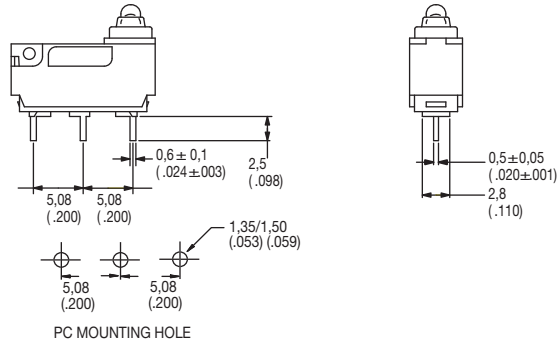


Snap-acting

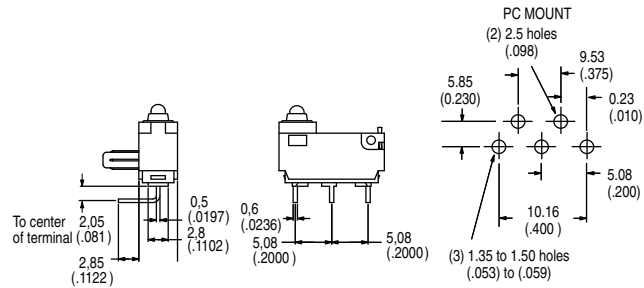
ZMS Series Subminiature Snap-acting Switches (IP65)

TERMINATIONS

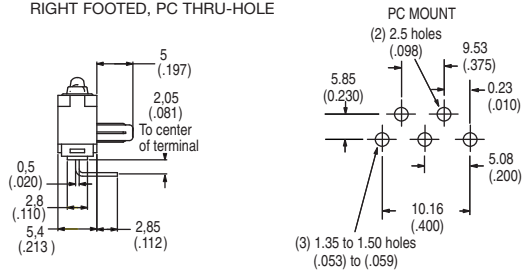
P PC THRU-HOLE



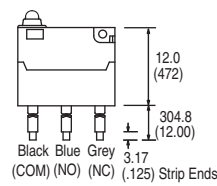
L LEFT FOOTED, PC THRU-HOLE



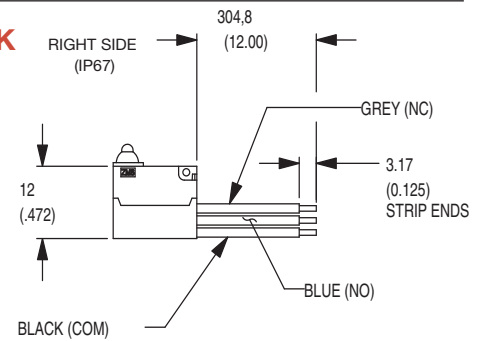
R RIGHT FOOTED, PC THRU-HOLE



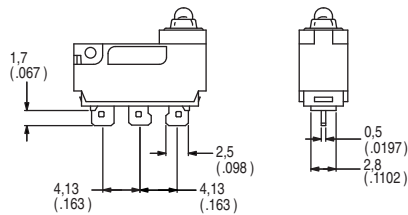
J WIRE LEADS BOTTOM (IP67)



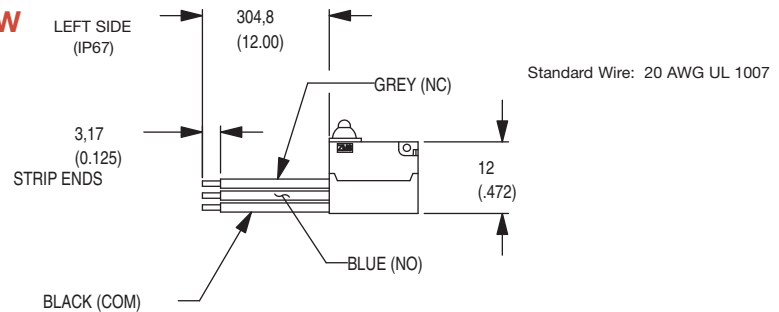
K RIGHT SIDE (IP67)



S SOLDER TYPE

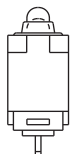


W LEFT SIDE (IP67)

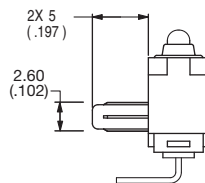


MOUNTING STYLES

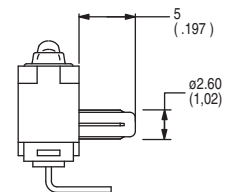
S STD (NO SUPPORT POST)



L SUPPORT POST LEFT



R SUPPORT POST RIGHT



CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST, NC (Single Pole, Single Throw, Normally Closed)

Y SPST, NO (Single Pole, Single Throw, Normally Open)



Third Angle
Projection

Dimensions are shown: mm (inch)
Specifications and dimensions subject to change

C&K

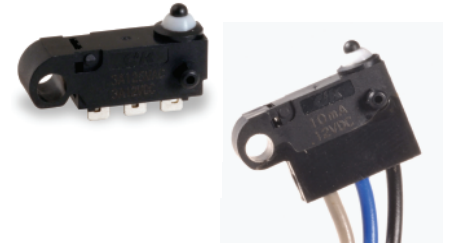
ZMSM Series with Mounting Hole Subminiature Snap-acting Switches (IP65)

Features/Benefits

- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Various PCB terminals and actuators
- RoHS compatible
- IP67 with potted wires only

Typical Applications

- Communication devices
- Testing equipment
- Security/Alarm systems



UL61058-1  us

Specifications

CONTACT RATING: 3A@ 125 V AC/ 3A@ 12 V DC, 0.01 A@ 12 V DC.

ELECTRICAL LIFE: 100,000 cycles @ 0.01 A, 12 V DC / 100,000 cycles @ 3A, 12 V DC, 6,000 cycles @ 3A, 125 VAC

INSULATION RESISTANCE: 100 M ohm min.

DIELECTRIC STRENGTH: 500 Vrms.

OPERATING TEMPERATURE: see chart below.

OPERATING FORCE: 130 grams.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

Materials

CASE: Nylon

COVER/ACTUATOR: PBT

MOVABLE CONTACTS: 3 Amp silver, 0.01A gold

STATIONARY CONTACTS: 3 Amp silver, 0.01A gold

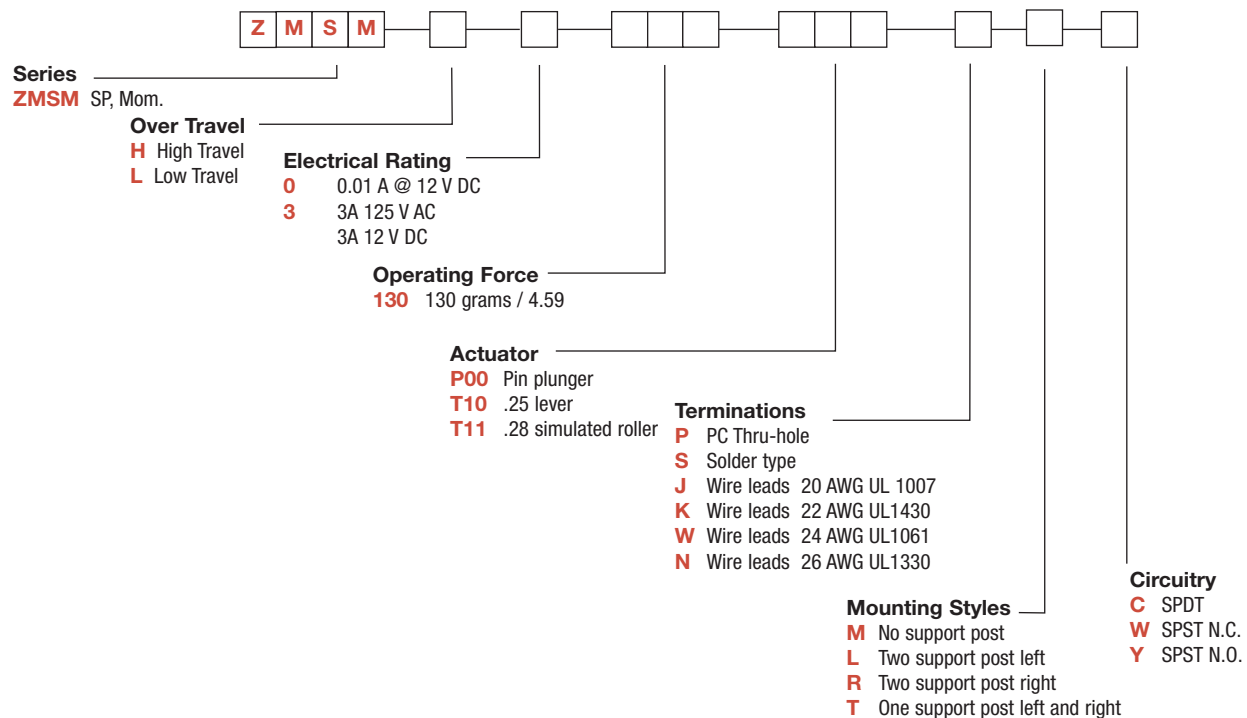
TERMINALS: Brass, Pre-plated with silver

LEVER: Stainless steel

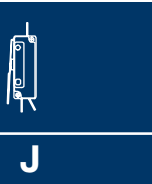
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-62 through J-64. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: mm
 Specifications and dimensions subject to change

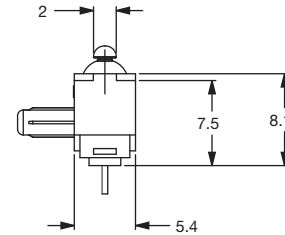
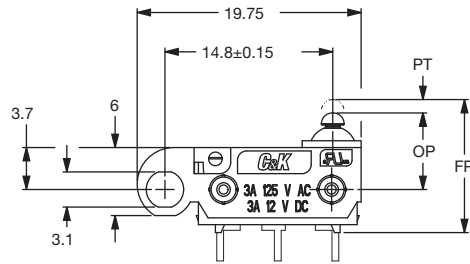
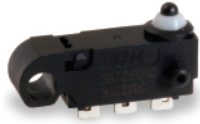


Snap-acting

ZMSM Series with Mounting Hole Subminiature Snap-acting Switches (IP65)

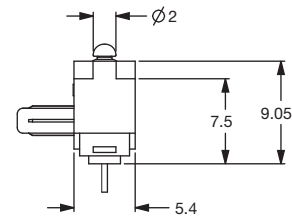
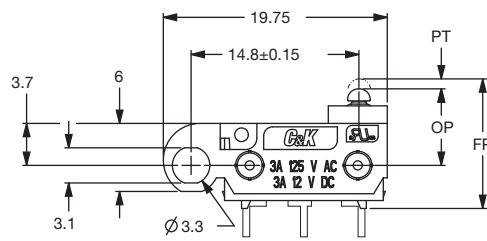
SERIES

ZMSMH HIGH OVER TRAVEL



ZMSML LOW OVER TRAVEL

MODEL SHOWN: ZMSMHXXXP00PLC



MODEL SHOWN: ZMSMLXXXP00PLC



Snap-acting

ELECTRICAL RATING

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT MATERIAL		ELECTRICAL RATING
			MOVABLE CONTACT	STATIONARY CONTACT	
0	Yes	Yes	Gold alloy		0.01 A @ 12 V DC
3	Yes	Yes	Silver alloy		3 AMPS @ 125 V AC 3 AMPS @ 12 V DC

Model **C&K** **US** with option "S" (solder type) only.
Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

OPTION CODE	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
130	130 4.59



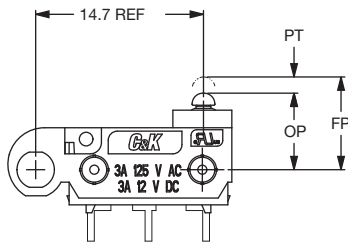
Dimensions are shown: mm
Specifications and dimensions subject to change



ZMSM Series with Mounting Hole Subminiature Snap-acting Switches (IP65)

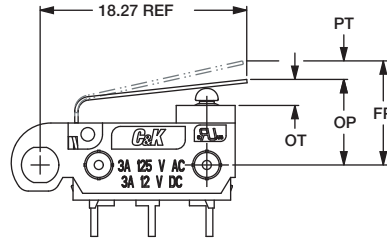
ACTUATOR

P00 PIN PLUNGER (IP65)



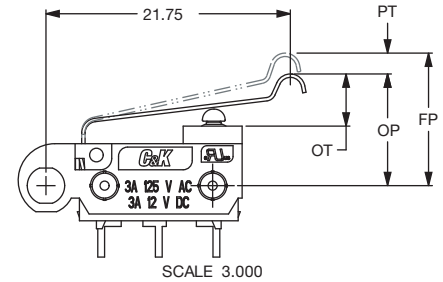
MODEL SHOWN: ZMSMLXXXP00PLC

T10 .25 LEVER (IP65)



MODEL SHOWN: ZMSMLXXXT10PLC

T11 LEVER (IP65)



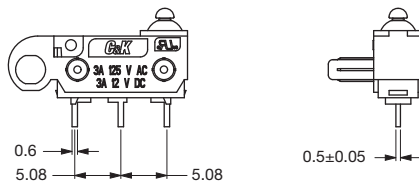
MODEL SHOWN: ZMSMLXXXT11PLC

SWITCH CHARACTERISTICS

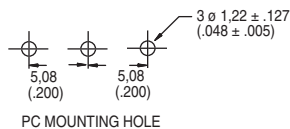
Actuator code	Maximum Operate Force (grams/oz.)	Minimum Release Force (grams/oz.)	Free Position Max (mm)	Maximum Pre-travel (mm)	Operate Position (mm)	Maximum Differential (mm)	Low Overtravel min. (mm)	High Overtravel min. (mm)
P00	130 4.59	13 0.45	7.35	0.8	6.75 ± 0.3	0.3	0.8	1.75
T10	195 6.88	55 1.93	10.70	3.85	7.40 ± 0.8	0.5	1.35	2.3
T11	160 5.64	45 1.58	13.80	4.8	9.90 ± 0.8	0.7	1.65	2.6

TERMINATIONS

P PC THRU-HOLE (IP65)

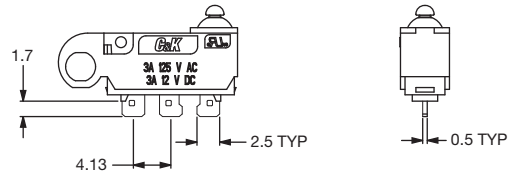


MODEL SHOWN: ZMSMHXXXP00PLC



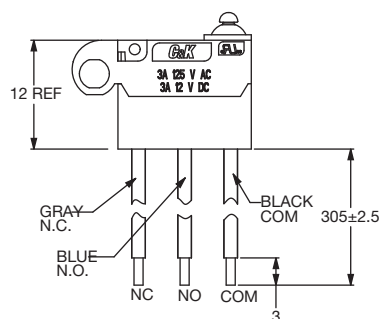
PC MOUNTING HOLE

S SOLDER TYPE (IP65)



MODEL SHOWN: ZMSMHXXXP00SMC

J WIRE LEADS BOTTOM (IP67)



Standard Wire: 20 AWG UL 1007

Available options - must specify

22AWG UL1430

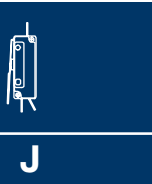
24AWG UL1061

26AWG UL1330



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

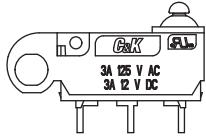
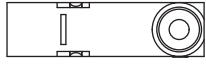


Snap-acting

ZMSM Series with Mounting Hole Subminiature Snap-acting Switches (IP65)

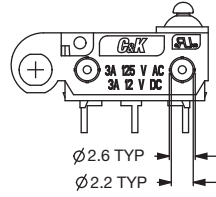
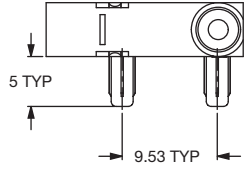
MOUNTING STYLES

M NO SUPPORT POSTS



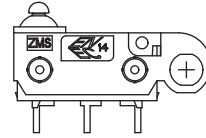
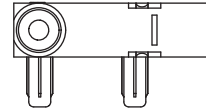
MODEL SHOWN:
ZMSMHXXXXP00PMC

L TWO SUPPORT POSTS LEFT



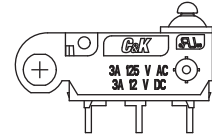
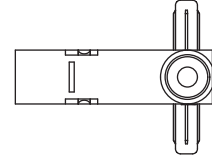
POSTS LEFT
MODEL SHOWN:
ZMSMHXXXXP00PLC

R TWO SUPPORT POSTS RIGHT



POSTS RIGHT
MODEL SHOWN:
ZMSMHXXXXP00PRC

T ONE SUPPORT POST
LEFT & RIGHT



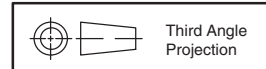
LEFT & RIGHT
MODEL SHOWN:
ZMSMHXXXXP00PTC



Snap-acting

CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- W** SPST, NC (Single Pole, Single Throw, Normally Closed)
- Y** SPST, NO (Single Pole, Single Throw, Normally Open)



Dimensions are shown: mm
Specifications and dimensions subject to change



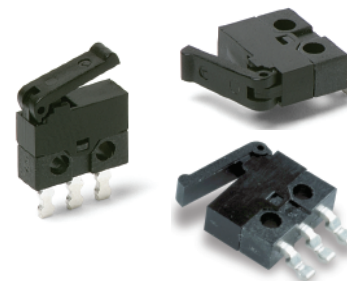
MDS Series Micro Snap-acting Detect Switches

Features/Benefits

- Snap-acting tactile feel
- Small package size
- Available in vertical or right angle PCB mount
- RoHS compliant and compatible

Typical Applications

- Detect the presence of a mechanical device
- Medical devices
- Consumer electronic devices
- ATCA applications



Specifications

CONTACT RATING: 300mA @ 30 VDC.
 MECHANICAL & ELECTRICAL LIFE: 30,000 operations.
 CONTACT RESISTANCE: 100 m Ω max. initial
 OPERATING TEMPERATURE: -25°C to +70°C.
 SOLDERABILITY: According to lead free solder profiles.
 PACKAGING: Available in bulk or tape and reel.
 OPERATING FORCE: 50g Max.
 RELEASE FORCE: 3g Min.

Materials

BASE: PA9T
 COVER & ACTUATOR: PA9T
 MOVABLE CONTACT: Copper alloy, silver plated.
 STATIONARY CONTACTS: Copper alloy, silver plated.
 TERMINALS: Copper alloy, silver plated.

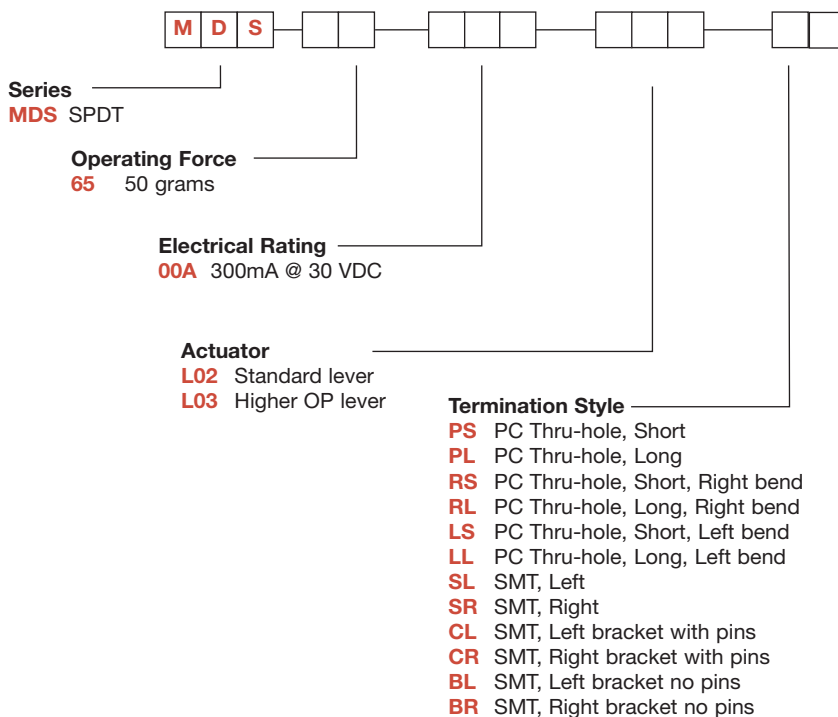
NOTE: MDS series is RoHS compliant, and compatible. See technical data section of this catalog for RoHS compliant and compatible definitions and specifications.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Build-A-Switch

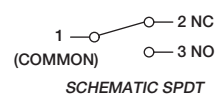
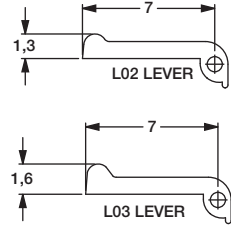
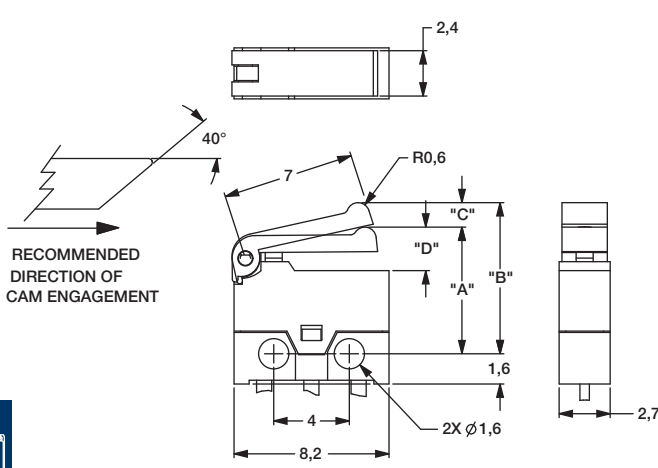
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-66 through J-70. For additional options not shown in catalog, consult Customer Service Center.



Snap-acting

MDS Series Micro Snap-acting Detect Switches

SERIES MDS ■■■■■■■■



OPERATING CHARACTERISTICS			
		LEVER L02	LEVER L03
OPERATING POSITION	DIM 'A'	6.7±0.5	7.0 +/-0.5
FREE POSITION	DIM 'B'	8 MAX	8.5 MAX
PRETRAVEL	DIM 'C'	1,8 MAX	1.8 MAX
OVER TRAVEL	DIM 'D'	0.3 MIN	0.3 MIN
CONTACT RATING		0.3A @ 30 VDC	0.3A @ 30VDC
OPERATING FORCE		50 GRAMS F. MAX	50 GRAMS F. MAX

Snap-acting

OPERATING FORCE ■■■■■■■■

OPTION CODE	OPERATING FORCE
65	50 grams max.

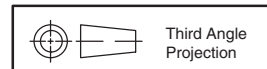
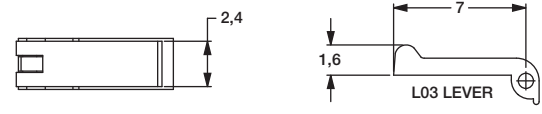
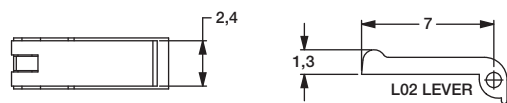
ELECTRICAL RATING ■■■■■■■■

OPTION CODE	ELECTRICAL RATING
00A	300mA @ 30 V DC

ACTUATOR ■■■■■■■■

L02 STANDARD LEVER

L03 HIGHER OP LEVER



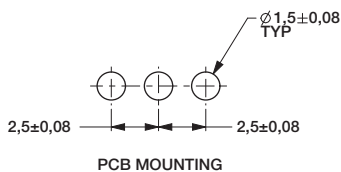
Dimensions are shown: mm
Specifications and dimensions subject to change



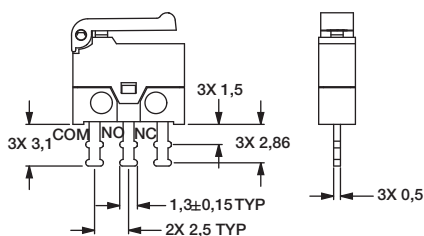
MDS Series Micro Snap-acting Detect Switches

TERMINATIONS

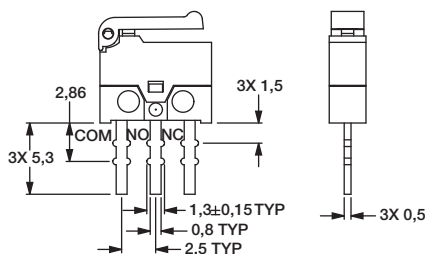
PCB Mounting Pattern



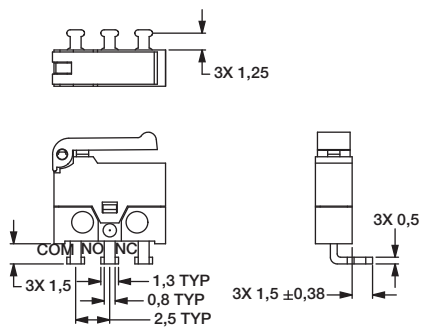
PS PC THRU-HOLE, SHORT STRAIGHT



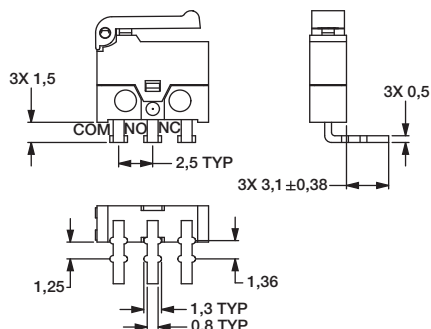
PL PC THRU-HOLE, LONG STRAIGHT



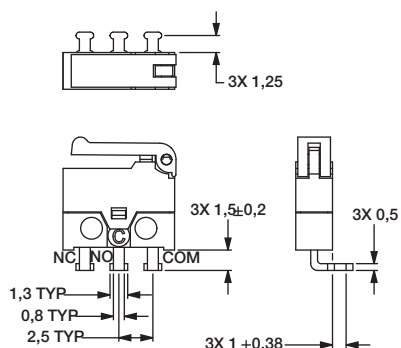
RS PC THRU-HOLE, SHORT RIGHT BEND



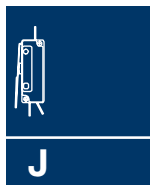
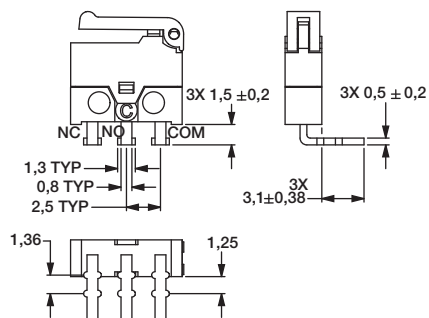
RL PC THRU-HOLE, LONG SHORT BEND



LS PC THRU-HOLE, SHORT LEFT BEND



LL PC THRU-HOLE, LONG LEFT BEND

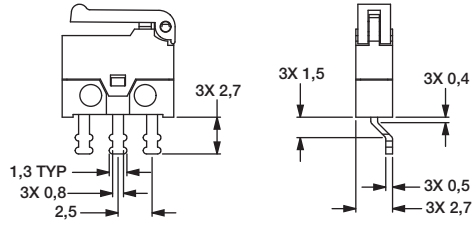


Snap-acting

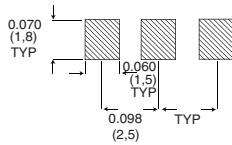
MDS Series Micro Snap-acting Detect Switches

TERMINATIONS

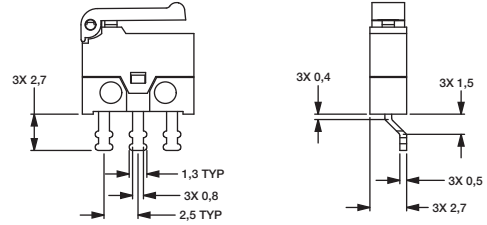
SL SMT, LEFT MOUNT



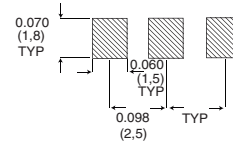
SMT Mounting Pattern



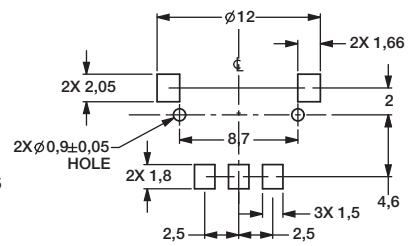
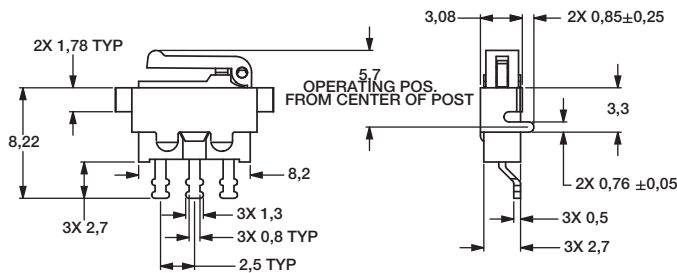
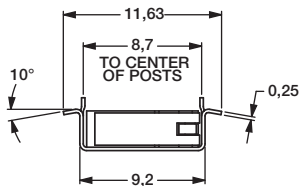
SR SMT, RIGHT MOUNT



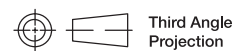
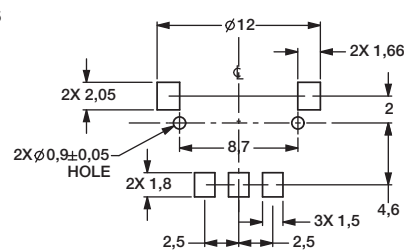
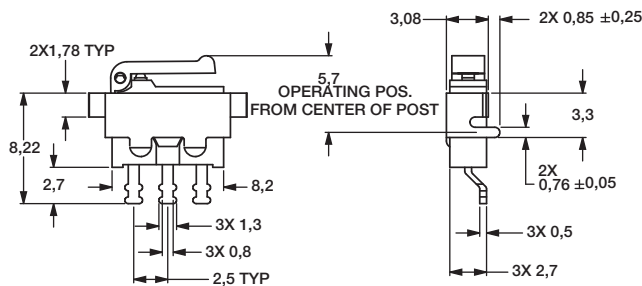
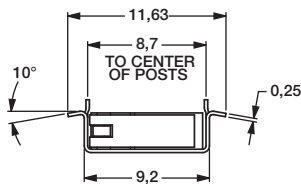
SMT Mounting Pattern



CL SMT, LEFT BRACKET WITH PINS



CR SMT, RIGHT BRACKET WITH PINS



Third Angle Projection

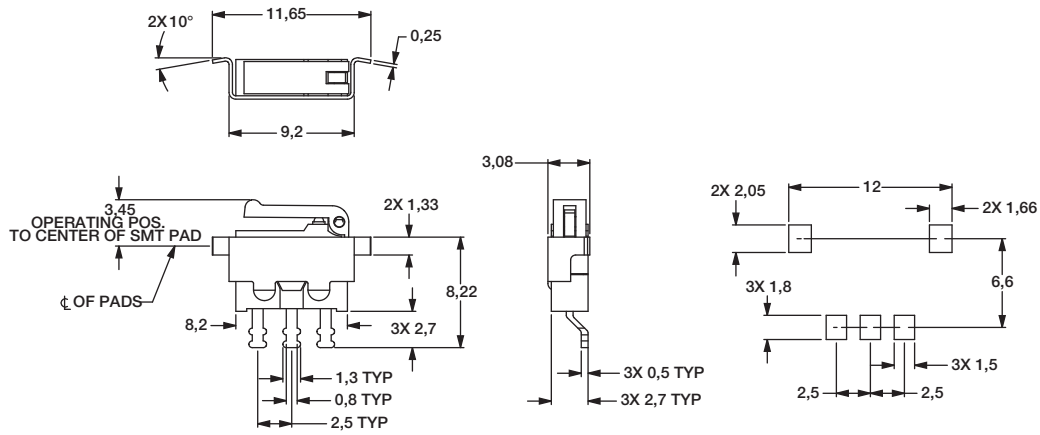
Dimensions are shown: mm
Specifications and dimensions subject to change



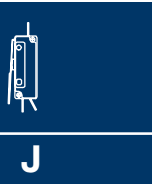
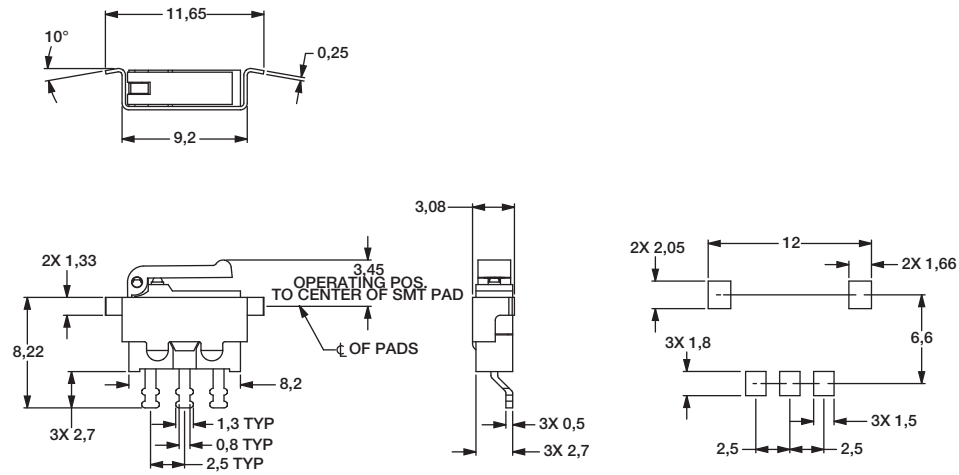
MDS Series Micro Snap-acting Detect Switches

TERMINATIONS

BL SMT, LEFT BRACKET NO PINS



BR SMT, RIGHT BRACKET NO PINS



Snap-acting

HB Series Single Pole Standard Precision Snap-acting Switches

Features/Benefits

- Low differential travel, high repeatability
- Long life—150,000 cycles typical
- Single and double pole circuitry
- Sealed actuator and case

Typical Applications

- Thermostats
- Motors
- Industrial controls



Specifications

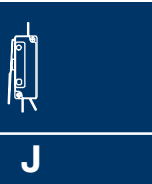
CONTACT RATING: From low level* to 20 AMPS @ 480 V AC; see ELECTRICAL RATING option section for complete listings.
 ELECTRICAL LIFE: 150,000 cycles at 20 AMPS @ 250 V AC. consult Customer Service Center for typical life at other ratings.
 INSULATION RESISTANCE: 1,000 M ohm min.
 DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
 OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).
 OPERATING FORCE: From 4 oz. to 26 oz. max. at actuator button available.
 MOUNTING SCREWS: Torque 3 in/lbs max.
 (Note: Exceeding 3 in/lbs torque may change operating characteristics and increase the possibility of cracking switch case).
 TERMINAL SCREWS: Torque 4 in/lbs max.
 PANEL MOUNTING BUSHING: Torque 4-6 in/lbs max.
 DEGREE OF PROTECTION: IP65; Dust-proof, water splash and dew condensation.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

Materials

SWITCH HOUSING: Heat resistant/electrical grade phenolic.
 INSERTS: Brass alloy.
 ACTUATOR BUTTON: Moisture resistant phenolic.
 SPRING: Copper alloy.
 PIVOT: Brass alloy.
 MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less. Fine silver for ratings greater than 1 AMP and motor load ratings less than 1/2 HP @ 125 V AC. Silver alloy for motor load ratings 1/2 HP @ 125 V AC or greater.
 STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less. Fine silver welded to copper base for ratings greater than 1 AMP and motor load ratings less than 1/2 HP @ 125 V AC. Silver alloy on copper base for motor load ratings 1/2 HP @ 125 V AC or greater.
 TERMINALS: Brass alloy, bright tin plated.

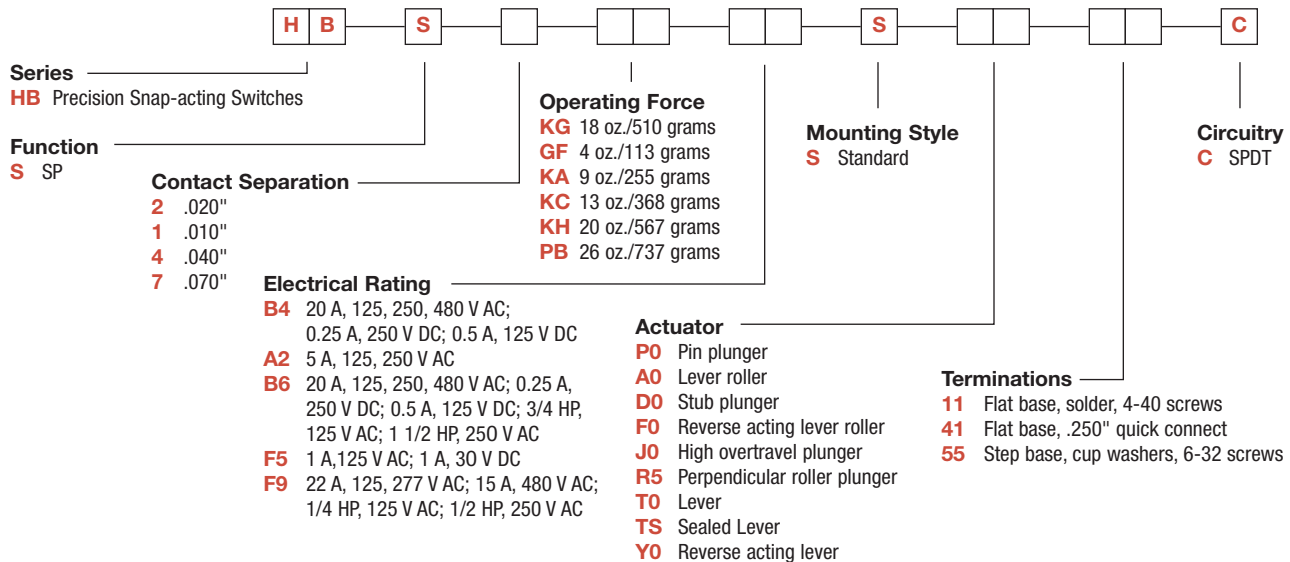
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-72 through J-76. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: mm
 Specifications and dimensions subject to change

HB Series Single Pole Standard Precision Snap-acting Switches

Sealed Actuator and Case

To provide reliable service under environmental conditions that might damage standard precision switches, various HB Series switch models are sealed against the entrance of airborne contaminants and/or splashing liquids. The clearance between the operating plunger and the cover is sealed with a silicone boot and the base cover joint is sealed with an epoxy adhesive. These models are designed to meet requirements of IP65 (dust proof, water splash and dew condensation). For additional information on sealed switches, consult our Customer Service Center.

SERIES

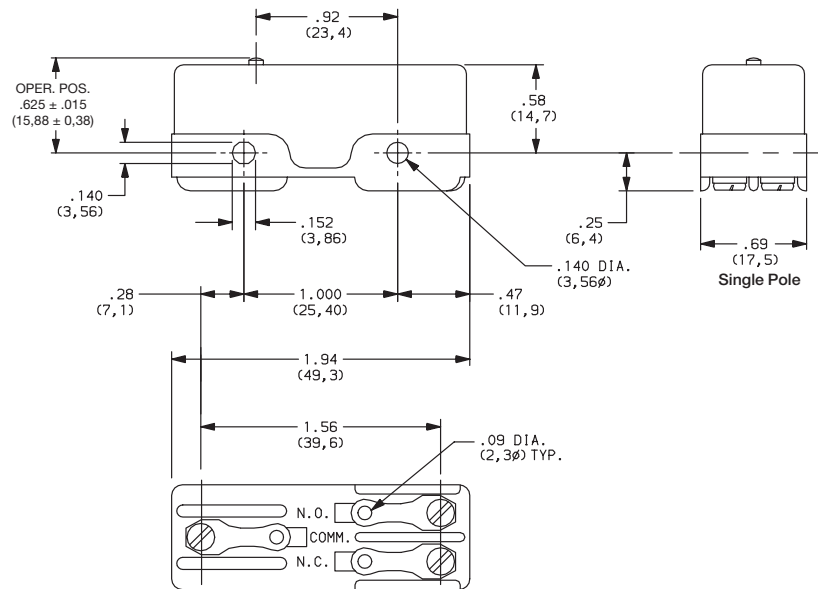
HB PRECISION SNAP-ACTING SWITCHES

FUNCTION

S SINGLE POLE SWITCH



Snap-acting

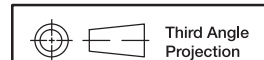
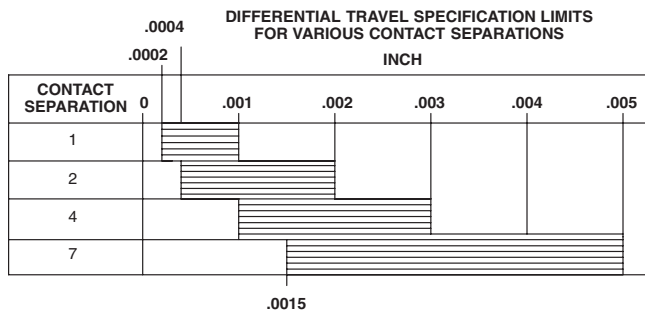


NOTE: To select switching function, see CIRCUITRY section, page J-52.

CONTACT SEPARATION

OPTION CODE	NOMINAL CONTACT SEPARATION (in./mm)
2	.020 (0,51)
1	.010 (0,25)
4	.040 (1,02)
7	.070 (1,78)

Switches with 1 AMP rating (option code 'F5') are available only with .020 contact separation (option '2').
Switches with 1/2 HP, 125 V AC rating or greater (option codes 'B5 and B6') are not available with .010 contact separation (option code '1').



Dimensions are shown in (mm)

Specifications and dimensions subject to change

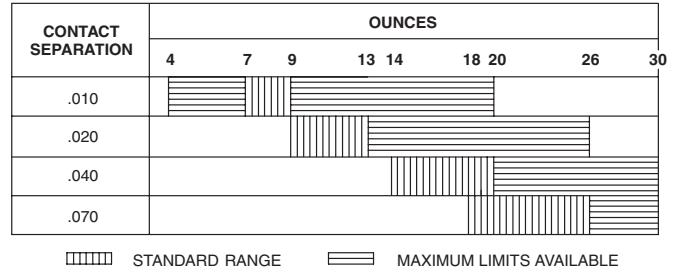


HB Series Single Pole Standard Precision Snap-acting Switches

OPERATING FORCE

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)	STANDARD CONTACT SEPARATION (inch)
KG	18 510	.020
GF	4 115	.010
KA	9 255	.010
KC	13 370	.020
KH	20 570	.040
PB	26 740	.070

OPERATING FORCE SPECIFICATION LIMITS
FOR VARIOUS CONTACT SEPARATIONS



NOTE: All listed differential travel characteristics are based on standard operating force and contact separation. For any other force or contact separation, consult Customer Service Center.
Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

OPTION CODE	MOVABLE CONTACT	STATIONARY CONTACT	ELECTRICAL RATING
B4	Fine silver.	Fine silver welded to copper base.	20 AMPS @ 125, 250 & 480 V AC; 0.25 AMPS @ 250 V DC; 0.5 AMPS @ 125 V DC (UL).
A2			5 AMPS @ 125 & 250 V AC (UL).
B6	Precious metal alloy.	Precious metal alloy.	20 AMPS @ 125, 250 & 480 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 3/4 HP @ 125 V AC; 1 1/2 HP @ 250 V AC (UL).
F5	Gold alloy.	Gold alloy.	Low level* to 1 AMP @ 125 V AC; 1 AMP @ 30 V DC (UL).
F9	Fine silver.	Fine silver welded to copper base.	22 AMPS @ 125 & 277 V AC; 15 AMPS @ 480 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 277 V AC (UL).

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

AVAILABLE COMBINATIONS

ELECTRICAL RATING	OPERATING FORCE (oz.)					
	4 GF	9 KA	13 KC	18 KG	20 KH	26 PB
A2	•	•	•	•	•	•
B4	x	•	•	•	•	•
B6	x	x	x	•	•	•
F5	x	x	•	•	•	•
F9	x	x	x	•	•	•

• AVAILABLE
x NOT AVAILABLE

All models with all options

Consult Customer Service center for availability and delivery of nonstandard ratings.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.



Dimensions are shown: Inch (mm)

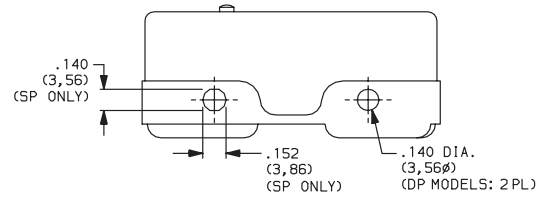
Specifications and dimensions subject to change



HB Series Single Pole Standard Precision Snap-acting Switches

MOUNTING STYLE

S Standard



NOTE: Mounting holes will accept pins or screws of .139 dia. (3,53) max. on 1.000 ± .002 (25,4 ± 0,05) centers.

NOTE: Torque mounting screws 3 inlbs max.

ACTUATOR

OPTION CODE	NO. POLES	FIG.	DIM. A	DIM. B	DIM. C	DIM. D
A0	SP	1	.86 (21,8)	1.120 ± .060 (28,45 ± 1,52)	.38 dia. (9,70)	1.03 (26,2)
D0	SP	3	.92 (23,4)	.844 ± .020 (21,44 ± 0,51)	—	—
F0	SP	2	.09 (2,3)	1.120 ± .050 (28,45 ± 1,27)	.38 dia. (9,70)	.74 (18,8)
J0	SP	4	.86 (21,8)	.860 ± .030 (21,84 ± 0,76)	—	—
P0	SP	5	.92 (23,4)	.625 ± .010 (15,88 ± 0,25)	—	—
R5	SP	6	.92 (23,4)	.62 (15,7)	.50 dia. (12,70)	0.61 (15,5)
T0	SP	7	1.310 (33,27)	.720 ± .060 (18,28 ± 1,52)	1.03 dia. (26,20)	—
TS*	SP	7	1.47 (37,3)	.720 ± .060 (18,28 ± 1,52)	1.03 dia. (26,20)	—
Y0	SP	8	.05 (1,3)	.720 ± .030 (18,29 ± 0,76)	.74 dia. (18,80)	2.65 (6,73)

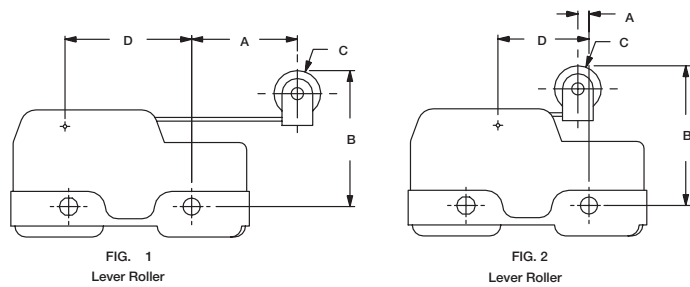


FIG. 1
Lever Roller

FIG. 2
Lever Roller

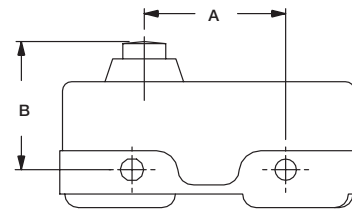


FIG. 3
Stub Plunger

Snap-acting

* Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.

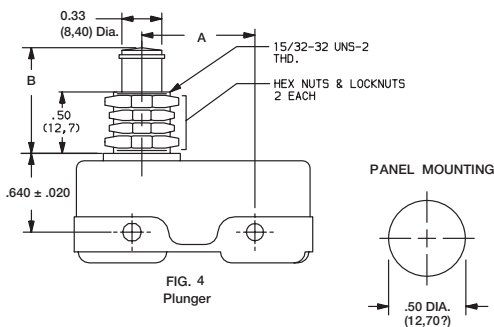


FIG. 4
Plunger

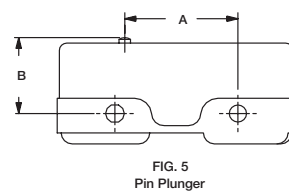


FIG. 5
Pin Plunger

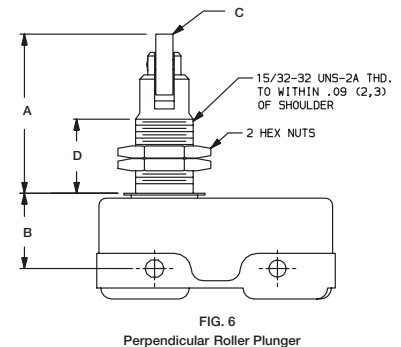


FIG. 6
Perpendicular Roller Plunger

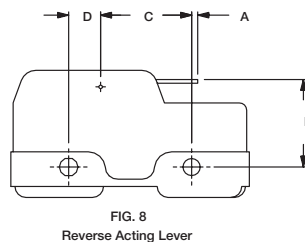


FIG. 8
Reverse Acting Lever

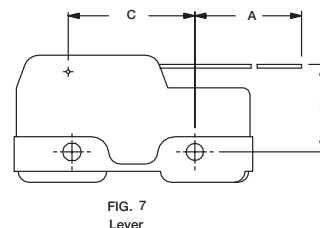
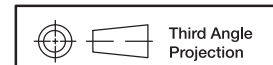


FIG. 7
Lever



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



HB Series

Single Pole Standard Precision Snap-acting Switches

ACTUATOR

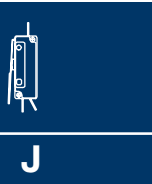
	OPTION CODE	ACTUATOR								* SEALED ACTUATOR
		A0	D0	F0	J0	P0	R5	T0	Y0	TS
MAXIMUM OPERATING FORCE (OZ./GRAMS)	GF	—	—	—	—	4 115	—	—	—	—
	KA	3 85	9.5 269	10 284	10 284	9 255	10 284	2 60	10 284	2 56
	KC	—	13 370	10 284	13 370	13 370	13 370	—	10 284	—
	KG	3.5 100	—	—	—	18 510	—	2.5 71	—	2.5 71
	KH	4 115	20 570	20 570	20 570	20 570	20 570	3 85	20 570	3 85
	PB	4.5 130	26 740	20 570	26 740	26 740	26 740	3.5 100	20 570	3.5 100
MINIMUM RELEASE FORCE (OZ./GRAMS)	GF	—	—	—	—	1 28	—	—	—	—
	KA	.75 21	4 110	3 85	4 110	4 110	4 110	.5 14	3 85	.5 14
	KC	1.7 48	4 110	3 85	4 110	4 110	4 110	—	3 85	—
	KG	.75 21	—	—	—	4 110	—	.5 14	—	.5 14
	KH	.75 21	4 110	3 85	4 110	4 110	4 110	.5 14	3 85	.5 14
	PB	.75 21	4 110	3 85	4 110	4 110	4 110	.5 14	3 85	.5 14

NOTE: For basic switch operating forces, see page J-71. * Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.

	OPTION CODE	ACTUATOR								* SEALED ACTUATOR
		A0	D0	F0	J0	P0	R5	T0	Y0	TS
MAXIMUM DIFFERENTIAL TRAVEL (IN/MM)	GF	—	—	—	—	.0005 (0,013)	—	—	—	—
	KA	.020 (0,51)	.0005 (0,013)	.005 (0,13)	—	.0005 (0,013)	—	.047 (1,19)	.005 (0,13)	.047 (1,19)
	KC	—	.002 (0,05)	.008 (0,20)	—	.002 (0,05)	—	—	.009 (0,23)	—
	KG	.062 (1,57)	—	—	—	.003 (0,08)	—	.078 (1,98)	—	.078 (1,98)
	KH	.080 (2,03)	.003 (0,76)	.020 (0,51)	—	.003 (0,08)	—	.093 (2,36)	.020 (0,51)	.093 (2,36)
	PB	.125 (3,18)	.007 (0,18)	.030 (0,76)	—	.005 (0,13)	—	.156 (3,96)	.031 (0,79)	.156 (3,96)
MAXIMUM PRETRAVEL (IN/MM)	GF	—	—	—	—	.020 (0,51)	—	—	—	—
	KA	.312 (7,92)	.020 (0,51)	0.8 (2,0)	.015 (0,38)	.015 (0,38)	.015 (0,38)	.38 (9,7)	.09 (2,3)	.38 (9,7)
	KC	—	.020 (0,51)	0.8 (2,0)	.020 (0,51)	.020 (0,51)	.020 (0,51)	—	.09 (2,3)	—
	KG	.312 (7,92)	—	—	—	.025 (0,64)	—	.38 (9,7)	—	.38 (9,7)
	KH	.38 (9,7)	.025 (0,64)	0.9 (2,3)	.025 (0,64)	.025 (0,64)	.025 (0,64)	.38 (9,7)	0.9 (2,3)	.38 (9,7)
	PB	.38 (9,7)	.030 (0,76)	0.9 (2,3)	.030 (0,76)	.030 (0,76)	.030 (0,76)	.38 (9,7)	0.9 (2,3)	.38 (9,7)
MINIMUM OVERTRAVEL (IN/MM)	GF	—	—	—	—	.005 (0,13)	—	—	—	—
	KA	.156 (3,96)	.055 (1,40)	.06 (1,5)	.22 (5,6)	.005 (0,13)	.141 (3,58)	.19 (4,8)	.06 (1,5)	.19 (4,8)
	KC	—	.055 (1,40)	0.9 (2,3)	.22 (5,6)	.005 (0,13)	.141 (3,58)	—	0.9 (2,3)	—
	KG	.156 (3,96)	—	—	—	.005 (0,13)	—	.19 (4,8)	—	.19 (4,8)
	KH	.156 (3,96)	.055 (1,40)	0.9 (2,3)	.22 (5,6)	.005 (0,13)	.141 (3,58)	.19 (4,8)	0.9 (2,3)	.19 (4,8)
	PB	.156 (3,96)	.055 (1,40)	0.9 (2,3)	.22 (5,6)	.005 (0,13)	.141 (3,58)	.19 (4,8)	0.9 (2,3)	.19 (4,8)



*Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change*

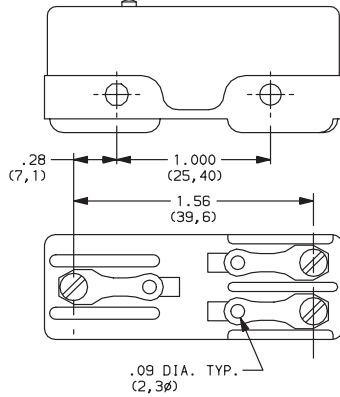


Snap-acting

HB Series Single Pole Standard Precision Snap-acting Switches

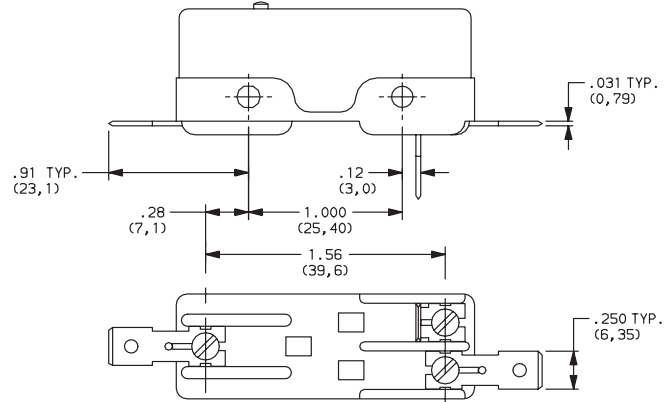
TERMINATIONS

11 FLAT BASE, SOLDER TERMINALS AND 4-40 SCREWS

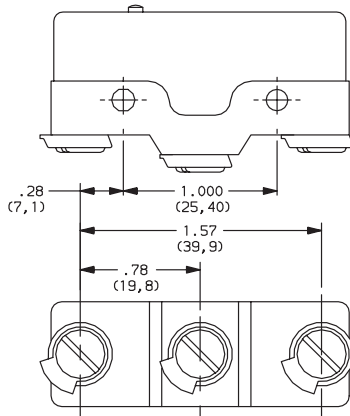


NOTE: Switches with flat base option have molded ribs that provide increased creep distance.

41 FLAT BASE, .250" QUICK CONNECT TERMINALS



55 STEP BASE, 6-32 SCREWS AND CUP WASHERS

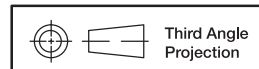


NOTE: Switches with step base option provide wide electrical clearance for screw terminal options.

CIRCUITRY

C DT (Double Throw, Normally Closed & Normally Open)

Snap-acting



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

A Series General Purpose Snap-acting Switches

Features/Benefits

- Low cost—high performance
- Long electrical life
- Single and double pole
- Sealed actuator option available

Typical Applications

- Enclosure equipment
- Garage door openers
- Vending machines



Specifications

CONTACT RATING: From low level* to 30 AMPS @ 277 V AC.

ELECTRICAL LIFE: 75,000 cycles at 25 AMPS @ 250 V AC,
200,000 cycles at 15 AMPS @ 250 V AC.

INSULATION RESISTANCE: 1,000 M ohm min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -67°F to 185°F (-55°C to 85°C).

OPERATING FORCE: 20 oz. (567 grams) max. SP models.

40 oz. (1134 grams) max. DP models at actuator button.

MOUNTING: Torque screws 3 in/lbs max.

MOUNTING NUT: 20 in/lbs max. torque

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

SWITCH HOUSING: Heat resistant phenolic (UL 94V-0).

ACTUATOR BUTTON: Heat resistant phenolic (UL 94V-0).

SPRING: Copper alloy.

PIVOT: Brass alloy for models up to 15 AMPS.

Copper for 25 AMP models.

MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.

Fine silver for ratings up to 15 AMPS. Silver alloy for ratings of 30.1 AMPS.

STATIONARY CONTACTS: Gold alloy on brass base alloy for ratings 1 AMP or less. Fine silver welded on brass base alloy for ratings greater than 1 AMP up to 15 AMPS.

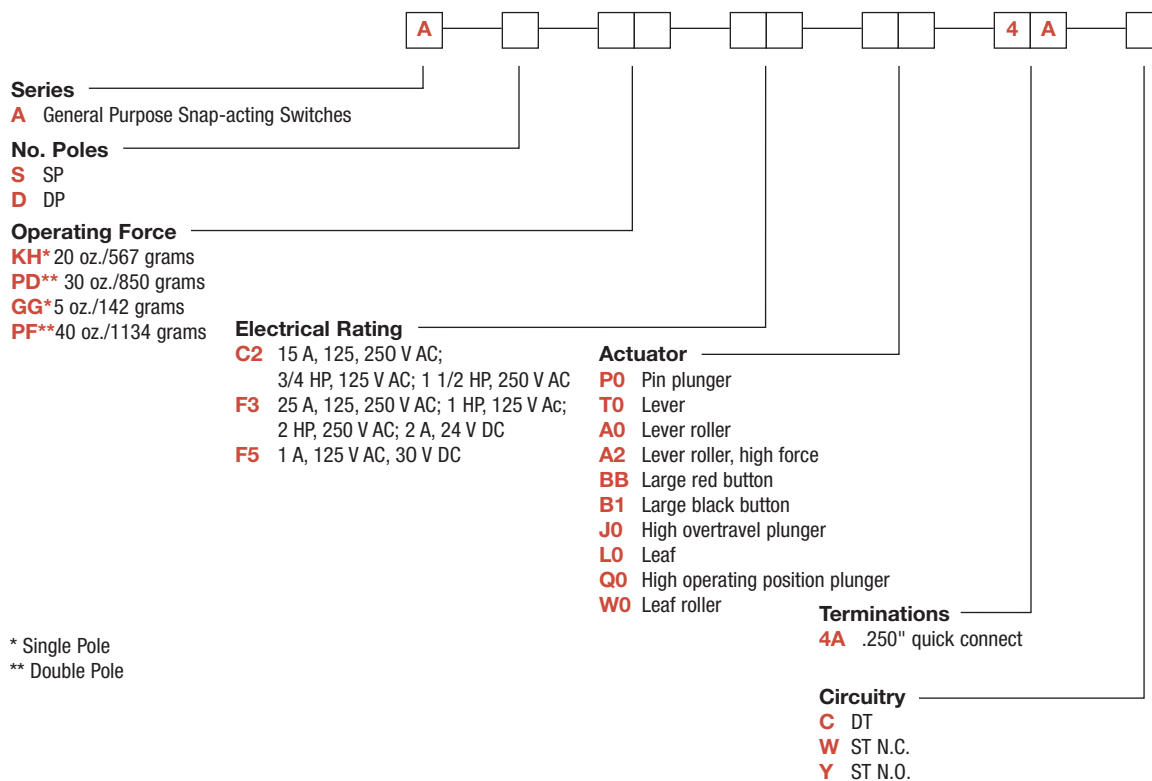
Fine silver welded on copper alloy for ratings 30.1 AMPS.

TERMINALS: Brass alloy for 1 AMP up to 15 AMPS.

Copper alloy for 30.1 AMPS.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-78 through J-81. For additional options not shown in catalog, consult Customer Service Center.



Snap-acting



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

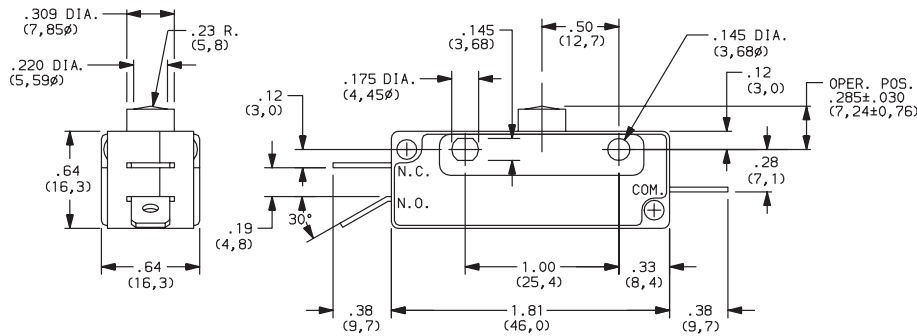
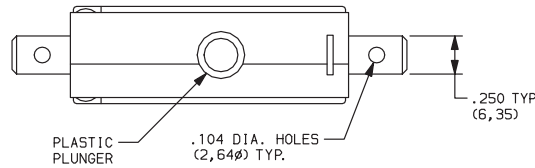
A Series General Purpose Snap-acting Switches

SERIES ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

A GENERAL PURPOSE SNAP-ACTING SWITCHES

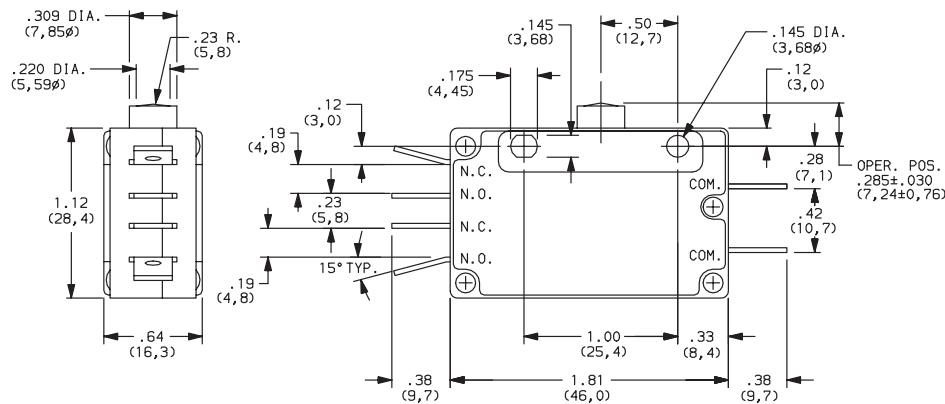
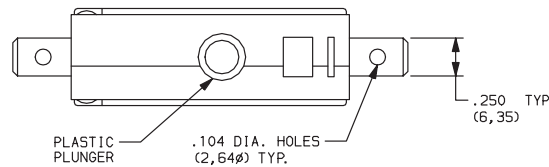
NO. POLES ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

S SINGLE POLE SWITCH



Mounting holes will accept pins or screws of .139 dia. (3,53) max., on 1.000 (25,40) centers.

D DOUBLE POLE SWITCH



Mounting holes will accept pins or screws of .139 dia. (3,53) max., on 1.000 (25,40) centers.

NOTE: To select switching function, see CIRCUITRY section, page J-81.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



Snap-acting

A Series General Purpose Snap-acting Switches

OPERATING FORCE

OPTION CODE	NO. POLES	BASIC SWITCH OPERATING FORCE (OZ./GRAMS)
KH	SP	20 567
PD	DP	30 850
GG	SP	5 142
PF	DP	40 1134

NOTE: Operating force varies with actuator, see ACTUATOR option section.

ELECTRICAL RATING

OPTION CODE	CONTACT MATERIAL		ELECTRICAL RATING
	MOVABLE CONTACT	STATIONARY CONTACT	
C2	Fine silver.	Fine silver welded on brass base alloy.	15 AMPS @ 125 & 250 V AC; 3/4 HP @ 125 V AC; 1-1/2 HP @ 250 V AC.
F3	Silver alloy.	Silver welded on copper base alloy.	25 AMPS @ 125 & 250 V AC; 1 HP @ 125 V AC; 2 HP @ 250 V AC; 2 AMPS @ 24 V DC.
F5	Gold alloy.	Gold alloy on brass base alloy.	From low level* to 1 AMP @ 125 V AC, 30 V DC.

All models  with all options.

Contact Customer Service Center for availability and delivery of nonstandard ratings.

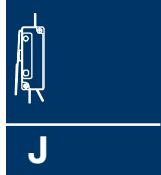
* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

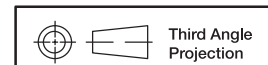
AVAILABLE COMBINATIONS

ELECTRICAL RATING	OPERATING FORCE (OZ./GRAMS)			
	GG 5 142	KH 20 567	PD 30 850	PF 40 1134
C2	•	•	•	•
F3	X	•	•	•
F5	•	•	•	•

• AVAILABLE
X NOT AVAILABLE



Snap-acting



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change

A Series General Purpose Snap-acting Switches

ACTUATOR

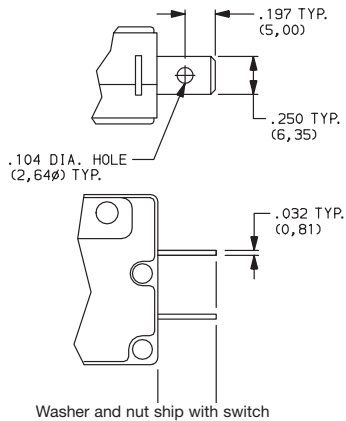
SWITCH CHARACTERISTICS

OPTION CODE	MAXIMUM OPERATING FORCE (OZ./GRAMS)				MINIMUM RELEASE FORCE (OZ./GRAMS)				MAXIMUM PRETRAVEL				MINIMUM OVERTRAVEL				OPERATING POSITION			
	GG S.P.	KH S.P.	PD D.P.	PF D.P.	GG S.P.	KH S.P.	PD D.P.	PF D.P.	GG S.P.	KH S.P.	PD D.P.	PF D.P.	GG S.P.	KH S.P.	PD D.P.	PF D.P.	GG S.P.	KH S.P.	PD D.P.	PF D.P.
A0	1.5 42.5	4 113	6 170	10 283	0.3 8.5	0.5 14	1 28		.312 (7,92)				312 (7,92)	.187 (4,75)			.718 (18,24)			
A2	1.5 42.5	4 113	6 170	10 283	0.4 11	0.5 14	1 28		.25 (6,4)				.14 (5,6)				.718 (18,24)			
B1	8 227	20 567	30 850	40 1134	1 28	3 85	6 170		.050 (1,27)				.050 (1,27)				—			
BB	8 227	20 567	30 850	40 1134	1 28	3 85	6 170		.050 (1,27)				.050 (1,27)				—			
J0	5 142	20 567	30 850	40 1134	1 28	3 85	6 170		.050 (1,27)				.187 (4,75)				—			
L0	3 85	12 340	18 510	22 624	0.5 14	1 28	2 56.7		.281 (7,14)				.062 (1,57)				.312 (7,92)			
P0	8 227	20 567	30 850	40 1134	1 28	3 85	6 170		.050 (1,27)				.050 (1,27)				—			
Q0	5 142	20 567	30 850	40 1134	1 28	3 85	6 170		.050 (1,27)				.050 (1,27)				—			
T0	1.5 42.5	4 113	6 170	10 283	0.3 8.5	0.5 14	1 28		.312 (7,92)				.187 (4,75)				312 (7,92)			
W0	3 85	12 340	18 510	22 624	0.5 14	1 28	2 56.7		.281 (7,14)				.062 (1,57)				.718 (18,24)			

NOTE: For basic switch operating forces, see page J-77.

TERMINATIONS

4A .250" QUICK CONNECT



NOTE: Terminals can be supplied at various angles. Other terminal styles can be supplied for special applications. Consult Customer Service Center for special requirements.

CIRCUITRY

- C** DT (Double Throw, Normally Open & Normally Closed)
- W** ST N.C. (Single Throw, Normally Closed)
- Y** ST N.O. (Single Throw, Normally Open)

NOTE: To select number of poles, see NO. POLES section, page J-56



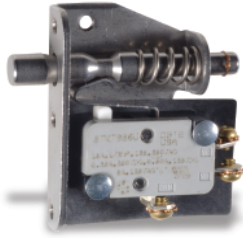
Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K



TL Series Door Interlock Switches



Features/Benefits

- Push/pull motion
- Multiple mounting configurations
- Wide variety of termination options
- Ratings up to 15 AMPS

Typical Applications

- Computer enclosures
- Panel builders
- Industrial enclosures

Specifications

CONTACT RATING: 15 AMPS @ 125 & 250 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 AMPS @ 125 V AC "L".

ELECTRICAL LIFE: 150,000 cycles at 15 AMPS @ 250 V AC.

INSULATION RESISTANCE: 1,000 M ohm min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

SWITCH HOUSING: Thermoplastic or general purpose phenolic (UL 94V-0).

MOUNTING BRACKET: Stainless steel.

PLUNGER: Stainless steel.

ACTUATOR BUTTON: Thermoplastic (UL 94V-0).

SPRING: Copper alloy.

PIVOT: Brass alloy.

MOVABLE CONTACT: Fine silver.

STATIONARY CONTACTS: Fine silver.

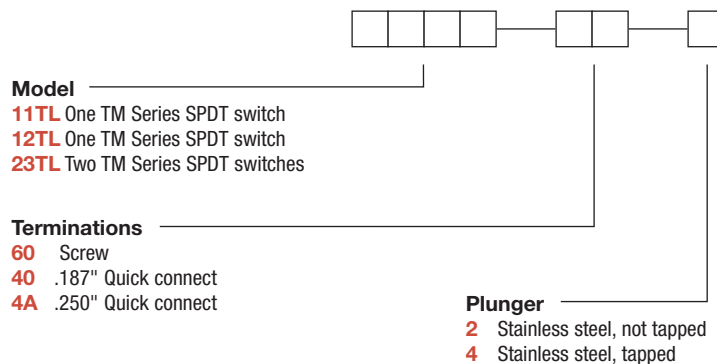
TERMINALS: Copper alloy.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-83 and J-84. For additional options not shown in catalog, consult Customer Service Center.



DS Series Interlock Pushbutton Switches

Features/Benefits

- Snap-in mounting
- Reliable snap action mechanism
- Latch or momentary
- RoHS compliant
- Halogen free material

Typical Applications

- Interlock switch
- Detection switch
- Circuit interrupt



Specifications

FUNCTION: Single pole double throw / Double pole double throw
MOUNTING TYPE: Snap in style

Electrical

ELECTRICAL LIFE: see ratings chart below
DIELECTRIC STRENGTH: 1500 V (50-60 Hz @ sea level)
INSULATION RESISTANCE: 100 M Ω min.
INITIAL CONTACT RESISTANCE: 30 milli-ohms

Materials

HOUSING, COVER, ACTUATOR, KNOB: PA 66/6 halogen free, UL94V-0
NO & NC FIXED TERMINALS: Copper alloy
COMMON TERMINALS: Copper alloy, silver plate
CONTACTS: Silver alloy / F5 rating gold plated over silver alloy
RETURN SPRINGS: Stainless steel

Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C

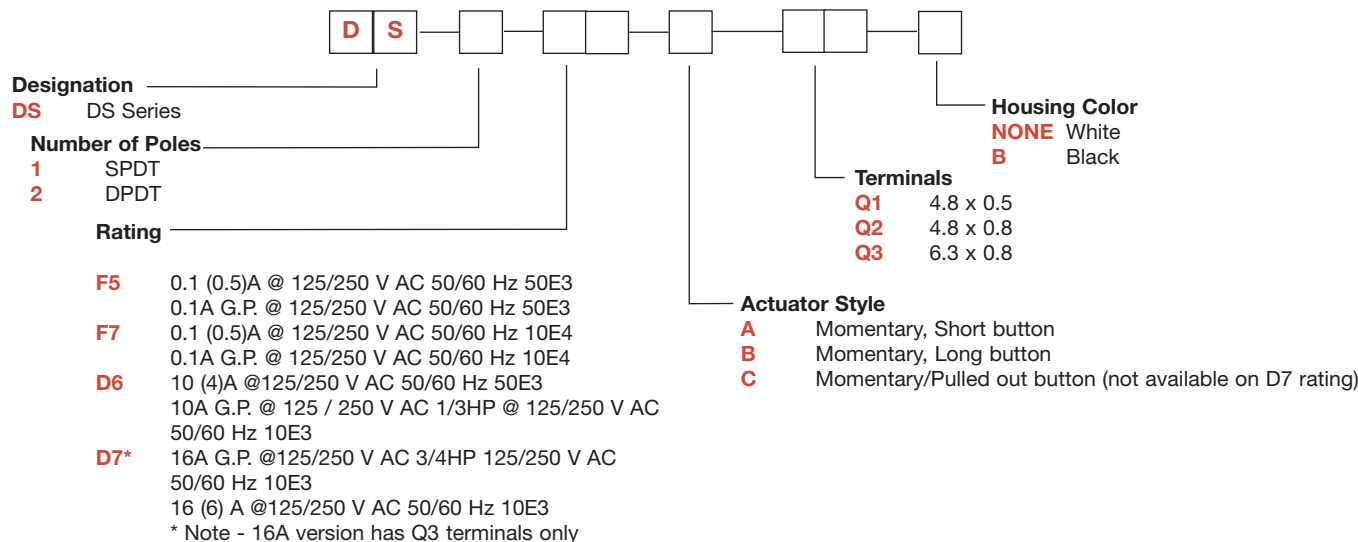
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.



Snap-acting

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



International Rating Symbols

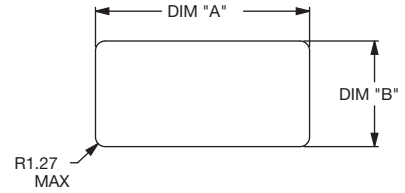
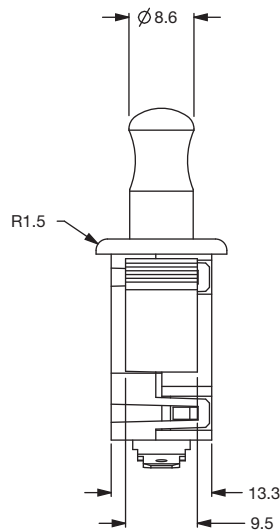
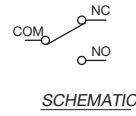
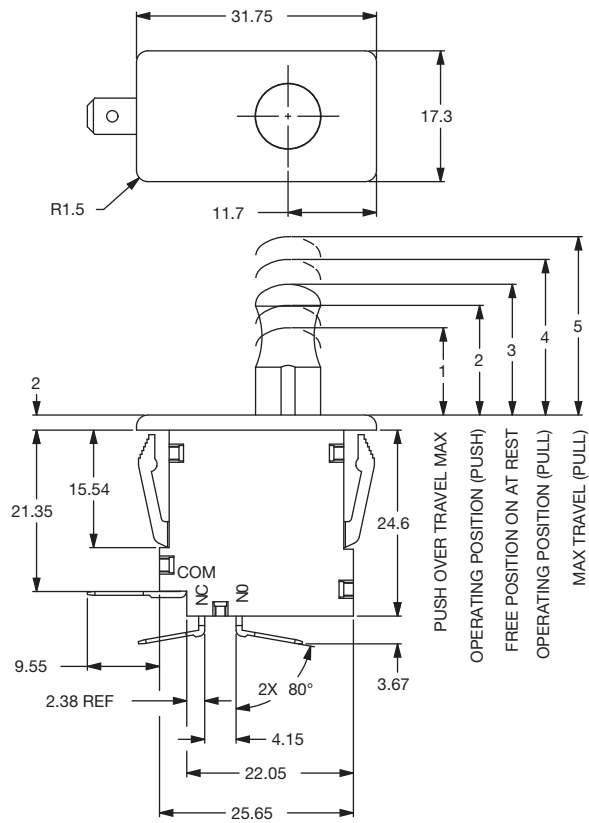
10E3	Cycles 10,000
10E4	Cycles 100,000
50E3	Cycles 50,000
10(4)	Current rating: First number represents resistive rating. Second number represents inductive (motor) rating
GP	General purpose rating UL1054



DS Series Interlock Pushbutton Switches

NUMBER OF POLES

1 SPDT

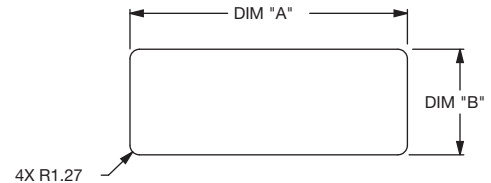
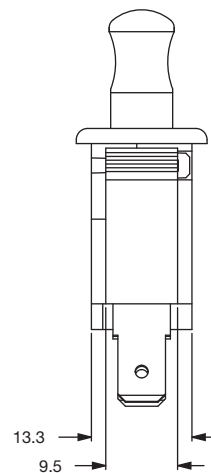
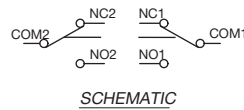
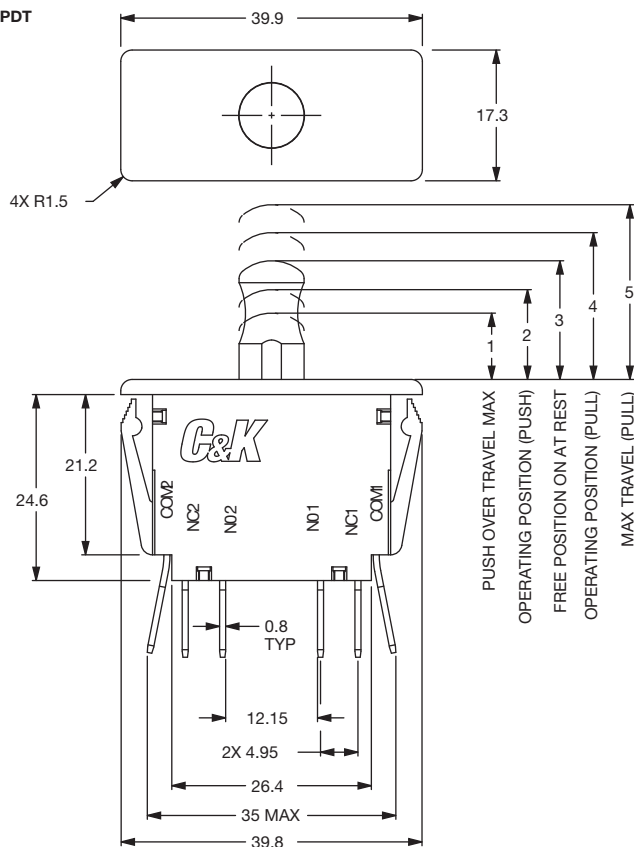


PANEL MOUNTING		
PANEL THICKNESS	DIM "A" mm	DIM "B" mm
1.14	28.32	13.97
2.54	28.58	13.97



Snap-acting

2 DPDT



PANEL MOUNTING		
PANEL THICKNESS	DIM "A" mm	DIM "B" mm
1.14	36.70	13.97
2.54	36.96	13.97



31 oct 16

J-86



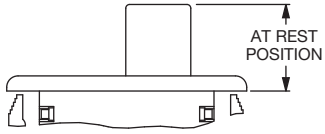
Dimensions are shown: mm
Specifications and dimensions subject to change

www.ck-components.com

DS Series Interlock Pushbutton Switches

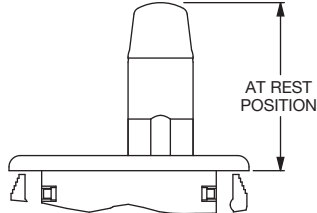
ACTUATOR STYLE / SPECIFICATIONS

A SHORT BUTTON



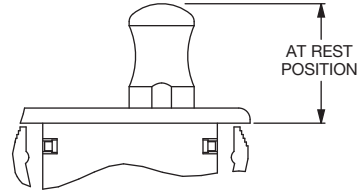
SHORT BUTTON

B LONG BUTTON

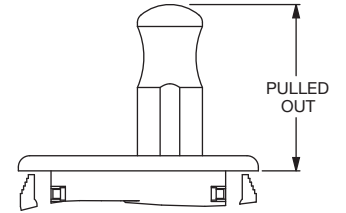


LONG BUTTON

C MOMENTARY/PULLED OUT



FREE POSITION



PULLED OUT POSITION

SPDT Specification

BUTTON STYLE	OVER TRAVEL POSITION PUSH MAX	OVER TRAVEL POSITION PULL MAX	OPERATING POSITION PUSH	OPERATING POSITION PULL	FREE POSITION AT REST	OPERATING FORCE	
A	3.20	NA	8.90 ± 1.25	NA	11.45 ± 0.75	425 gf	
B	10.15	NA	19.55 ± 1.25	NA	22.25 ± 0.75	425 gf	
C	13.20	24.90	16.75 ± 1.25	21.60 ± 1.25	19.30 ± 0.75	PUSH 385gf	PULL 475gf

DPDT Specification

BUTTON STYLE	OVER TRAVEL POSITION PUSH MAX	OVER TRAVEL POSITION PULL MAX	OPERATING POSITION PUSH	OPERATING POSITION PULL	FREE POSITION AT REST	OPERATING FORCE	
A	3.20	NA	8.90 ± 1.25	NA	11.45 ± 0.75	680 gf	
B	10.15	NA	19.55 ± 1.25	NA	22.25 ± 0.75	680gf	
C	13.20	24.90	16.75 ± 1.25	21.60 ± 1.25	19.30 ± 0.75	PUSH 560gf	PULL 750gf

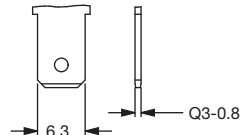
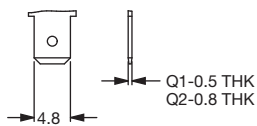


Snap-acting

TERMINALS

Q1 4.8 x 0.5
Q2 4.8 x 0.8

Q3 6.3 x 0.8



Third Angle
Projection





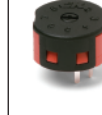


Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

31 oct 16

Rotary Switches

Product Selection Guide

Rotary							
Series	A	RTA	M	R	F	H	RW
Switch Type	Multi-pole/ Multi-position	Multi-pole/ Multi-position	Half-inch	Rota-slide	Rota-slide	Power Rota-slide	Subminiature Rotary SMT
Miniature		•			•		•
Low Profile					•		•
Screwdriver Slot	•	•	•	•	•		
Illumination							
Power						•	
Maximum Current	2.5 Amps	150 mA	6 Amps	5 Amps	4 Amps	12 Amps	0.1 A 10mA
Poles	1-4	1-4	1 & 2	1 & 2	1 & 2	1 & 2	1
Indexing	30°, 45°, 90°	22.5°, 30° 36°	30° & 36°	36°	45° & 90°	45° & 90°	36° & 45°
Splashproof	•		•				
Sealed			• F option				
Non-shorting/ Shorting Contacts	•						
Panel Mount Options							
Front Mount							
Rear Mount	•	•	•	•	•	•	
PCB Mount Options							
Vertical	•	•	•	•	•		•
Terminations							
Solder Lug	•	•	•	•	•	•	
Wire Lead				•	•	•	
Quick Connect						•	
PC	•	•	•	•	•		•
Page No.	K-3	K-8	K-13	K-18	K-21	K-25	K-28

Rotary
K

A Series 1-4 Pole Rotary Switches

Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Shorting & non-shorting contacts
- Panel and PCB mounting
- RoHS Compliant



Models Available

Typical Applications

- Automotive
- Major and small appliances
- Industrial equipment



Specifications

CONTACT RATING: Q contact material: Switch - 2.5 AMPS @ 125 V AC; 350 mA @ 125 V DC (UL/CSA). Carry - 5 AMPS continuous. See page K-6 for additional ratings.

ELECTRICAL LIFE: 15,000 make-and-break cycles at full load up to 300,000 detent operations.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
Operating and storage temp: -30° to 85°C

OPERATING & STORAGE TEMPERATURE: -30°C to 85°C

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING & BUSHING: Glass filled 6/6 nylon (UL 94V-0).

ACTUATOR: Glass filled 6/6 nylon (UL 94V-0).

MOVABLE CONTACTS: Q contact material: Coin silver, silver plated. See page K-6 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: Q contact material: Brass, silver plated. See page K-6 for additional contact materials.

HARDWARE: Nut - zinc, nickel plated. Lockwasher — steel, bright zinc plated. Stop Ring - brass, nickel plated.

TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-4 through K-7. For additional options not shown in catalog, consult Customer Service Center.

Switch Function							
A100 SP, 30° Index, 12 pos. no stops							
A102 SPDT, 30° Index							
A103 SP, 30° Index, 3 pos.							
A104 SP, 30° Index, 4 pos.							
A105 SP, 30° Index, 5 pos.							
A106 SP, 30° Index, 6 pos.							
A107 SP, 30° Index, 7 pos.							
A108 SP, 30° Index, 8 pos.							
A109 SP, 30° Index, 9 pos.							
A110 SP, 30° Index, 10 pos.							
A112 SP, 30° Index, 12 pos.							
A114 SP, 90° Index, 2 pos.							
A115 SP, 45° Index, 3 pos.							
A124 SP, 90° Index, 4 pos.							
A125 SP, 45° Index, 8 pos.							
A203 DP, 30° Index, 3 pos.							
A204 DP, 30° Index, 4 pos.							
A205 DP, 30° Index, 5 pos.							
A206 DP, 30° Index, 6 pos.							
A214 DP, 90° Index, 2 pos.							
A303 3P, 30° Index, 3 pos.							
A304 3P, 30° Index, 4 pos.							
A402 4PDT, 30° Index							
A403 4P, 30° Index, 3 pos							
	Actuator						
	15 1.500" high, flatted						
	03 .375" high, flatted						
	05 .500" high, flatted						
	14 1.500" high, flatted						
	42 1.654" high, metric						
	S1 Screwdriver Slot						
	Mounting Style						
	R 3/8-32 threaded						
	M M10 x .75 metric						
	Shorting/Non-shorting Contacts						
	N Non-shorting contacts						
	S Shorting contacts (Not available with models A114, A124 & A214)						
	Terminations						
	Z Solder lug						
	C PC Thru-hole						
	MC Modular base						
	Contact Material						
	Q Silver						
	B Gold						
	G Gold over silver						
	Seal						
	NONE No seal						
	E Epoxy seal						
	F Splashproof bushing seal						
	K Epoxy & splashproof bushing seal						



Rotary



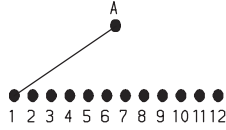
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

A Series 1-4 Pole Rotary Switches

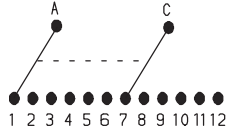
SWITCH FUNCTION

30° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	A100	12 Position No Stops	A,1-12
	A102	SPDT	A,1,2*
	A103	3 Position	A,1-3*
	A104	4 Position	A,1-4*
	A105	5 Position	A,1-5*
	A106	6 Position	A,1-6*
	A107	7 Position	A,1-7
	A108	8 Position	A,1-8
	A109	9 Position	A,1-9
	A110	10 Position	A,1-10
A112	12 Position	A,1-12	
DP	A203	3 Position	A,C,1-3,7-9
	A204	4 Position	A,C,1-4,7-10
	A205	5 Position	A,C,1-5,7-11
	A206	6 Position	A,C,1-12
3P	A303	3 Position	A,B,C,1-3,5-7,9-11
	A304	4 Position	A,B,C,1-12

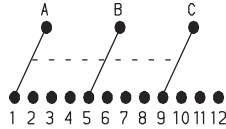
SP MODELS SCHEMATIC



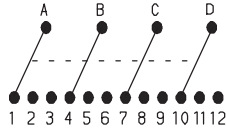
DP MODELS SCHEMATIC



3P MODELS SCHEMATIC



4P MODELS SCHEMATIC

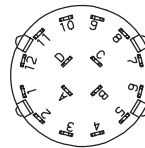


30° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
4P	A402	4PDT	A,B,C,D,1,2,4,5,7,8,10,11
	A403	3 Position	All Terminals

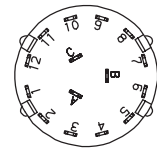
45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	A115	3 Position	A,1,2,4*
	A125	8 Position	A,1,2,4,5,7,8,10,11

90° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	A114	2 Position	A,1,4*
	A124	4 Position	A,1,4,7,10
DP	A214	2 Position	A,C,1,4,7,10

TERMINAL NUMBERS



Terminal numbers molded on bottom of housing.

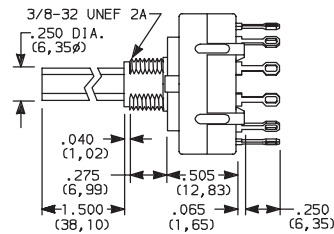
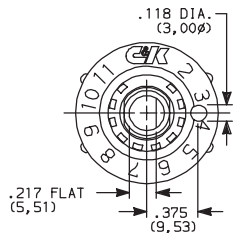


4P MODELS
SP MODELS (omit terminals B, C & D)
DP MODELS (omit terminals B & D)

3P MODELS

NOTE: * These models with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch.

All models **C&K** with all options when ordered with 'G' or 'Q' contact material, see page K-6.



TERM. NOS.
MOLDED ON HOUSING

Rotary
K

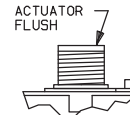
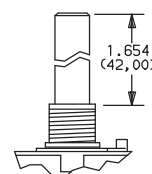
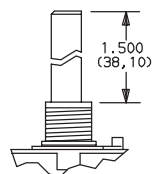
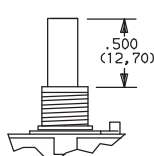
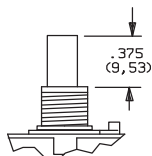
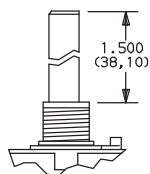
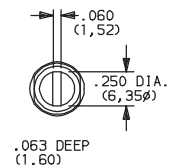
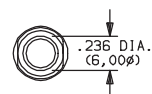
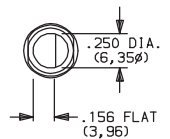
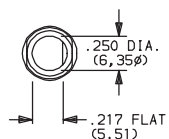
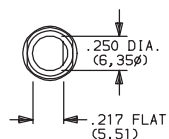
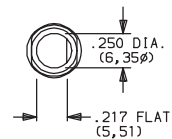


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

A Series 1-4 Pole Rotary Switches

ACTUATOR

- 15** 1.500" HIGH **03** .375" HIGH **05** .500" HIGH **14** 1.500" HIGH **42** 1.654" METRIC **S1** SCREWDRIVER SLOT

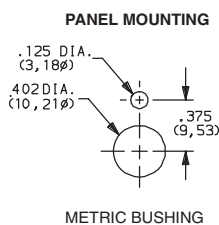
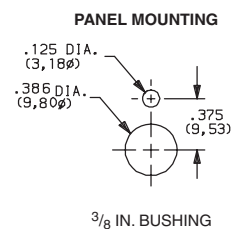
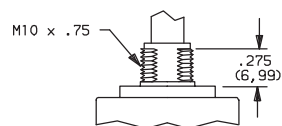
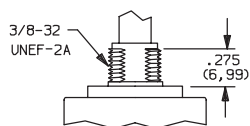


NOTE: Actuators shown in position 1, fully CCW.

MOUNTING STYLE

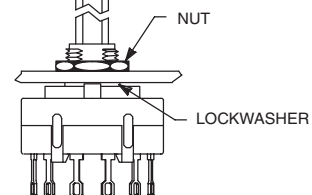
- R** 3/8-32 THREAD

- M** M10 x .75 METRIC



TYPICAL INSTALLATION

Maximum force to push on knob should not exceed 10 lbs.



Install switch with stop ring (if used) and lockwasher in back of panel. Tighten hex nut from front of panel.

On PC mounted switches, use hex nut and lockwasher to hold stop ring in place.

Actuation torque: 8-16 oz./in.
Maximum torque: 30 oz./in.

SHORTING/NON-SHORTING CONTACTS

- N** NON-SHORTING CONTACTS (break-before-make)
S SHORTING CONTACTS (make-before-break)

NOTE: 'S' shorting contacts are not available with A114, A124 and A214 models.



Third Angle
Projection

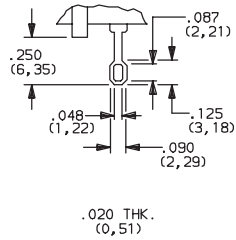
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



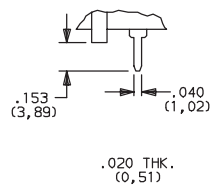
A Series 1-4 Pole Rotary Switches

TERMINATIONS

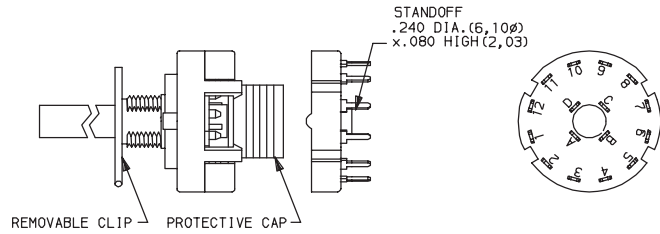
Z SOLDER LUG



C PC THRU-HOLE

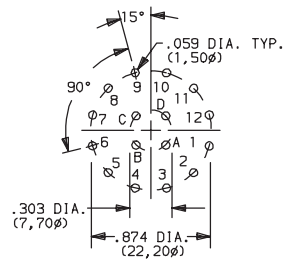


MC MODULAR BASE (for wave soldering)

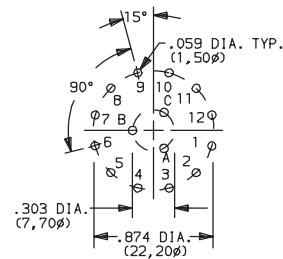


NOTE: Switches with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch. Solder and clean switch base on PC board with other components, then snap on housing/actuator assembly. See page K-7 for installation instructions.

PC MOUNTING



4P MODEL
SP MODEL (omit terminals B, C & D)
DP MODEL (omit terminals B & D)



3P MODEL

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
Q	SILVER ²	POWER	SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS.
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX
G	GOLD OVER SILVER ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125 V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS.


* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

¹ MOVABLE CONTACTS: Copper alloy, with gold plate over nickel plate.
STATIONARY CONTACTS & TERMINALS: Brass, with gold plate over nickel plate.

² MOVABLE CONTACTS: Coin silver, silver plated.
STATIONARY CONTACTS & TERMINALS: Brass, silver plated (standard with all termination options).

³ MOVABLE CONTACTS: Coin silver, with gold plate over nickel plate over silver plate.
STATIONARY CONTACTS & TERMINALS: Brass, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

All models  with all options when ordered with 'G' or 'Q' contact material.

NOTE: 'G' contact material is equivalent to both 'B' and 'Q' contact materials.

Rotary



K



A Series 1-4 Pole Rotary Switches

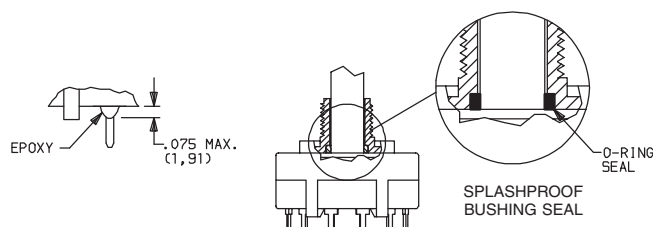
FUNCTION

NONE NO SEAL

E EPOXY SEAL

F SPLASHPROOF BUSHING SEAL

K EPOXY & SPLASHPROOF BUSHING SEAL



Setting Stops on A112 and A125 Models

The number of switch positions is adjustable on A112 and A125 models only by means of a stop ring provided with each switch. The number of positions is pre-set on all other models and the stop ring is factory installed.

To set stops: Turn shaft fully counter-clockwise and insert stop ring tab in desired hole. Install lockwasher and nut to retain stop ring for both PC and panel mounting. Switch without stop ring has 12 positions.

Soldering, Cleaning and Assembly Instructions for 'MC' Termination Option

Soldering

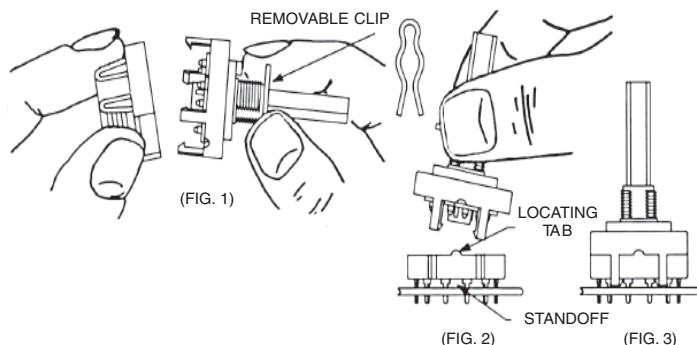
1. Insert switch base only into PC board.
2. Do not bend terminals.
3. Wave soldering recommended at 500F solder temperature.
4. Hand solder at 500F, 10 sec. max./terminal.

Cleaning

1. Flux clean using vapor degreaser and forced rinse or triple bath method.
2. Do not allow switch base to 'trap' fluids.
3. Freon TMC, TF or Methylene Chloride give excellent results.

Switch Assembly

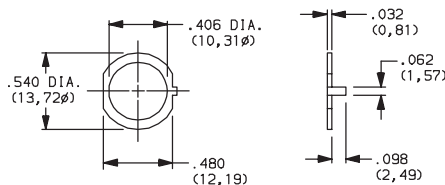
1. Hold housing/shaft assembly by housing. Remove protective cap by squeezing tabs and discard. (FIG. 1)
2. Do not push on switch shaft. Detent mechanism will come apart.
3. While holding switch housing, align locating tab on base with notch on housing and engage 4 housing latches in slots on base. (FIG. 2)
4. Push firmly on housing until latches snap in place.
5. Remove clip from shaft and discard. Assembly is complete. (FIG. 3)



Rotary

AVAILABLE HARDWARE

Stop ring



PART NO.

767B00201

Material: Brass

Finish: Nickel plated



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change

C&K

RTA Series 1-4 Poles Coded Rotary Switches



Features/Benefits

- PCB or hand soldering versions
- Bushing mounting
- Multiple poles
- Decimal and hexadecimal codes
- Screwdriver slot or extended actuator
- RoHS Compliant

Typical Applications

- Appliances
- Electronic alarm systems
- Medical
- Building automation
- HVAC air conditioning

Electrical Data

	Silver	Gold
SWITCHING MODE:	BBM	BBM
MAX. SWITCHING POWER	5 VA	0.5 VA
MAX. SWITCHING CURRENT:	150 mA	20 mA
MAX. CARRYING CURRENT:	5 A	1 A
NOMINAL VOLTAGE AT 50 Hz	60 V	25 V
CONTACT RESISTANCE:	< 150 mΩ	< 150 mΩ
DIELECTRIC STRENGTH AT 50 Hz BETWEEN CONTACTS AND GROUND TERMINALS:	500 V r	500 V r
INSULATION RESISTANCE BETWEEN CONTACTS OR CONTACTS AND FRAME (500 V ⇒):	10 ⁹ Ω	10 ⁹ Ω
NO. OF OPERATIONS:	10,000	10,000
BOUNCE:	< 5 ms	< 5 ms

Mechanical Data

MAX. NO. OF BANKS: 1.
 OPERATING TORQUE: 5 Ncm±20%.
 END STOP TORQUE: < 60 Ncm.
 STOP: With/without or adjustable
 MOUNTING: By fixed index 9.5 mm (0.374) of center, for bushing mount only

Materials

BUSHING/HOUSING: PETP Thermoplastic
 STATIONARY CONTACTS & TERMINALS: Nickel Plated Brass with additional plating of Gold or Silver.
 ROTOR: Gold or Silver plated Brass or PCB.
 CODING PLATE: PA thermoplastic
 ACTUATOR: Polysulfon thermoplastic
 HARDWARE: Stop pin: Aluminum. Ball & Spring: Stainless steel. Washer: PA. Nut: Brass.

Environmental Data

OPERATING TEMPERATURE: -20°C to + 70°C -20°C to + 70°C
 STORAGE TEMPERATURE: -40°C to + 85°C -40°C to + 85°C

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-9 thru K-12. For additional options not shown in catalog, consult Customer Service Center.



Designation

RTA

Termination

- P** With PC Thru-hole
- H** Horizontal with PC Thru-hole

Switch Function

- 1W12** SP, 30° Index, 12 pos. no stop
- 1W10** SP, 36° Index, 10 pos. no stop
- 1S02** SP, 30° /36° Index, 2 pos.
- 1S03** SP, 30° /36° Index, 3 pos.
- 1S04** SP, 30° /36° Index, 4 pos.
- 1S05** SP, 30° /36° Index, 5 pos.
- 1S06** SP, 30° /36° Index, 6 pos.
- 1S07** SP, 30° /36° Index, 7 pos.
- 1S08** SP, 30° /36° Index, 8 pos.
- 1S09** SP, 30° /36° Index, 9 pos.
- 1S10** SP, 30° /36° Index, 10 pos.
- 1S11** SP, 30° Index, 11 pos.
- 1S12** SP, 30° Index, 12 pos.
- 2S02** DP, 30° /36° Index, 2 pos.
- 2S03** DP, 30° /36° Index, 3 pos.
- 2S04** DP, 30° /36° Index, 4 pos.
- 2S05** DP, 30° /36° Index, 5 pos.
- 2S06** DP, 30° Index, 6 pos.
- 3S02** 3P, 30° /36° Index, 2 pos.

Indexing

- 2** 22.5 index (coded only)
- 3** 30° index (12 positions max.)
- 4** 36° index (10 positions max.)

- 3S03** 3P, 30° /36° Index, 3 pos.
- 4S02** 4P, 30° /36° Index, 2 pos.
- EW10** Direct + complement, 36° Index, no stop
- EW12** Direct + complement, 30° Index, no stop
- DW16** Direct, 22.5° Index, no stop
- ES__** Direct + complement, 30°/36° Index, with stop (specify stop position)
- DS__** Direct, 22.5° Index, with stop (specify stop position)

Mounting Style

- W** Without bushing
- R** 3/8-32 Threaded Bushing
- M** M10x.75 Metric Threaded Bushing
- A** 3/8-32 Threaded Bushing with Offset Bracket
- B** M10x.75 Metric Threaded Bushing with Offset Bracket

Contact Material

- S** Silver plated, matte-tin terminal
- P** Gold plated, matte-tin terminal

Actuator (max.)

- 25N** .984 (25,0) with screwdriver slot
- 50N** 1.97 (50,0) with screwdriver slot
- FLS** Flush shaft with screwdriver slot and position indicator
- 25F** .984 (25,0) Shaft with flat
- 06F** .236 (6,0) Shaft with flat

- C** 3/8-32 Threaded Bushing with Straight Bracket
- D** M10x.75 Metric Threaded Bushing with Straight Bracket



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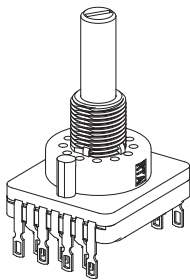
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

RTA Series 1-4 Poles Coded Rotary Switches

DESIGNATION



RTA

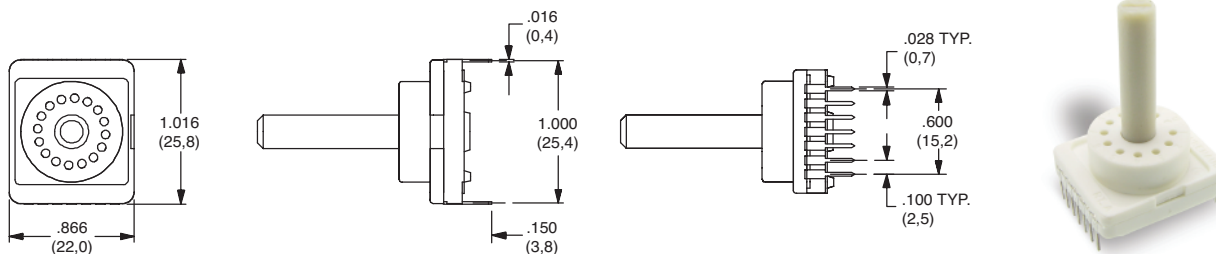


TERMINATION



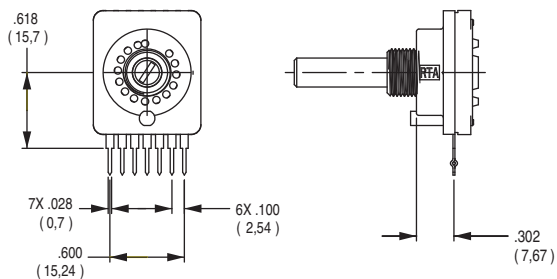
P

WITH PC PINS



H

Horizontal with PC Thru-hole



Note: "H" termination only available with the following options:

1. With A or B mounting styles
2. 36° degree indexing
3. Up to 5 positions max

INDEXING



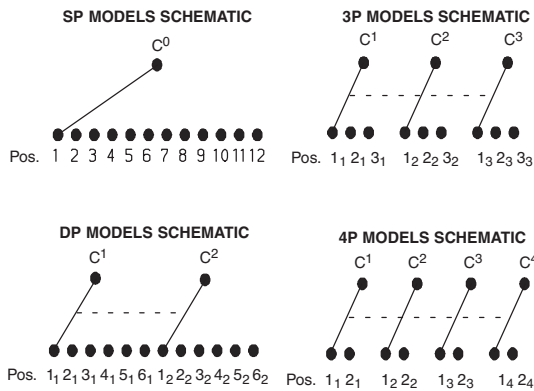
- 2** 22.5 index, 16 positions max.
- 3** 30 index, 12 positions max.
- 4** 36 index, 10 positions max.

Both commons must be connected by user to ground.

RTA Series 1-4 Poles Coded Rotary Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION	INDEX
SP	1W12	12 Positions No Stop	30°
	1W10	10 Positions No Stop	36°
	1S02	2 Positions	30°/36°
	1S03	3 Positions	30°/36°
	1S05	5 Positions	30°/36°
	1S06	6 Positions	30°/36°
	1S08	8 Positions	30°/36°
	1S09	9 Positions	30°/36°
	1S10	10 Positions	30°/36°
	1S11	11 Positions	30°
	1S12	12 Positions	30°

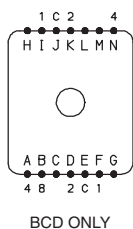


NO. POLES	MODEL NO.	SWITCH FUNCTION	INDEX
DP	2W05	5 Positions No Stop	30°/36°
	2W06	6 Positions No Stop	30°
	2S02	2 Positions	30°/36°
	2S03	3 Positions	30°/36°
	2S04	4 Positions	30°/36°
	2S05	5 Positions	30°/36°
	2S06	6 Positions	30°
	3P	3S02	2 Positions
3S03		3 Positions	30°/36°
4P	4S02	2 Positions	30°/36°

MODEL NO.	SWITCH FUNCTION	INDEX
EW10	Direct + complement, No stop	36°
EW12	Direct + complement, No stop	30°
DW16	Direct, No stop	22.5°
ES__	Direct + complement, with stop (specify stop position)	30° & 36°
DS__	Direct, with stop (specify stop position)	22.5°

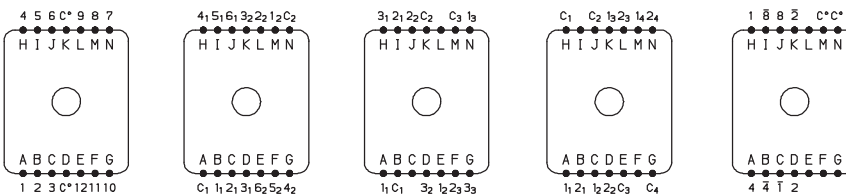
22.5°	30°	36°		Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Term.	Term.	Term.																			
E,J	M,N	L,N	C		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
F,I	H	D	1			*				*		*		*		*		*		*	
D,K	D	B	2				*	*			*	*			*	*			*	*	
A,N	A	I	4					*	*	*	*					*	*	*	*	*	
B	J	J	8									*	*	*	*	*	*	*	*	*	
-	C	K	1		*		*		*		*		*		*		*		*		*
-	K	H	2		*	*			*	*			*	*		*	*			*	*
-	B	A	4		*	*	*	*				*	*	*	*						
-	I	C	8		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Indexing Option Code 2, 22.5 INDEXING ANGLE PCB LAYOUT



BCD ONLY

Indexing Option Code 3, 30 INDEXING ANGLE PCB LAYOUT



1 POLE

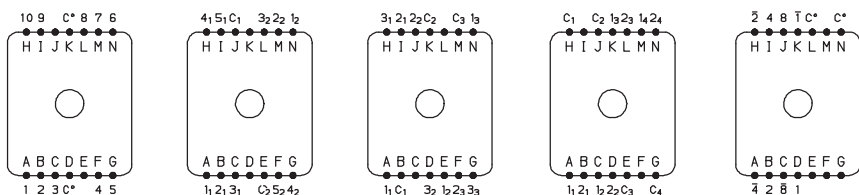
2 POLES

3 POLES

4 POLES

BCD + COMPLEMENTS

Indexing Option Code 4, 36 INDEXING ANGLE PCB LAYOUT



1 POLE

2 POLES

3 POLES

4 POLES

BCD + COMPLEMENTS

NOTE: Layout view from component side.

Common terminals that are in locations A-G are not connected to common terminals that are in locations H-N. For 7-12 position output customer must tie these commons together.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

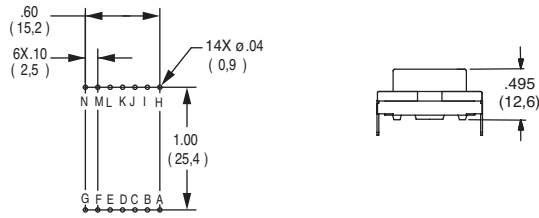


7 nov 16

RTA Series 1-4 Poles Coded Rotary Switches

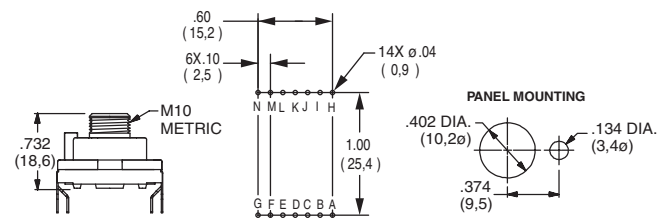
MOUNTING STYLE

W WITHOUT BUSHING



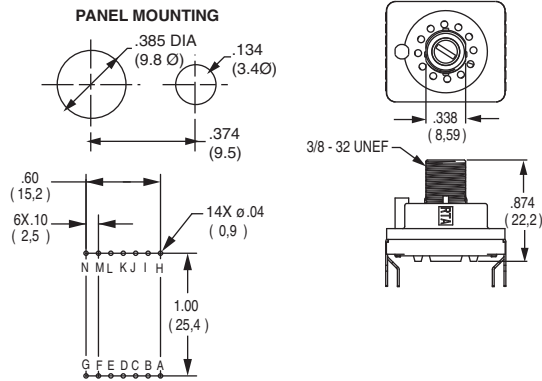
Note: W mounting style not available with H termination.

M M10 x .75 METRIC THREADED BUSHING



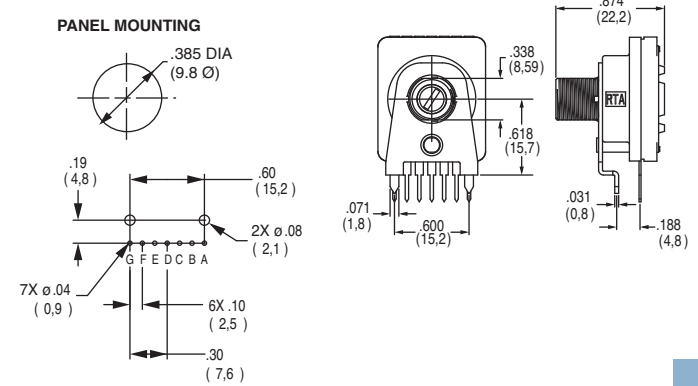
Note: M mounting style not available with H termination.

R 3/8-32 THREADED BUSHING



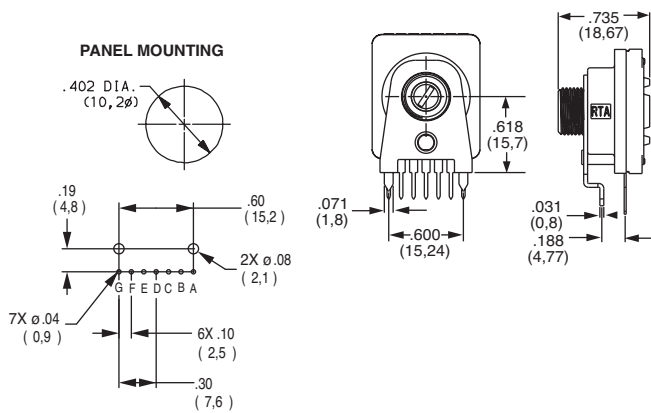
Note: R mounting style not available with H termination.

A 3/8-32 THREADED BUSHING WITH BRACKET



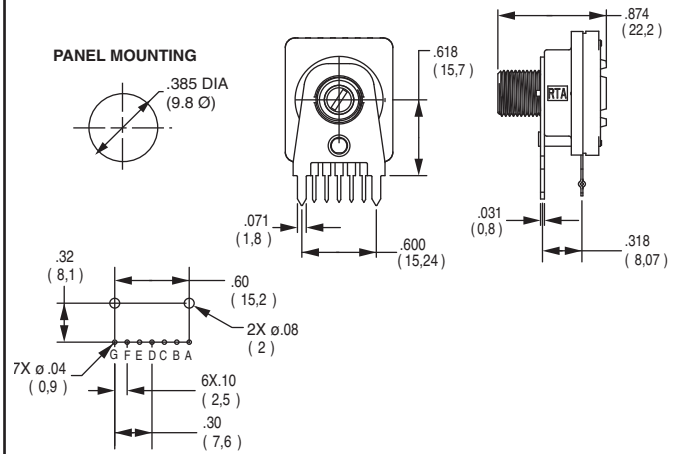
Note: A mounting style only available with H termination.

B M10 x .75 METRIC THREADED BUSHING WITH BRACKET

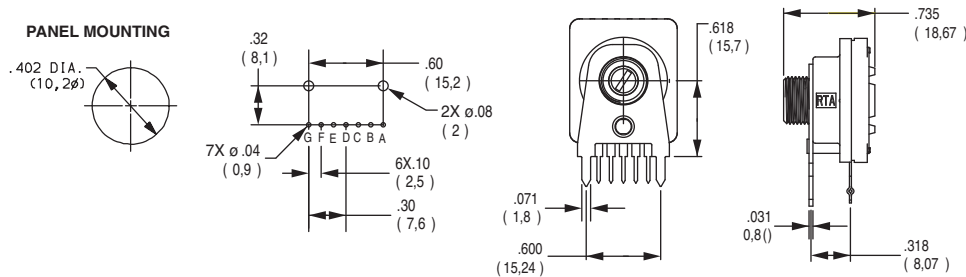


Note: B mounting style only available with H termination.

C 3/8-32 THREADED BUSHING WITH STRAIGHT BRACKET



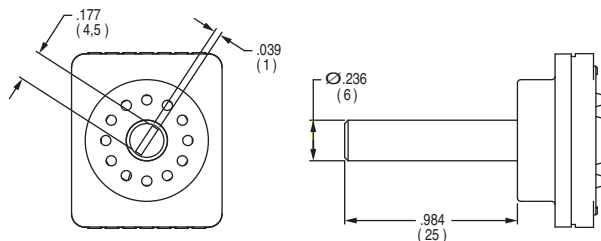
D M10 x .75 METRIC THREADED BUSHING WITH STRAIGHT BRACKET



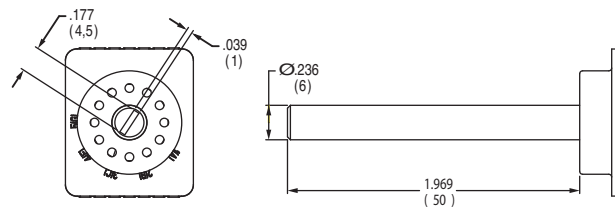
RTA Series 1-4 Poles Coded Rotary Switches

ACTUATOR

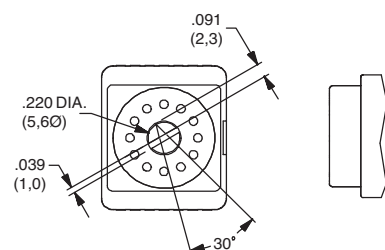
25N .984 (25,0) WITH SCREWDRIVER SLOT



50N 1.97 (50,0) WITH SCREWDRIVER SLOT

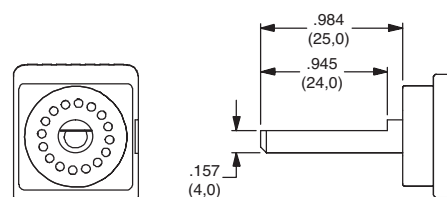


FLS FLUSH SHAFT WITH SCREWDRIVER SLOT AND POSITION INDICATOR



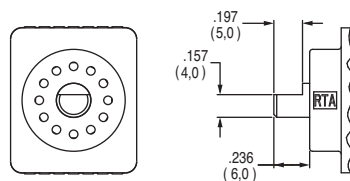
Note: only available with "W" Mounting Style

25F .984 (25,0) SHAFT WITH FLAT



Note: only available with "W" Mounting Style

06F .236 (6,0) SHAFT WITH FLAT



Note: only available with "W" Mounting Style

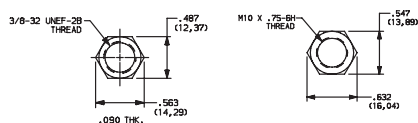
CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
S	SILVER	LOW LEVEL/DRY CIRCUIT	SWITCH: 150 mA MAXIMUM, 60 V NOMINAL. POWER: 5 VA MAXIMUM. CARRY-5 AMPS MAXIMUM.
P	GOLD	LOW LEVEL/DRY CIRCUIT OR POWER	SWITCH: 20 mA MAXIMUM, 25 V NOMINAL. POWER: 0.5 VA MAXIMUM. CARRY: 1 AMP MAXIMUM.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

AVAILABLE HARDWARE

Mounting Nuts



PART NO.
472706201
Standard

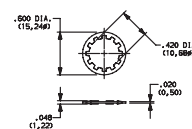
PART NO.
495100201
Metric

Stop pins



PART NO.
Y200300200PCH

Lockwasher



PART NO.
472800202

NOTE: Additional nuts and lockwashers available separately, see section "Technical Data and Additional Hardware".



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



K

Rotary

M Series Half-inch Rotary Switches

Features/Benefits

- Multi-pole and multi-positions
- Panel and PCB mounting
- Stainless steel actuator
- Non-shorting contacts
- RoHS Compliant
- IP67 (F option only)

Typical Applications

- Test equipment
- Industrial equipment
- Medical equipment



Models Available

Specifications

CONTACT RATING: Q contact material: Carry-6 AMPS continuous. Switch-250 mA max. @ 125 V AC or 28 DC. Non-shorting contacts standard. See page K-16 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at 150 mA, 125 V AC or 28 DC.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10¹⁰ Ω min.

DIELECTRIC STRENGTH: 600 Vrms min. @ sea level.

OPERATING & STORAGE TEMPERATURE: -30°C to 85°C.

OPERATING TORQUE: 4-7 ounces-inches typ. initial.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING AND BUSHING: Zinc alloy, bright zinc plated, with clear chromate finish.

ACTUATOR: Zinc alloy, nickel plated or stainless steel.

BASE: Diallylphthalate (DAP) or melamine phenolic, with insert molded terminals.

ROTOR: Glass filled polyester (UL 94V-0).

MOVABLE CONTACTS:
Non-shorting: Q contact material: Copper alloy, silver plated. See page K-16 for additional contact materials.

STATIONARY CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. All terminals insert molded. All terminals present regardless of number of switch positions. See page K-16 for additional contact materials.

CONTACT SPRING: Music wire, phosphate coated.

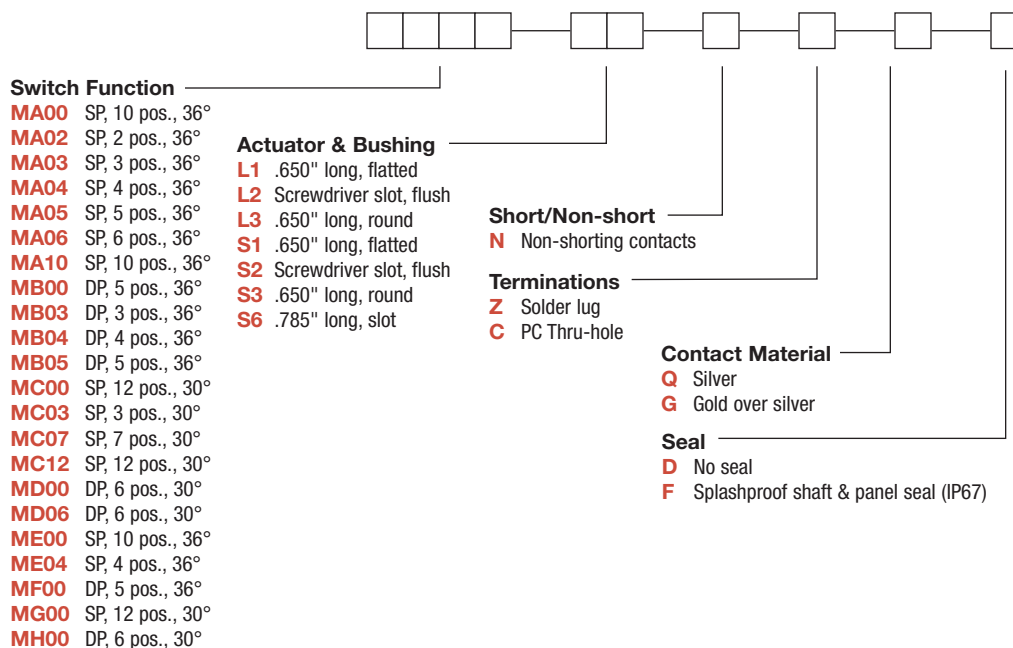
STOP PIN: Stainless steel.

STOP RING: Brass.

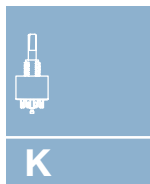
HARDWARE: Nut: Brass, nickel plated; Lockwasher: Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-14 thru K-17. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



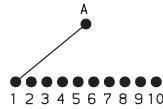
Rotary

M Series Half-inch Rotary Switches

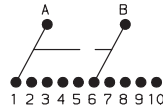
SWITCH FUNCTION

36° INDEXING			
NO. POLES	MODEL NO. WITH STOP PINS	MODEL NO. WITH STOP RINGS	SWITCH FUNCTION
SP	MA00	ME00	10 Positions No Stops
	MA02	—	2 Positions
	MA03	—	3 Positions
	MA04	ME04	4 Positions
	MA05	—	5 Positions
	MA06	—	6 Positions
	MA10	—	10 Positions
DP	MB00	MF00	5 Positions No Stops
	MB03	—	3 Positions
	MB04	—	4 Positions
	MB05	—	5 Positions

SP MODELS 36° INDEXING SCHEMATIC



DP MODELS 36° INDEXING SCHEMATIC

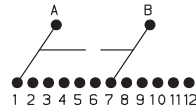


30° INDEXING			
NO. POLES	MODEL NO. WITH STOP PINS	MODEL NO. WITH STOP RINGS	SWITCH FUNCTION
SP	MC00	MG00	12 Positions No Stops
	MC03	—	3 Positions
	MC07	—	7 Positions
	MC12	—	12 Positions
DP	MD00	MH00	6 Positions No Stops
	MD06	—	6 Positions

SP MODELS 30° INDEXING SCHEMATIC



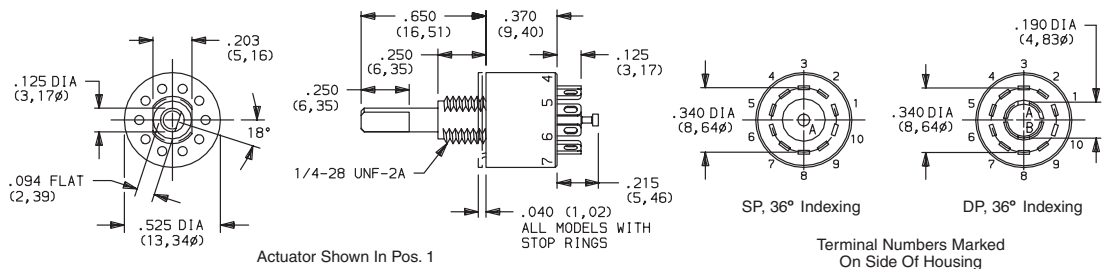
DP MODELS 30° INDEXING SCHEMATIC



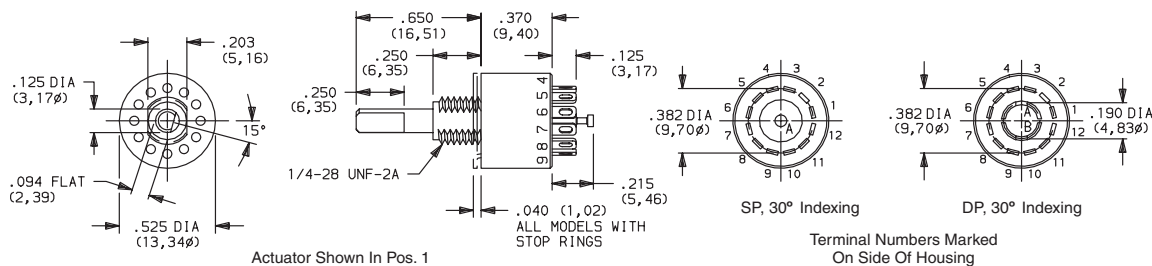
All models  with all options when ordered with S1-S6 stainless steel actuator options.

NOTE: Number of positions or stops preset at factory (NOTE: MX00 models have full 360 rotation with no stops. Stop pins or stop rings supplied for user-selectable stops, see above). All terminals present regardless of number of switch positions. Hardware is available separately, see section "Technical Data and Additional Hardware".

Rotary



Part number shown: MA00L1NZQD



Part number shown: MC00L1NZQD



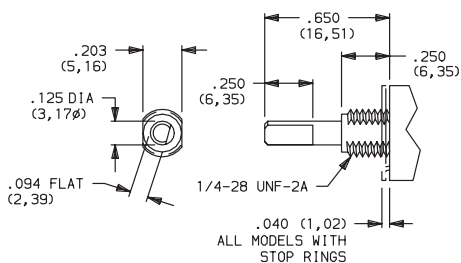
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



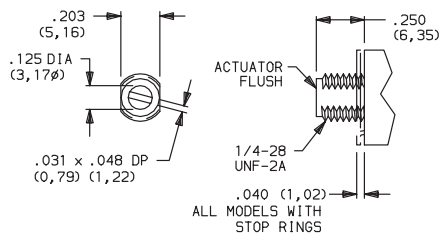
M Series Half-inch Rotary Switches

ACTUATOR (ZINC ALLOY)

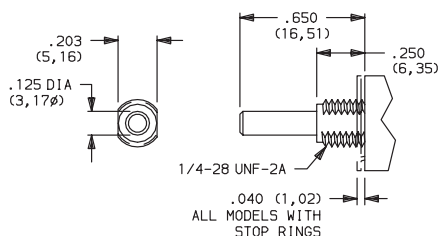
L1 .650" LONG, FLATTED



L2 SCREWDRIVER SLOT, FLUSH



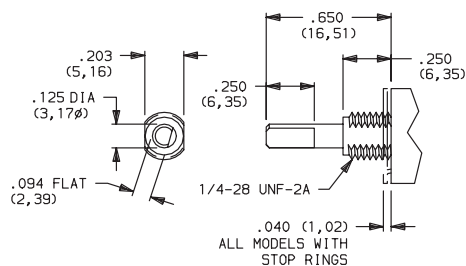
L3 .650" LONG, ROUND



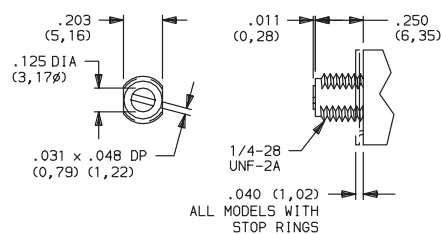
All actuators shown in pos. 1

ACTUATOR (STAINLESS STEEL)

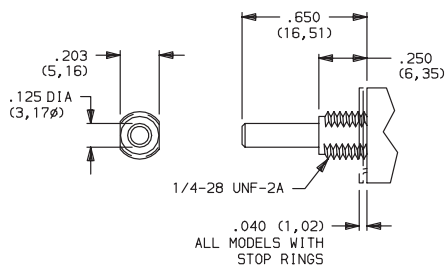
S1 .650" LONG, FLATTED



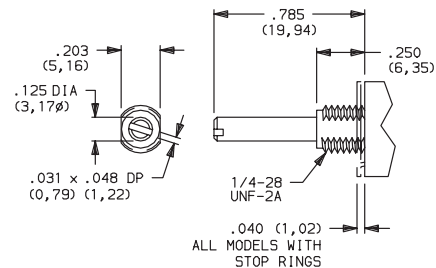
S2 SCREWDRIVER SLOT, FLUSH



S3 .650" LONG, ROUND



S6 .785" LONG, SLOT



All actuators shown in pos. 1

All models  when ordered with stainless steel actuators.



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



K

Rotary

M Series Half-inch Rotary Switches

SHORTING/NON-SHORTING CONTACTS

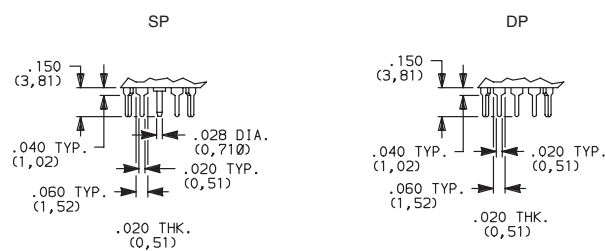
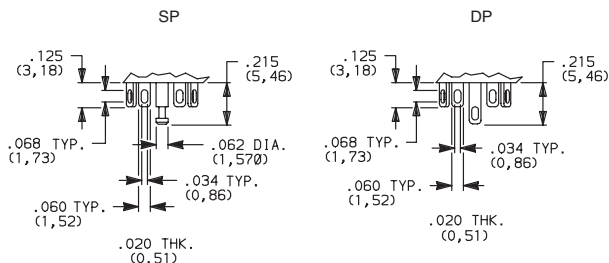
N NON-SHORTING CONTACTS

Break-before-make

TERMINATIONS

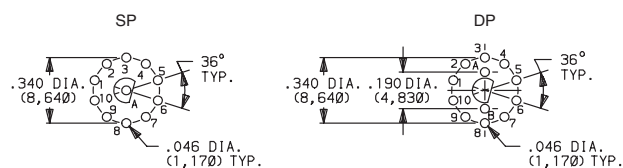
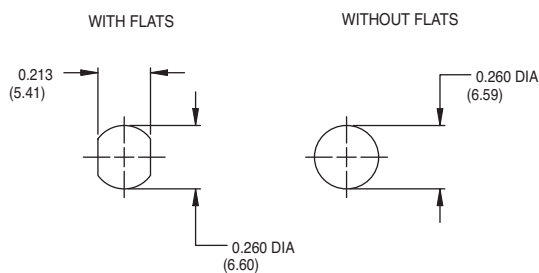
Z SOLDER LUG

C PC THRU-HOLE

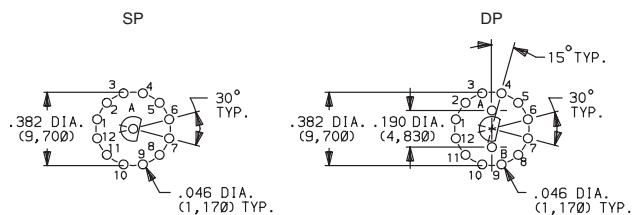


PANEL MOUNTING

PC MOUNTING 36° INDEXING



PC MOUNTING 30° INDEXING



Hardware: All models, one mounting nut and lockwasher supplied standard. MA00 thru MD00 models: two stop pins and adhesive mylar washer supplied. ME00 thru MH00 models: two stop rings supplied. Hardware is available separately, see section "Technical Data and Additional Hardware".

* Will withstand 12 in. - lbs of torque with no distortion.

NOTE: Q contact material standard. Terminal numbers marked on side of housing. All terminals insert molded. All terminals present regardless of number of switch positions.

Actuators and schematics shown in pos. 1.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATING	
			POWER	CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC.
Q	SILVER ^{1,2}	SILVER ²	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or, CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC.
G	GOLD OVER SILVER ^{3,4}	GOLD ⁴		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.


¹ MOVABLE CONTACTS: Non-shorting: Copper alloy, silver plated.

² STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

³ MOVABLE CONTACTS: Non-shorting: Copper alloy, with gold plate over nickel plate, over silver plate.

⁴ STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q, G contact material are RoHS compliant.

All models  when ordered with S1-S6 stainless steel actuator options.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

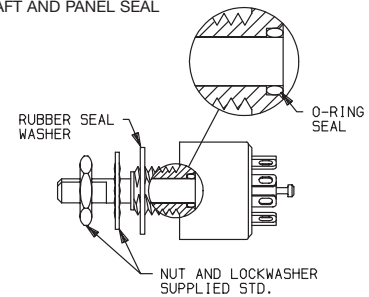


M Series Half-inch Rotary Switches

SEAL

D NO EPOXY SEAL

F SPLASHPROOF SHAFT AND PANEL SEAL
IP67 approved



Setting Stops With Stop Pins

MA00, MB00, MC00 & MD00 Models Only:

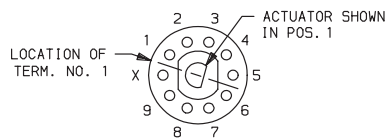
The number of switch positions or stops are adjustable by means of stop pins provided with each switch. Switches are normally shipped with stop pins and hardware in bulk, not installed. Without stop pins, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when actuated 180° or more.

To set stops, refer to figures 1 & 2. Orient switch so that terminal no. 1 is as shown. Turn actuator to position 1, using flats on bushing and terminal no. 1 as reference. Install CCW stop pin in hole designated 'X'. Install second stop pin in hole number corresponding to the number of positions desired. Note that two pole models will begin to repeat when actuated 180° or more. To retain stop pins, use adhesive mylar washer included; see figure 3.

All models except MX00 models have number of switch positions or stops pre-set at factory and are not adjustable.

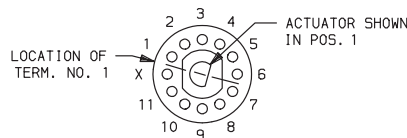
Hardware:

Two stop pins, mounting nut, and lockwasher supplied standard.



36° Indexing Models
Top View

Fig. 1



30° Indexing Models
Top View

Fig. 2

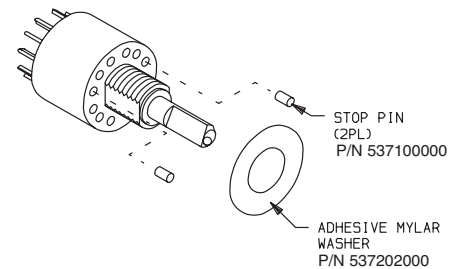


Fig. 3

Setting Stops With Stop Rings

ME00, MF00, MG00 & MH00 Models Only:

The number of switch positions or stops are adjustable by means of stop rings provided with each switch. These models are normally shipped with stop rings and hardware in bulk, not installed. Without stop rings, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when actuated 180° or more.

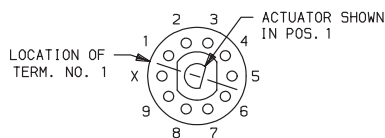
To set stops refer to figures 4 & 5. Orient switch so that terminal no. 1 is as shown. Turn actuator to pos. 1 using flats on bushing and terminal no. 1 as reference. See figure 6 and install inner stop ring with short tab in hole designated 'X'. Install outer stop ring with long tab in hole number corresponding to the number of positions desired. Note that all two pole models begin to repeat when actuated 180° or more. Use mounting nut and lockwasher to retain stop rings.

All MEXX, MFXX, MGXX & MHXX Models (Except MX00 models):

Number of switch positions or stops are preset at factory, but are user adjustable.

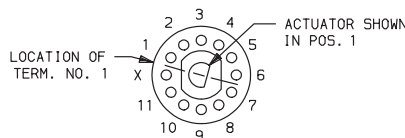
Hardware:

Two stop rings, mounting nut and lockwasher supplied standard.



36° Indexing Models
Top View

Fig. 4



30° Indexing Models
Top View

Fig. 5

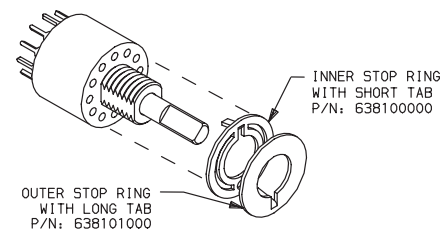


Fig. 6

R Series ROTA-SLIDE® Rotary Switches



Models Available

Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Panel and PCB mounting
- Enclosed
- RoHS Compliant

Typical Applications

- Ceiling fans
- Industrial equipment
- Portable tools

Specifications

CONTACT RATING: Q contact material: 5 AMPS @ 125 V AC; 2.5 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC; 1/8 HP @ 125 and 250 VAC (UL/CSA).

See page K-20 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 36°-one contact models, 10 position max.; two contact models, 5 position max.

OPERATING & STORAGE TEMPERATURE: -30°C to 95°C

Materials

HOUSING & BUSHING: 6/6 nylon (UL 94V-2).

ACTUATOR: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page K-20 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-19 and K-20. For additional options not shown in catalog, consult Customer Service Center.



Switch Function

- R100** SP, 36° Index, 10 pos. no stops
- R103** SP, 36° Index, 3 pos.
- R104** SP, 36° Index, 4 pos.
- R108** SP, 36° Index, 8 pos.
- R203** DP, 36° Index, 3 pos.
- R204** DP, 36° Index, 4 pos.
- R205** DP, 36° Index, 5 pos.

Actuator

- 07** .500" high with .156" flat
- 05** .375" high with .156" flat
- 15** Screwdriver slot without bushing

Mounting Style

- RR** 3/8-32 threaded bushing
- RN** PC without bushing
- RS** PC without bushing

Terminations

- 03** Solder lug with hole
- 01** Solder lug with notch
- 02** PC Thru-hole
- WC** Wire Lead

Contact Material

- Q** Silver
- B** Gold

Seal

- NONE** No seal
- E** Epoxy seal



K

Rotary



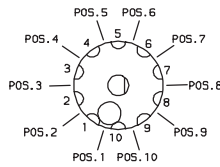
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

R Series ROTA-SLIDE® Rotary Switches

SWITCH FUNCTION

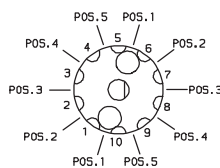
SP MODELS 36° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	R100	10 Position No Stops	All Terminals
	R103	3 Position	10-1-2-3
	R104	4 Position	10-1-2-3-4
	R108	8 Position	10-1-2-3-4-5-6-7-8

SP MODELS 36° INDEXING
SCHEMATIC



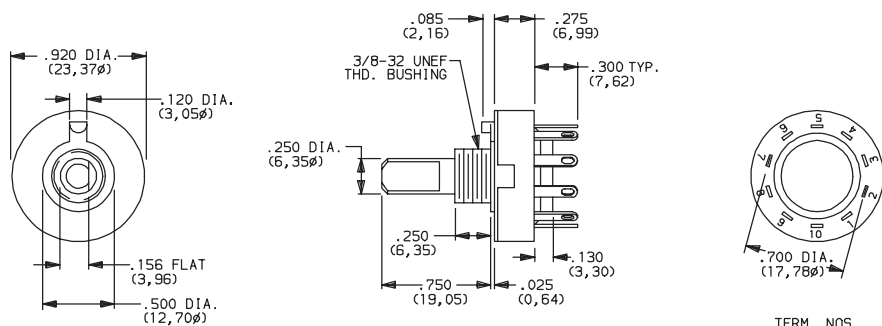
DP MODELS 36° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
DP	R203	3 Position	10-1-2-3-5-6-7-8
	R204	4 Position	All Terminals
	R205	5 Position	All Terminals

DP MODELS 36° INDEXING
SCHEMATIC



All models  with all options when ordered with 'Q' contact material.

NOTE: Break-before-make contacts. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.



TERM. NOS.
MOLDED ON HOUSING

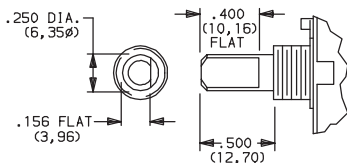
Part number show: R10007RR03Q

ACTUATOR

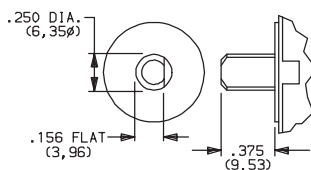
07 .500" HIGH WITH .156" FLAT

05 .375" HIGH WITH .156" FLAT

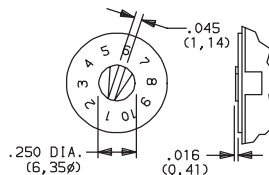
15 SCREWDRIVER SLOT



Shown with 'RR' mounting style. For mounting styles without bushing, add .250 (6,35) to actuator length.



Shown with 'RN' mounting style.



Arrow on actuator marked red (std.). Shown with 'RS' mounting style.



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K

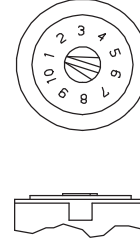
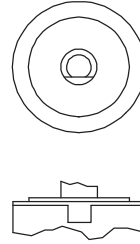
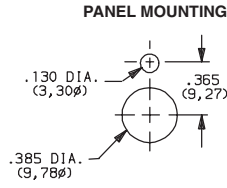
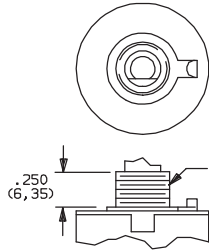
R Series ROTA-SLIDE® Rotary Switches

MOUNTING STYLE

RR 3/8-32 THREADED BUSHING

RN PC WITHOUT BUSHING

RS PC SCREWDRIVER SLOT WITHOUT BUSHING



Position numbers and characters are molded on housing.

Mounting nut included (part number 175000100).

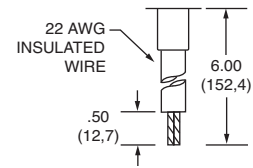
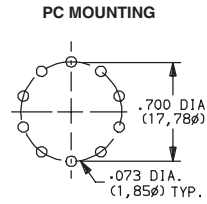
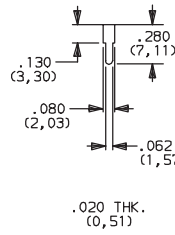
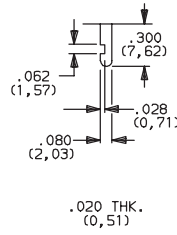
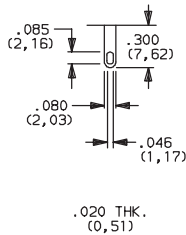
TERMINATIONS

03 SOLDER LUG WITH HOLE

01 SOLDER LUG WITH NOTCH

02 PC THRU-HOLE

WC WIRE LEAD



K

Rotary


CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
Q	SILVER ²	POWER	5 AMPS @ 125 V AC; 2.5 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC (UL/CSA); 1/8 HP @ 125 and 250 VAC (UL/CSA).
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
² CONTACTS & TERMINALS: Copper, silver plated. (Standard with all termination options.)

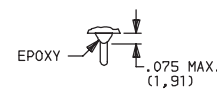
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

All models  with all options when ordered with 'Q' contact material.

SEAL

NONE NO SEAL

E EPOXY SEAL



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

F Series Miniature ROTA-SLIDE® Rotary Switches

Features/Benefits

- Multi-pole and multi-position
- Panel and PCB mounting
- Positive detent
- Value added capability
- RoHS Compliant

Typical Applications

- Small appliances
- Testing fixtures
- Safety equipment



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page K-24 for additional ratings.
 ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.
 CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
 INDEXING: 45° or 90° -one contact models; two contact models, 4 pos. max. Models with common terminal -90°, 4 pos. max.
 OPERATING & STORAGE TEMPERATURE: -30°C to 65°C

Materials

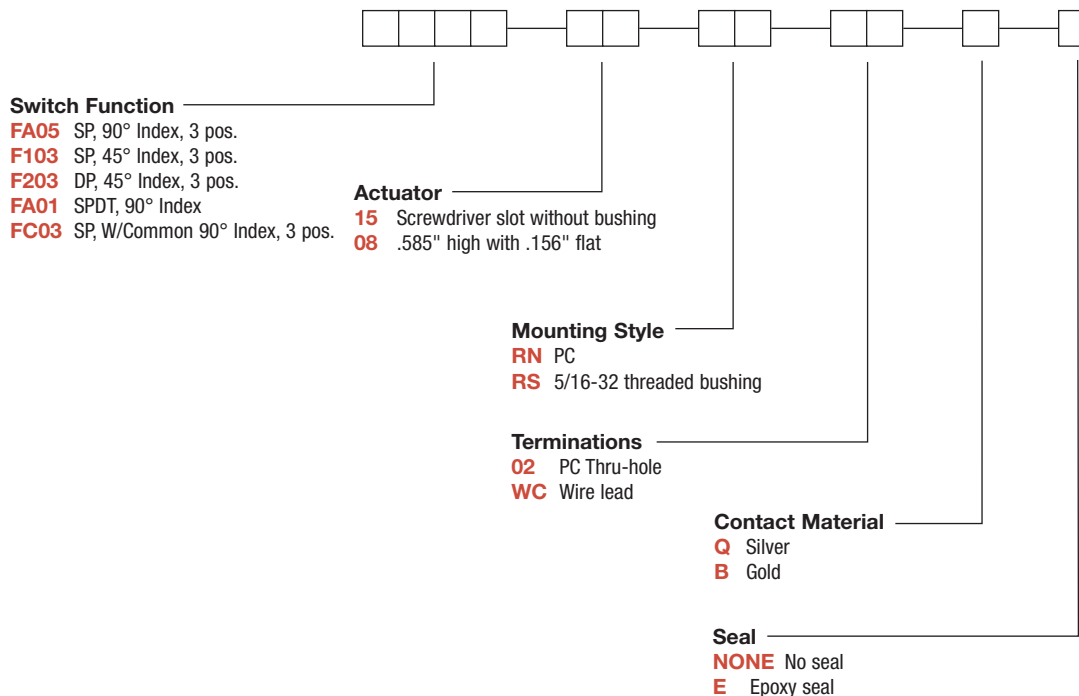
HOUSING & BUSHING: 6/6 Nylon (UL 94V-2).
 ACTUATOR: 6/6 nylon (UL 94V-2).
 CONTACTS: Q contact material: Copper, silver plated. See page K-24 for additional contact materials.
 TERMINALS: Q contact material: Copper, silver plated. See page K-24 for additional contact materials.
 CONTACT SPRING: Music wire or stainless steel.
 MOUNTING NUT: Brass, nickel plated.
 TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-22 thru K-24. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

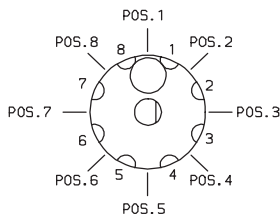


F Series Miniature ROTA-SLIDE® Rotary Switches

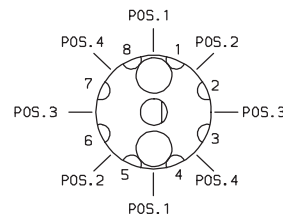
SWITCH FUNCTION

45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	F103	3 Position	8-1-2-3*
DP	F203	3 Position	All Terminals

45° INDEXING SCHEMATICS



F1XX MODELS



F2XX MODELS

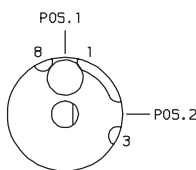
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

NOTE: *Switches with '02' PC terminations have additional terminal no. 5 as switch support only. This terminal is not connected electrically inside switch.

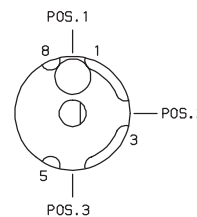
F1XX, F2XX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

90° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	FA01	SPDT	8-1-3
	FA05	3 Position	8-1-3-5
SP WITH COMMON	FC03	3 Position	C-1,C-2,C-3

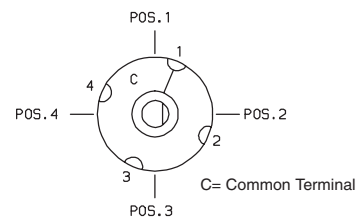
90° INDEXING SCHEMATICS



FA01 MODEL



FA05 MODEL



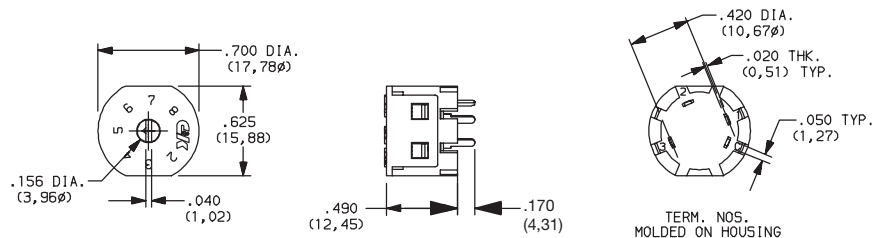
FCXX MODEL

Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

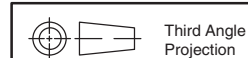
FCXX models: Common terminal is present.

FAXX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

NOTE: *Switches with '02' PC terminations have additional terminal no. 5 as switch support only. This terminal is not connected electrically inside switch.



Part number show: FC0315RN02Q



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



K

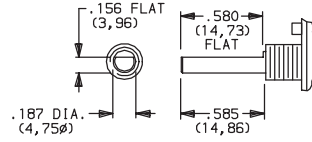
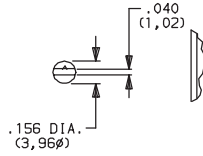
Rotary

F Series Miniature ROTA-SLIDE® Rotary Switches

ACTUATOR

15 SCREWDRIVER SLOT WITHOUT BUSHING

08 .585" HIGH WITH .156" FLA



Shown with 'RN' mounting style; not available with 'RS' mounting style or FCXX models.

Must be ordered with 'RS' mounting style.

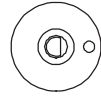
MOUNTING STYLE

RN PC

RS 5/16-32 THREADED BUSHING

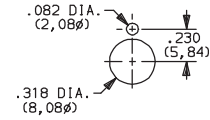


PC mount, no bushing, position numbers molded standard. Shown with '15' actuator; not available with '08' actuator or FCXX models.



Panel mount, with 5/16 in.-32 threaded bushing. Mounting nut (P/N 175020201) included. Must be ordered with '08' actuator option.

PANEL MOUNTING

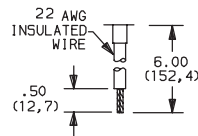
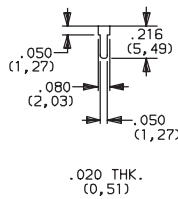


5/16 IN. BUSHING

TERMINATIONS

02 PC THRU-HOLE

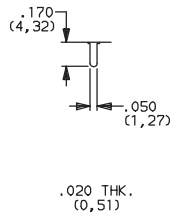
WC WIRE LEAD



Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

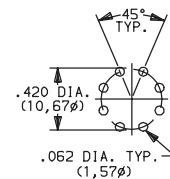
F1XX, F2XX & FAXX Models

02 PC THRU-HOLE



FCXX Models

PC MOUNTING



 Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K



F Series Miniature ROTA-SLIDE® Rotary Switches

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
Q	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA).
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

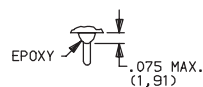
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

All models  with all options when ordered with 'Q' contact material.

SEAL

NONE NO SEAL

E EPOXY SEAL



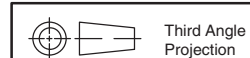
Not available on FCXX models.



K

Rotary

C&K



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

H Series Power ROTA-SLIDE® Rotary Switches

Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Power switching up to 12 AMPS
- Value added capability
- RoHS Compliant

Typical Applications

- Small appliances
- Industrial equipment
- Elevators



Models Available

Specifications

CONTACT RATING: 12 Amps @ 125 V AC; 6 AMPS @ 250 V AC;
1 AMP @ 125 V DC (UL/CSA).

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE: $10^9 \Omega$ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 45°-one contact models, 8 positions max.; two contact models, 4 positions max.

OPERATING & STORAGE TEMPERATURE: -30°C to 95°C

Materials

HOUSING & BUSHING: 6/6 nylon (UL 94V-2).

ACTUATOR: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Copper, silver plated.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

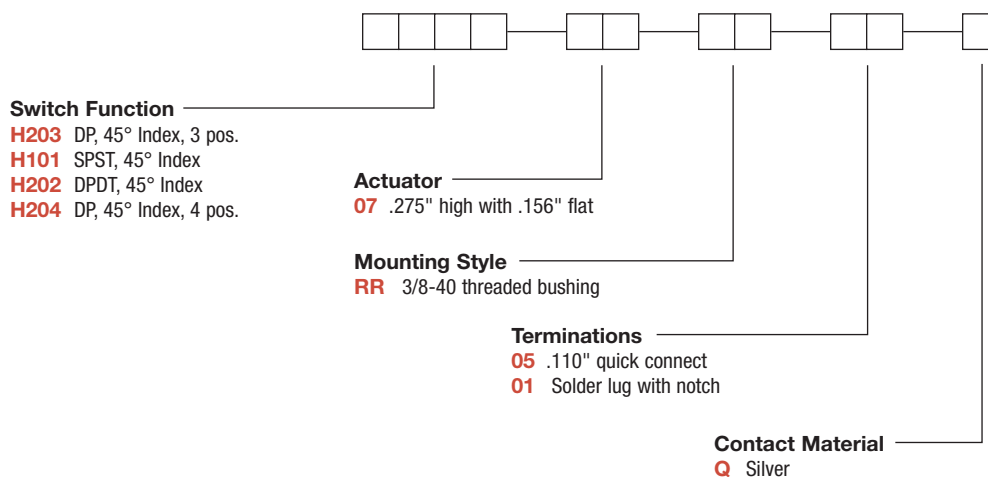
TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-26 thru K-27. For additional options not shown in catalog, consult Customer Service Center.



Rotary



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

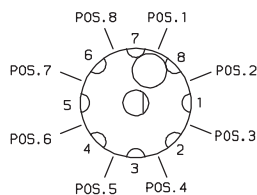
H Series Power ROTA-SLIDE® Rotary Switches

SWITCH FUNCTION

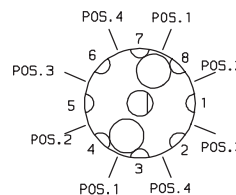
SP MODELS 45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	H101	SPST	8-1

DP MODELS 45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
DP	H202	DPDT	7-8-1, 3-4-5
	H203	3 Position	All Terminals
	H204	4 Position	All Terminals

SP MODELS 45° INDEXING
SCHEMATIC



DP MODELS 45° INDEXING
SCHEMATIC



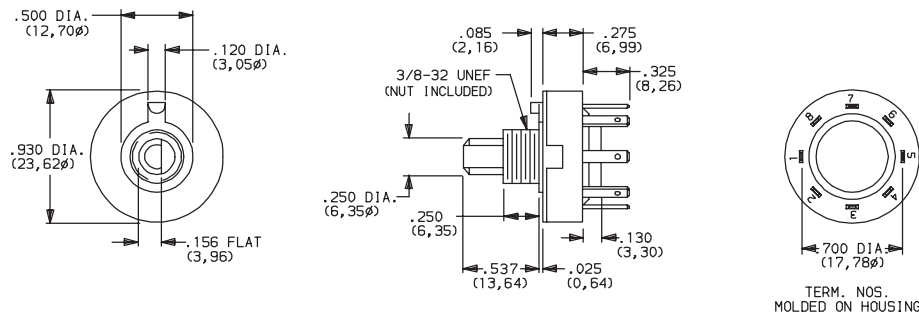
NOTE: Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

All models  with all options.



K

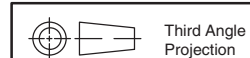
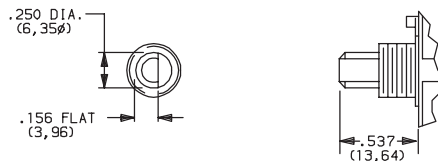
Rotary



Part number shown: H10107RR05Q

ACTUATOR

07 .275" HIGH WITH .156" FLAT



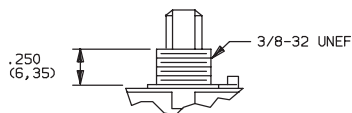
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K

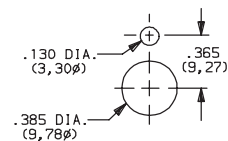
H Series Power ROTA-SLIDE® Rotary Switches

MOUNTING STYLE

RR 3/8-32 THREADED BUSHING



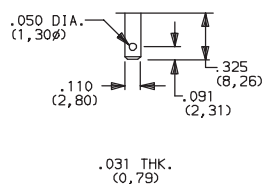
PANEL MOUNTING



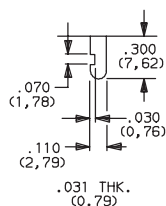
Mounting nut included (part number 925C00000).

TERMINATIONS

05 SOLDER LUG WITH HOLE



01 SOLDER LUG WITH NOTCH



Not available on models with 90° indexing.

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
		Q	SILVER ¹

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

¹ CONTACTS & TERMINALS: Copper, silver plated.

NOTE: Any models supplied with Q contact material are RoHS compliant.

All models  with all options.



K

Rotary

C&K



Third Angle
Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

RW Series Sub-miniature Rotary Switches



Features/Benefits

- 8 and 10 positions
- SMT version
- Subminiature design

Typical Applications

- Digital cameras
- Audio & visual equipment
- Consumer electronics
- Selector dial interface

PART NUMBER	PACKAGING
RW-108 NS RT	800 pieces per reel



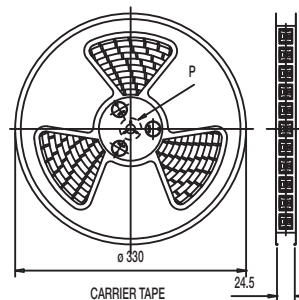
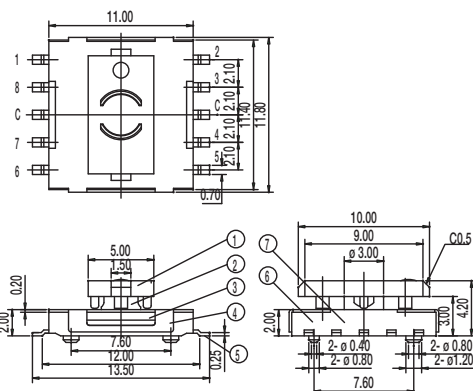
Specifications

CONTACT ARRANGEMENT: 1 Pole 8 Position
 CONTACT RATING: 0.1 A @ 16 V DC.
 ELECTRICAL LIFE: 10,000 cycles.
 INITIAL CONTACT RESISTANCE: 100 mΩ max.
 INSULATION RESISTANCE: 10M Ω min.
 DIELECTRIC STRENGTH: 100V (50-60 Hz).
 TWIST FORCE: 150 ± 100 gf
 OPERATING TEMPERATURE: -20°C to 70°C

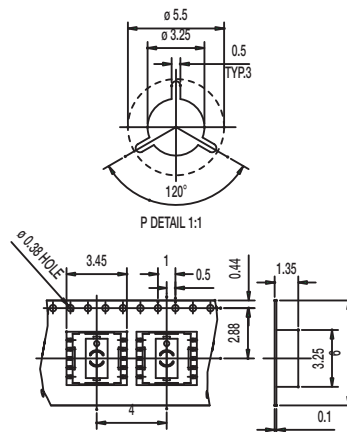
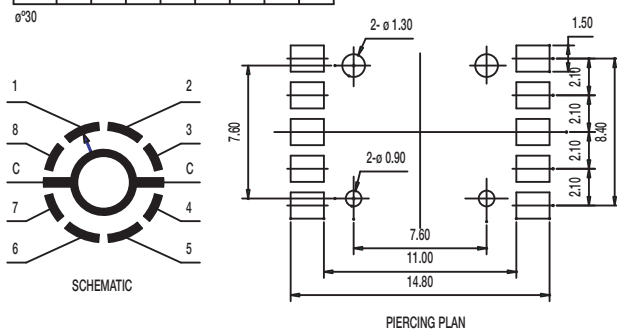
Materials

KNOB: PA (UL 94V-0).
 COVER: SUS
 HOUSING: PA (UL94V-0)
 TERMINAL: Silver plated.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



	0°	45°	90°	135°	180°	225°	270°	315°	360°
C-1	ION	---	---	---	OFF	---	---	---	OFF
C-2	OFF	ION	---	---	---	---	---	---	OFF
C-3	OFF	---	ION	---	---	---	---	---	OFF
C-4	OFF	---	---	ION	---	---	---	---	OFF
C-5	OFF	---	---	---	ION	---	---	---	OFF
C-6	OFF	---	---	---	---	ION	---	---	OFF
C-7	OFF	---	---	---	---	---	ION	---	OFF
C-8	OFF	---	---	---	---	---	---	ION	OFF



Dimensions are shown: mm
 Specifications and dimensions subject to change

RM Series Subminiature Rotary Switches



Features/Benefits

- Subminiature design saves space
- Screwdriver slot or extended shaft
- Positive detent
- RoHS compliant

Typical Applications

- Audio & visual equipment
- Consumer electronics
- Telecom equipment

Specifications

CONTACT RATING: 0.5A 24 V DC; 0.2A 48 V DC
 OPERATING LIFE: 2,000 cycles
 INSULATION RESISTANCE: 100 M Ω min. 500 V DC
 DIELECTRIC STRENGTH: 500 V AC for 1 minute
 OPERATING FORCE: 270 \pm 100 gf cm
 OPERATING TEMPERATURE: -40°C to 85°C

Materials

COVER: PA66
 BASE: PA6T
 ACTUATOR: PA66
 CONTACTS & TERMINALS: Brass with gold plate over nickel plate
 SPRING: Brass

NOTE: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-30 thru K-32. For additional options not shown in catalog, consult Customer Service Center.



K

Rotary

Switch Function

- RM100** 45° Index, 8 pos. No stops
- RM101** 45° Index, 1 pos. + Off
- RM102** 45° Index, 2 pos.
- RM103** 45° Index, 3 pos.
- RM104** 45° Index, 4 pos.
- RM105** 45° Index, 5 pos.
- RM106** 45° Index, 6 pos.
- RM107** 45° Index, 7 pos.



Actuator

- 77** 7.7 mm high, flattened, screwdriver slot
- 00** Flush, screwdriver slot

Actuator Color

- 2** Black

Torque

- B** 270 GF * CM

Termination

- C** PC Thru-hole

Contact Material

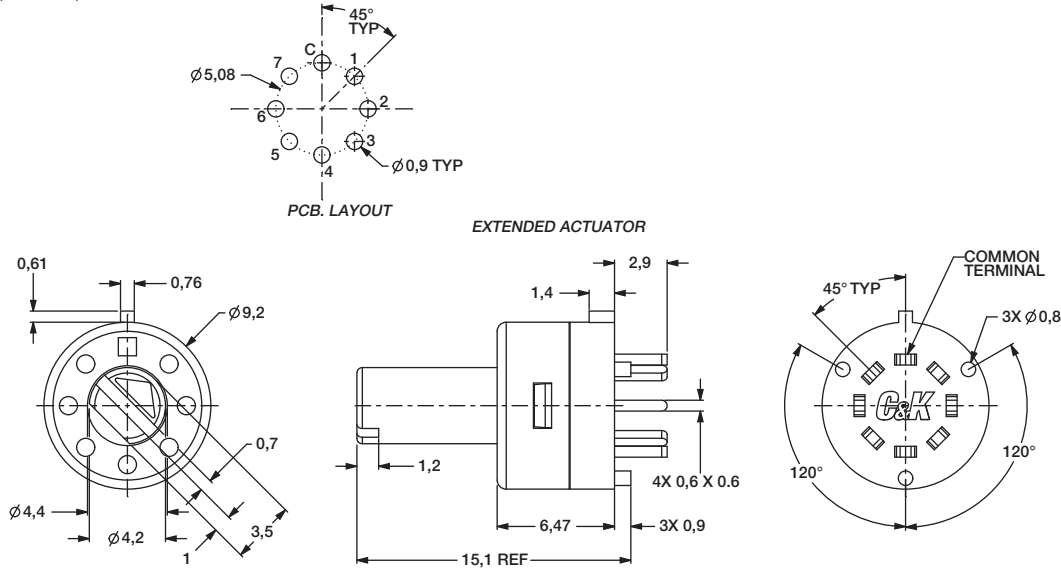
- B** Gold



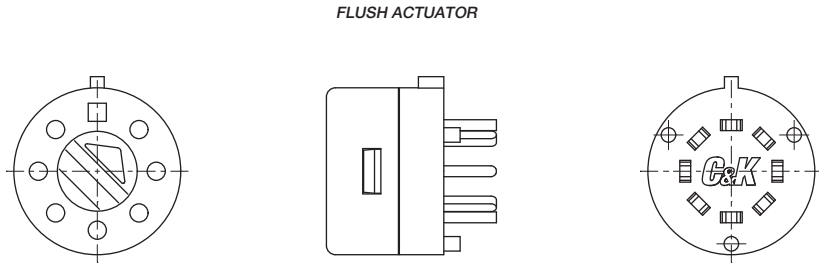
Dimensions are shown: mm
 Specifications and dimensions subject to change

RM Series Subminiature Rotary Switches

77 7.7 MM HIGH, FLATTED, SCREWDRIVER SLOT

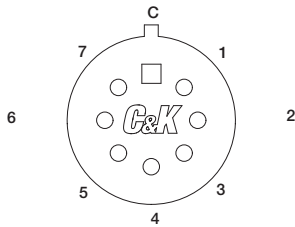


00 FLUSH, SCREWDRIVER SLOT



ELECTRICAL SCHEMATIC - RM SERIES SWITCHES								
SWITCH FUNCTION	TRAVEL POSITION 0°	TRAVEL POSITION 45°	TRAVEL POSITION 90°	TRAVEL POSITION 135°	TRAVEL POSITION 180°	TRAVEL POSITION 225°	TRAVEL POSITION 270°	TRAVEL POSITION 315°
RM100	C-C(OFF)	C-1	C-2	C-3	C-4	C-5	C-6	C-7
RM101	C-C(OFF)	X	X	X	X	X	X	C-7
RM102	X	C-1	C-2	X	X	X	X	X
RM103	X	C-1	C-2	C-3	X	X	X	X
RM104	X	C-1	C-2	C-3	C-4	X	X	X
RM105	X	C-1	C-2	C-3	C-4	C-5	X	X
RM106	X	C-1	C-2	C-3	C-4	C-5	C-6	X
RM107	X	C-1	C-2	C-3	C-4	C-5	C-6	C-7

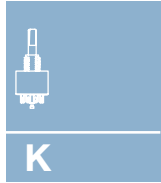
TERMINAL ID NUMBERS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT MARKED ON BOTTOM OF THE SWITCH



EXTERIOR KEY TAB SHOWN IDENTIFIES "C" (COMMON TERMINAL)



Dimensions are shown: mm
Specifications and dimensions subject to change



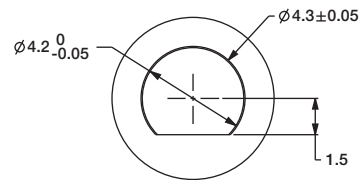
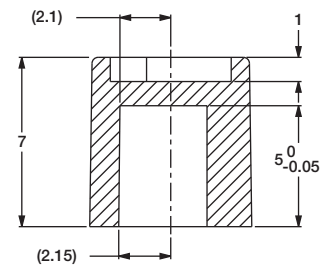
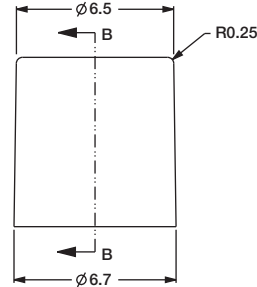
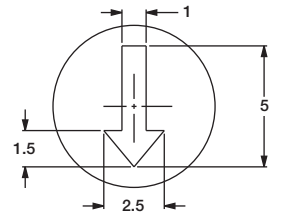
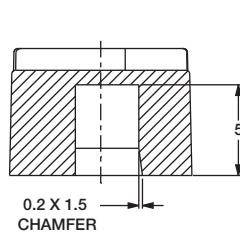
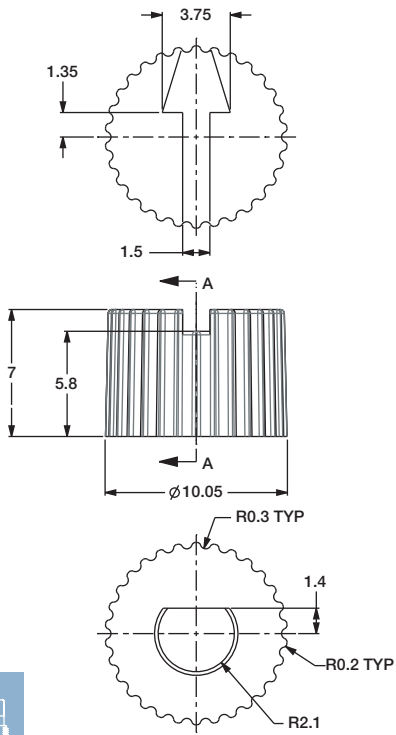
Rotary

RM Series Subminiature Rotary Switches

KNOBS

297F02000

296F02000



K

Rotary

ENC Series Optical Encoder



Features/Benefits

- Clear detent/haptic feel
- Two channel, 2-bit code output
- Quadrature (Incremental type)
- Integrated pushbutton
- Panel mount with screw thread
- Cable and connector termination

Typical Applications

- Automotive interior control
- Industrial equipment
- Test & Instrumentation
- Medical equipment

Specifications

ROTARY

ELECTRICAL & MECHANICAL

OPERATING VOLTAGE: DC 5 ± 0.25V, 30mA max.

OUTPUT VOLTAGE: Logic high > 3V DC
Logic low < 1V DC

ROTATIONAL TORQUE: 265 gf-cm initially

MECHANICAL LIFE: 300K cycles

PUSHBUTTON

ELECTRICAL & MECHANICAL

OPERATING VOLTAGE: DC 5V, 10mA

INITIAL CONTACT RESISTANCE: 10 ohm max.

ACTUATION FORCE: 600 ± 20% gf

SHAFT TRAVEL: 0.74 ± 0.2mm

CONTACT BOUNCE: < 4ms make, < 10ms break

MECHANICAL LIFE: 300K cycles

Environmental Data

OPERATING TEMPERATURE: -40°C to + 90°C

OPERATING RELATIVE HUMIDITY: ≤ 96% RH, +40°C

STORAGE TEMPERATURE: -40°C to +90°C

Materials

ACTUATOR: Zinc Alloy

HOUSING FRAME: Zinc Alloy

DETENT ROTOR: POM, HB

DETENT SPRING: SUS

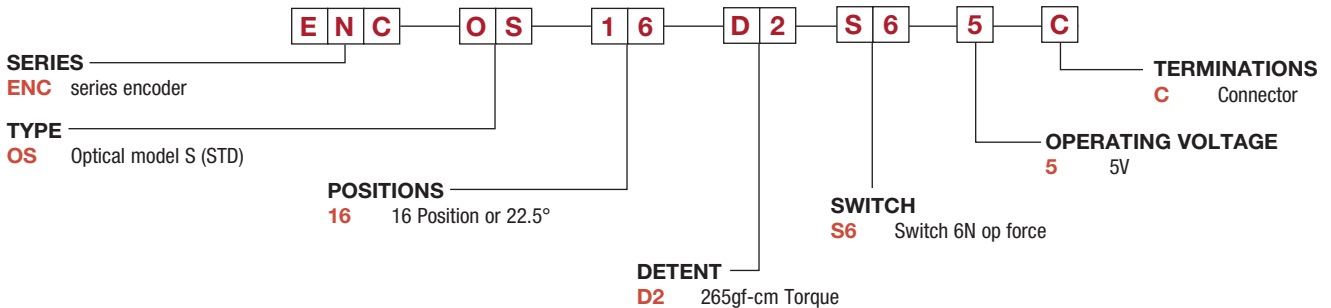
HOUSING UPPER: PA66, V0

HOUSING LOWER: POM, HB

PUSHBUTTON DOME: SUS

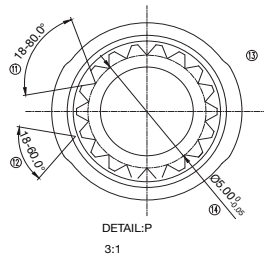
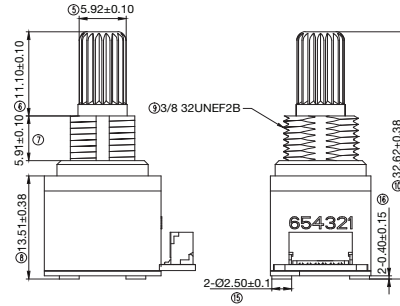
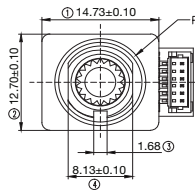
Build-A-Switch

Product specifications and technical information listed above are for standard offer on Optical Encoder. For special options and custom request, please contact your sales representative.



ENC Series Optical Encoder

PART NUMBER	PACKAGING
ENCOS16D2S65C	Tray








K

Rotary

Switchlocks

Product Selection Guide

Switchlock					
Series	Y	YF	YM	P	PF & PM
Switch Type	4,5,6 Tumbler	4 Tumbler	4 Tumbler	4 Tumbler	5 Tumbler
Lock	Metal	Metal	Metal	Plastic	Plastic
Latch Pawl	•				
Miniature		•	•		•
Anti-static	•				
Momentary	•				
Poles	1 & 2	1 & 2	1	1 & 2	1 & 2
Indexing	45° & 90°	90°	90°	45° & 90°	45° & 90°
Max. Current	4 Amps	4 Amps	4 Amps	4 Amps	4 Amps
Panel Mount Options					
Snap-in				•	•
Bushing	•	•	•		
PC Thru-hole	•				
Page No.	L-3	L-11	L-15	L-18	L-22/L-26

Switchlock			
Series	A	H	PL
Switch Type	4 & 5 Tumbler	4 & 6 Tumbler	5 Tumbler
Lock	Metal	Metal	Plastic
Cam			•
Miniature			•
Anti-static	•		
Momentary			
Poles	1 - 4	1 & 2	N/A
Indexing	30°, 45°, 90°	45° & 90°	90°
Max. Current	2.5 Amps	12 Amps	
Panel Mount Options			
Snap-in			•
Bushing	•	•	
Thru-hole	•		
Page No.	L-29	L-34	L-39



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

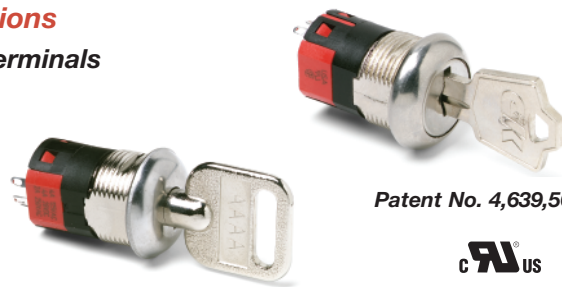
Y Series 4, 5 & 6 Tumbler Switchlocks

Features/Benefits

- **Anti-static switch—exceeds 20 KV DC static resistance**
- **Momentary models available**
- **Wire leads and harnesses available**

Typical Applications

- **Point-of-sale terminals**
- **Cash registers**
- **Computers**



Patent No. 4,639,562

C&K
US
Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page L-9 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 45° or 90°, 2-4 positions (4&5 tumbler switchlocks). 45°, 3 positions; or 90°, 2 positions (6 tumbler tubular switchlocks).

Other functions available, consult Customer Service Center.

STATIC RESISTANCE: Anti-static models exceed 20 KV DC static resistance @ sea level, lock body to terminals.

MOUNTING TORQUE: 10 in./lbs.; 14 in./lbs max.

Materials

LOCK: Zinc alloy with stainless steel facing, std. (4 & 5 tumbler lock and 6 tumbler tubular lock).

KEYS: Two nickel plated brass keys, with code number, std. (4 and 5 tumbler lock). Two die cast chrome plated zinc alloy keys, std. (6 tumbler lock).

SWITCH HOUSING: Glass filled polyester (UL 94V-0).

CONTACTS AND TERMINALS: Q contact material: Copper, silver plated. See page L-9 for additional contact materials.

MOUNTING NUT: Zinc alloy.

MOUNTING CLIP: Steel, zinc plated.

DRESS NUT: Brass, nickel plated.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

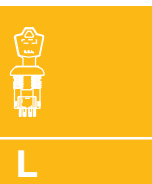
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-4 through L-10. For additional options not shown in catalog, consult Customer Service Center.

<p>Switch and Lock Function</p> <p>Y10013 SP, 45°, keypull pos. 1 Y1011U SP, 90°, keypull pos. 1 & 2 Y1001U SP, 45°, keypull pos. 1 & 3 Y2001U DP, 45°, keypull pos. 1 & 3 Y10082 SP, 45°, keypull pos. 1 Y20082 DP, 45°, keypull pos. 1 Y100AA SP, 45°, keypull pos. 1, 2 & 3 Y200AA DP, 45°, keypull pos. 1, 2 & 3 Y100AB SP, 45°, keypull pos. 1, 2, 3 & 4 Y200AB DP, 45°, keypull pos. 1, 2, 3 & 4 Y10113 SP, 90°, keypull pos. 1 Y20113 DP, 90°, keypull pos. 1 Y1011C SP, 90°, keypull pos. 2 Y2011C DP, 90°, keypull pos. 2 Y2011U DP, 90°, keypull pos. 1 & 2 Y14173 SP, 90°, keypull pos. 1 Y1417U SP, 90°, keypull pos. 1, 2 & 3 Y10812 SP, 45°, mom., keypull pos. 1 Y20812 DP, 45°, mom., keypull pos. 1 Y19073 SP w/common, 90°, keypull pos. 1 Y1907U SP w/common, 90°, keypull pos. 1, 2 & 3 Y1900S SP w/common, 90°, keypull pos. 1, 2, 3 & 4</p>	<p>Keying</p> <p>2 Two nickel plated brass keys (4 & 5 tumbler) or two die cast zinc alloy keys with chrome plating (6 tumbler) 6 Two nickel plated brass keys with code on lock face</p> <p>Lock Type</p> <p>A 4 Tumbler lock (YX08 models) C 4 Tumbler lock with detent V 6 Tumbler tubular lock B 5 Tumbler lock R 4 Tumbler lock with detent and anti-Static switch W 6 Tumbler tubular lock with anti-Static switch</p> <p>Lock Finish</p> <p>2 Stainless steel facing 8 Gloss black facing F Polished nickel facing</p>	<p>Terminations</p> <p>03 Solder lug with hole 01 Solder lug with notch 02 PC Thru-hole 07 Solder lug with hole (Y190XX models only) WC Wire lead</p> <p>Mounting/Lock Style</p> <p>N With nut D With clip L With removable dress nut and latch pawl R With removable dress nut</p>	<p>Contact Material</p> <p>Q Silver B Gold G Gold over silver</p> <p>Seal</p> <p>NONE No seal E Epoxy seal</p>



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

Y Series 4, 5 & 6 Tumbler Switchlocks

SWITCH AND LOCK FUNCTION



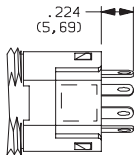
SINGLE & DOUBLE POLE SWITCHES									
NO. TUMBLERS	NO. POLES	MODEL NO.	CONNECTED TERMINALS				KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
			POS. 1	POS. 2	POS. 3	POS. 4			
4, 5 & 6	SP	Y10013	8-1	1-2	2-3		Position 1		
4, 5 & 6	SP DP	Y1001U Y2001U	8-1 8-1, 4-5	1-2 1-2, 5-6	2-3 2-3, 6-7		Positions 1 & 3		
4 & 5	SP DP	Y10082 Y20082	8-1 8-1, 4-5	1-2 1-2, 5-6	7-8 7-8, 3-4		Position 1		45°
4	SP DP	Y100AA Y200AA	8-1 8-1, 4-5	1-2 1-2, 5-6	7-8 7-8, 3-4		Positions 1, 2 & 3		
4	SP DP	Y100AB Y200AB	8-1 8-1, 4-5	1-2 1-2, 5-6	2-3 2-3, 6-7	3-4 3-4, 7-8	Positions 1, 2, 3 & 4		
4, 5 & 6	SP DP	Y10113 Y20113	8-1 8-1, 4-5	1-3 1-3, 5-7			Position 1		
4 & 5	SP DP	Y1011C Y2011C	8-1 8-1, 4-5	1-3 1-3, 5-7			Position 2		
4, 5 & 6	SP DP	Y1011U Y2011U	8-1 8-1, 4-5	1-3 1-3, 5-7			Positions 1 & 2		90°
4	SP	Y14173	7-1	1-3	6-7		Position 1		
4	SP	Y1417U	7-1	1-3	6-7		Positions 1, 2 & 3		
SINGLE & DOUBLE POLE MOMENTARY SWITCHES									
NO. TUMBLERS	NO. POLES	MODEL NO.	CONNECTED TERMINALS				KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
			POS. 1	POS. 2	POS. 3	POS. 4			
4	SP DP	Y10812 Y20812	8-1 8-1, 4-5	1-2 1-2, 5-6			Position 1		45° Mom.



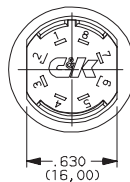
Switchlock

LEGEND

- ▲ = Momentary Positions (45°)
- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop Positions



TERMINAL NUMBERS



Terminal numbers molded on bottom of housing.

All models **C&K** with all options when ordered with 'G' or 'Q' contact material.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Y Series 4, 5 & 6 Tumbler Switchlocks

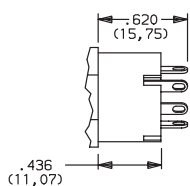
SWITCH AND LOCK FUNCTION



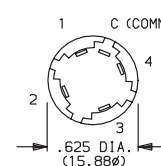
NO. TUMBLERS	NO. POLES	MODEL NO.	CONNECTED TERMINALS				KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
			POS. 1	POS. 2	POS. 3	POS. 4			
4	SP	Y19073	C-1	C-2	C-4	C-4	Position 1		90°
		Y1907U					Positions 1, 2 & 3		
		Y1900S	C-1	C-2	C-3	C-4	Positions 1, 2, 3 & 4		

LEGEND

- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop Positions



TERMINAL NUMBERS

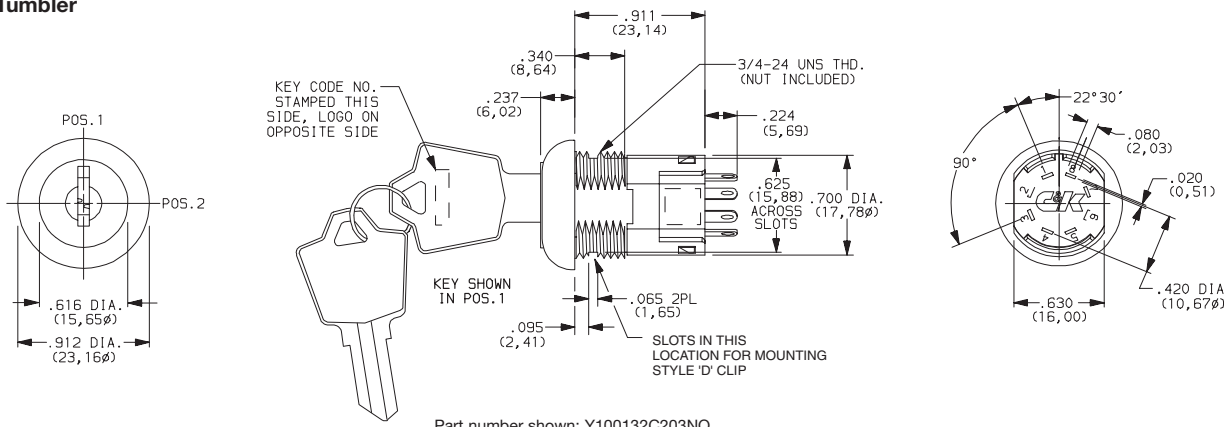


Terminal numbers marked on insulator.

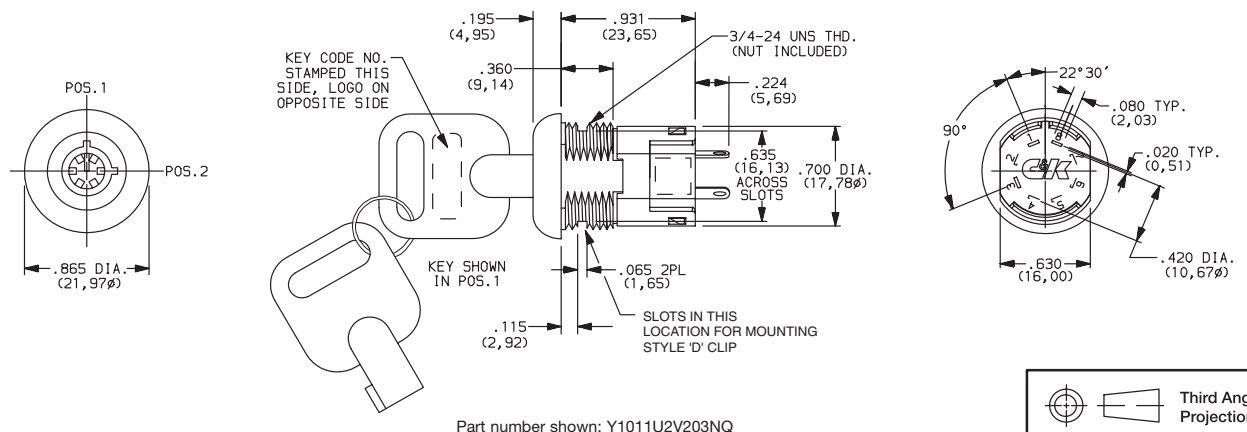
All models **C&K** US with all options when ordered with 'G' or 'Q' contact material.

NOTE: Epoxy seal not available. Removable dress nut not available with any Y190XX models.

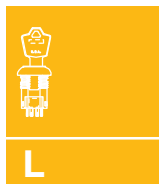
4 & 5 Tumbler



6 Tumbler



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

Y Series 4, 5 & 6 Tumbler Switchlocks

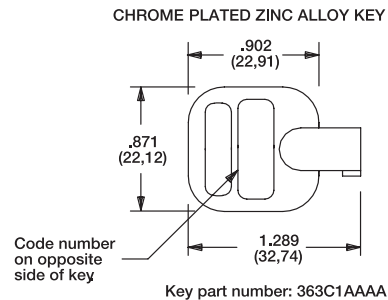
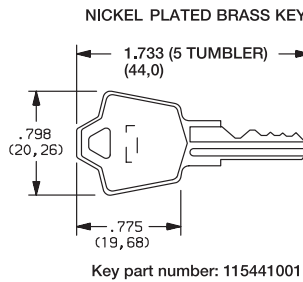
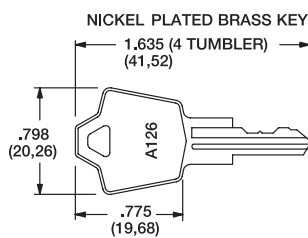
SWITCH AND LOCK FUNCTION

AVAILABLE OPTION COMBINATIONS															
MODELS	LOCK TYPES						TERMINATIONS					MOUNTING/LOCK STYLES			
	A	B	C	R	V	W	01	02	03	07	WC	D	L	N	R
YX0013		●	●		●	●	●	●	●		●	●		●	●
YX001U		●	●	●	●	●	●	●	●		●	●	●	●	●
YX0082		●	●	●			●	●	●		●	●		●	
YX00AX			●	●			●	●	●		●	●		●	●
YX0113		●	●	●	●	●	●	●	●		●	●		●	●
YX011C		●	●	●			●	●	●		●	●		●	●
YX01IU		●	●	●	●	●	●	●	●		●	●	●	●	●
Y141XX			●	●			●	●	●		●	●		●	●
YX0812	●						●	●	●		●	●		●	
Y190XX			●	●				●		●	●	●		●	

KEYING

OPTION CODE	KEYING OPTIONS	CODE NO. ON KEY	CODE NO. ON LOCK
2	2 NICKEL PLATED BRASS KEYS (4 & 5 TUMBLER) or 2 DIE CAST CHROME PLATED ZINC ALLOY KEYS (6 TUMBLER)	YES	NO
6	2 NICKEL PLATED BRASS KEYS, 4 & 5 TUMBLER ONLY	YES	YES

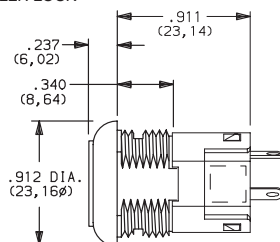
NOTE: All orders keyed alike, standard. For more than one key code, master keying, replacement keys, or other special features, consult Customer Service Center.



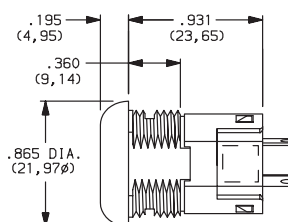
NOTE: Keys are available separately, see page L-10. Key head shape subject to change without notice.

LOCK TYPE

- C** 4 TUMBLER LOCK WITH DETENT
- B** 5 TUMBLER LOCK

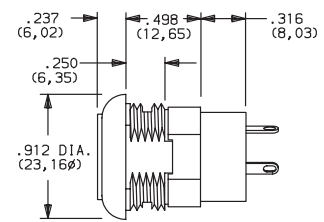


- V** 6 TUMBLER TUBULAR LOCK



Available with Lock Finish '2' only

- A** 4 TUMBLER LOCK (MOMENTARY MODELS ONLY)



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

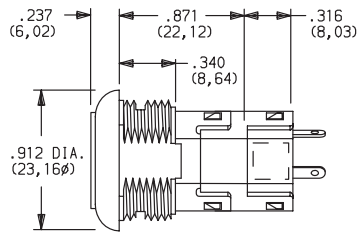


Y Series 4, 5 & 6 Tumbler Switchlocks

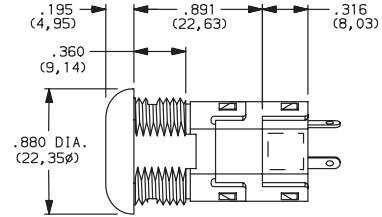
LOCK TYPE

SHORT ANTI-STATIC LOCK TYPES

R 4 TUMBLER LOCK WITH DETENT AND SHORT ANTI-STATIC SWITCH.



W 6 TUMBLER TUBULAR LOCK WITH ANTI-STATIC SWITCH



Available with Lock Finish '2' only.

NOTE: For available option combinations, see page L-9.
U.S. Pat. No. 4,639,562 Exceeds 20 KV DC static resistance @ sea level, lock body to terminals.

LOCK FINISH

2 STAINLESS STEEL

8 GLOSS BLACK

F POLISHED NICKEL



Available with Lock Types 'V' & 'W' only.

NOTE: For available option combinations, see page L-9.

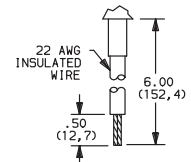
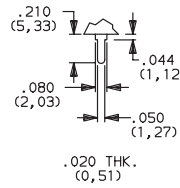
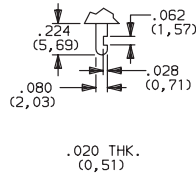
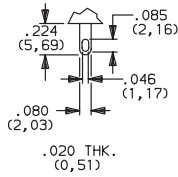
TERMINATIONS

03 SOLDER LUG WITH HOLE

01 SOLDER LUG WITH NOTCH

02 PC THRU-HOLE

WC WIRE LEAD



Black wire standard. other colors and lengths available, consult Customer Service Center. UL style 1015.

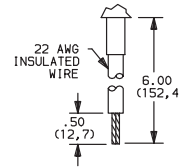
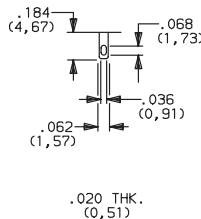
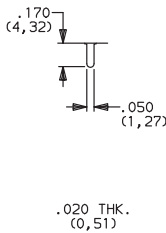
All Models Except Y190

02 PC THRU-HOLE

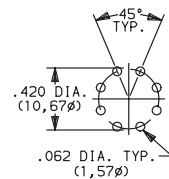
07 SOLDER LUG WITH HOLE

WC WIRE LEAD

PC MOUNTING



Black wire standard. other colors and lengths available, consult Customer Service Center. UL style 1015.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

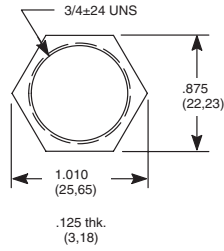


Switchlock

Y Series 4, 5 & 6 Tumbler Switchlocks

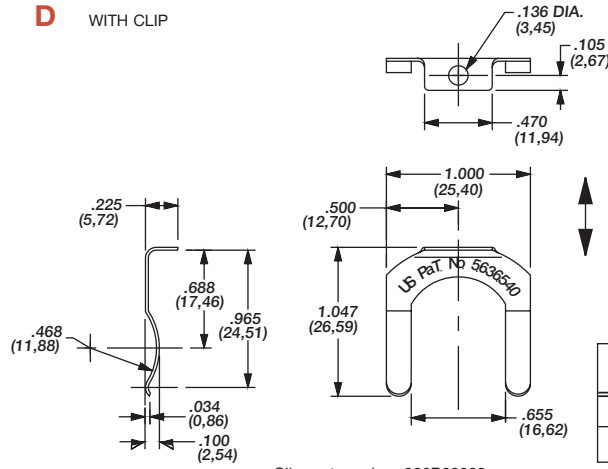
MOUNTING/LOCK STYLE

N WITH NUT



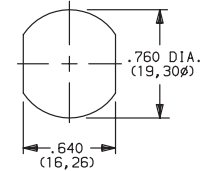
Nut part number: 937C00000

D WITH CLIP



Clip part number: 906B00000

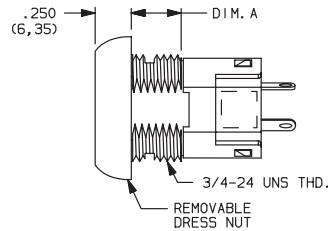
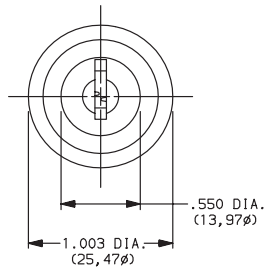
PANEL MOUNTING



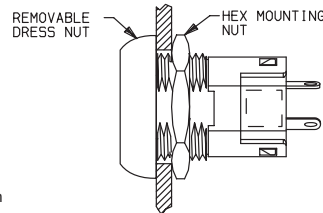
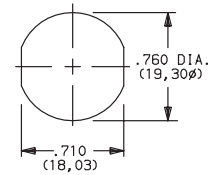
GRAIN DIRECTION
BURR SIDE UP

OPTION CODE	MOUNTING STYLE	PANEL THICKNESS
N	WITH NUT	.085-.105 (2,16-2,67)
D	WITH CLIP	.085-.105 (2,16-2,67)

R REMOVABLE DRESS NUT



PANEL MOUNTING



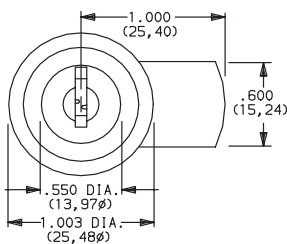
LOCK DIMENSIONS	
LOCK TYPES	DIMENSIONS
A, N	.270 (6,68)
C, R	.360 (9,14)

TYPICAL INSTALLATION

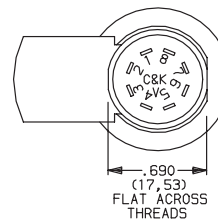
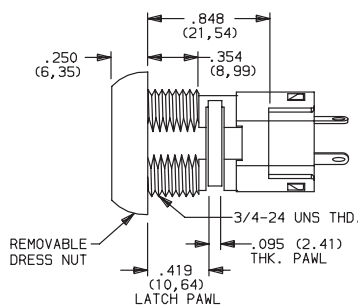
Install hex nut with enough clearance to allow for dress nut and panel. Place switch through cutout in rear of panel. Install and tighten dress nut by hand, then tighten hex nut. Always tighten assembly with back of panel hex nut to avoid damaging front of panel.

NOTE: Removable dress nut not available with Y1900A or Y100AA model options.

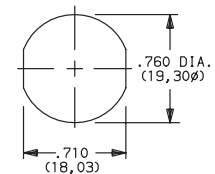
L REMOVABLE DRESS NUT WITH LATCH PAWL



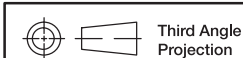
Latch pawl shown in pos. 1.



PANEL MOUNTING



Switchlock



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Y Series 4, 5 & 6 Tumbler Switchlocks

MOUNTING/LOCK STYLE

Mounting Information (All Models)

PANEL THICKNESS			
MOUNTING STYLES	A, B LOCK TYPES	C, R LOCK TYPES	V, W LOCK TYPES
D	.065-.085 (1, 65-2, 16)		.085-.105 (2, 16-2, 67)
N	.105 (2, 67) max.	.195 (4, 95) max.	.215 (5, 46) max.
L	.215 (5, 46) max.		-
R	.125 (3, 18) max.	.215 (5, 46) max.	-


AVAILABLE OPTION COMBINATIONS									
MOUNTING STYLES	LOCK FINISHES			LOCK TYPES					
	2	8	F	A	B	C	R	V	W
D	●	●	●	●	●	●	●	●	●
N	●	●	●	●	●	●	●	●	●
R		●	●	●		●	●		
L		●	●			●	●		

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 AC V AC (UL/CSA).
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX
G	YES	YES	GOLD SILVER ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA)

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

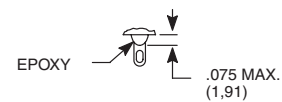
- ¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
² CONTACTS & TERMINALS: Copper, silver plated (std. with all termination options).
³ CONTACTS & TERMINALS: Copper, with gold plate over silver plate.

All models  with all options when ordered with 'G' or 'Q' contact material.

SEAL

NONE NO SEAL

E EPOXY SEAL



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

Y Series 4, 5 & 6 Tumbler Switchlocks

AVAILABLE HARDWARE



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
115140126
Material: Brass
Finish: Nickel plate

Key Code: D001
5 TUMBLER
PART NO. (ONE KEY)
115441001
Material: Brass
Finish: Nickel plate



Key Code: AAAA
PART NO. (ONE KEY)
363C1AAAA

Material: Zinc alloy
Finish: Chrome plate



Switchlock



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

YF Series 4 Tumbler Miniature Switchlocks

Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Low level and power capability

Typical Applications

- Computer servers
- Point-of-sale terminals
- Cash registers



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page L-14 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 90°:2 positions max.

Materials

LOCK: Zinc alloy with stainless steel facing. 4 tumbler, single bitted lock with integral detent mechanism.

KEYS: Two nickel plated brass keys with code number.

SWITCH HOUSING: 6/6 Nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page L-14 for additional contact materials.

MOUNTING NUT: Brass, bright zinc plated.

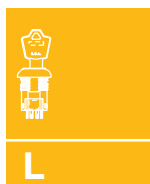
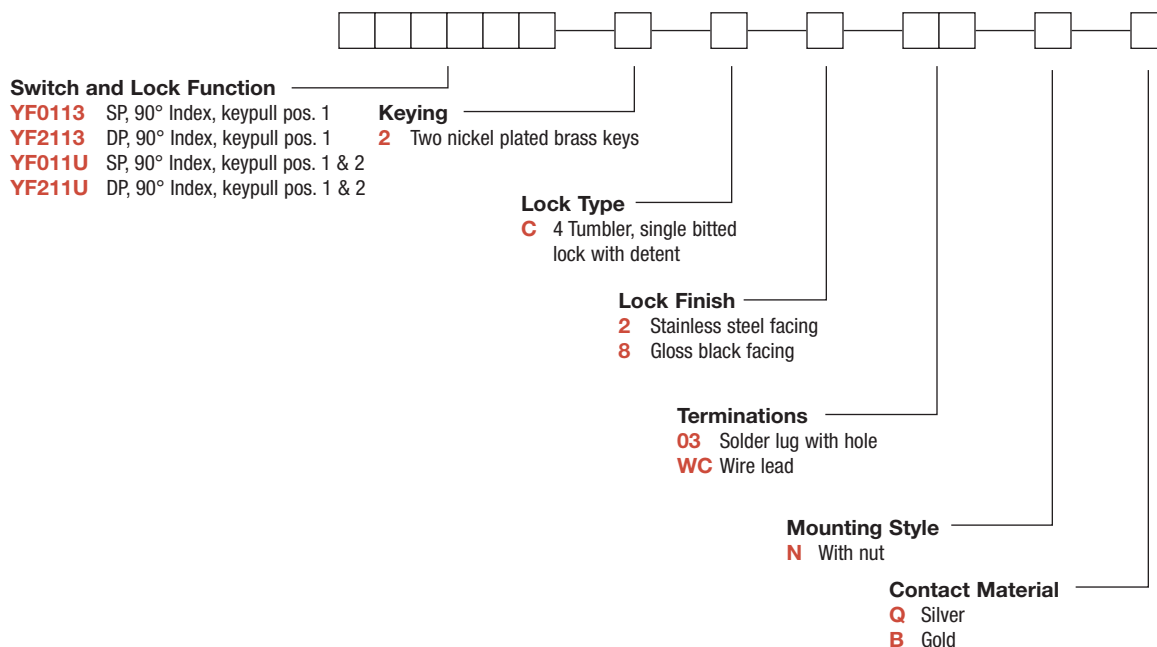
TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-12 through L-14. For additional options not shown in catalog, consult Customer Service Center.



Switchlock



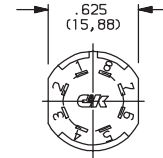
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

YF Series 4 Tumbler Miniature Switchlocks

SWITCH AND LOCK FUNCTION

SINGLE & DOUBLE POLE SWITCHES							
NO. POLES	MODEL NO.	CONNECTED TERMINALS			KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
		POS. 1	POS. 2	POS. 3			
SP DP	YF0113 YF2113	8-1	1-3		Position 1		90°
		8-1, 4-5	1-3, 5-7				
SP DP	YF011U YF211U	8-1	1-3		Positions 1 & 2		
		8-1, 4-5	1-3, 5-7				

TERMINAL NUMBERS

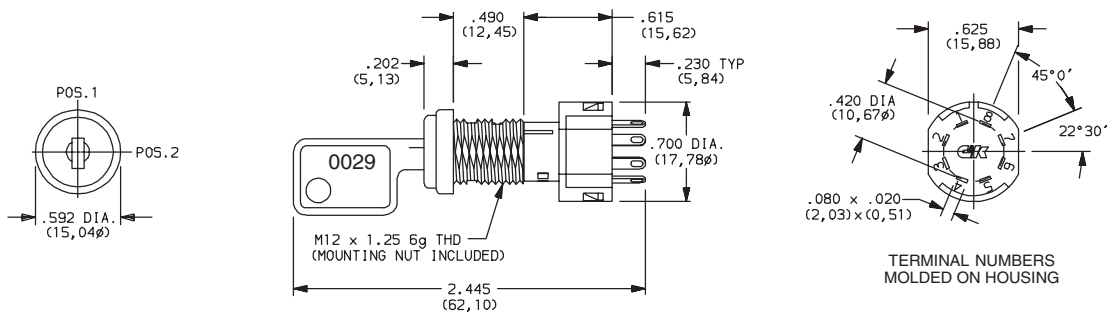


Terminal numbers molded on bottom of housing.

All models **C&K** US with all options when ordered with 'Q' contact material.

LEGEND

- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop Positions



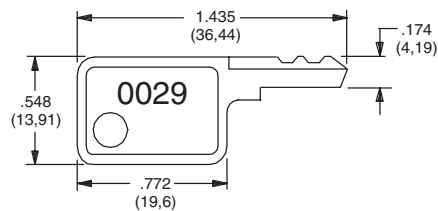
Part number shown: YF01132C203NQ



Switchlock

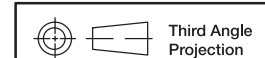
KEYING

2 TWO NICKEL PLATED BRASS KEYS



Key Part Number: 960B10029

NOTE: All orders keyed alike with code number on key. For more than one key code, replacement keys, or other special features, consult Customer Service Center.



Third Angle
Projection

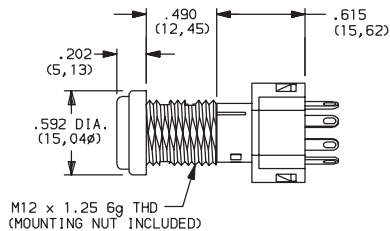
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



YF Series 4 Tumbler Miniature Switchlocks

LOCK TYPE

C 4 TUMBLER, SINGLE BITTED LOCK WITH DETENT



LOCK FINISH

2 STAINLESS STEEL FACING

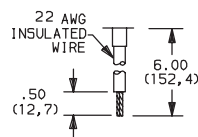
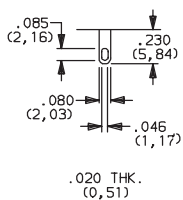
8 GLOSS BLACK FACING



TERMINATIONS

03 SOLDER LUG WITH HOLE

WC WIRE LEAD



Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.



Switchlock



Third Angle Projection

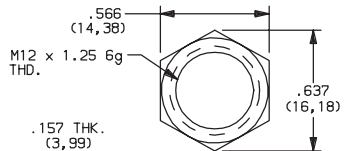
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

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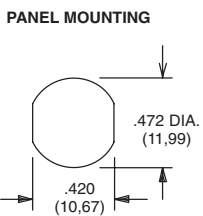
YF Series 4 Tumbler Miniature Switchlocks

MOUNTING STYLE

N WITH NUT

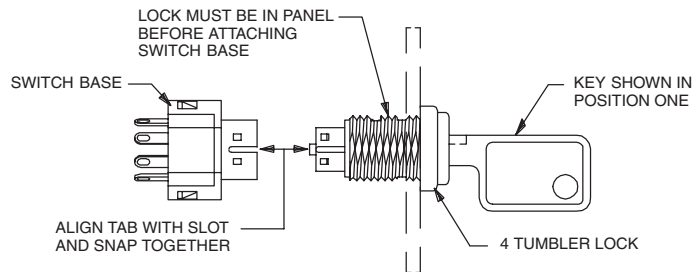


Nut part number: 1790901A47



Panel thickness:
.300 (7,62) max.

Switch and Lock Assembly Instructions



NOTE: Switch installation is permanent. Switch cannot be removed from lock after assembly. Attempts to separate switch and lock may damage switch.

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA).
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

All models with all options when ordered with 'Q' contact material.

AVAILABLE HARDWARE



Switchlock



Key Code: 0029

PART NO. (ONE KEY)

960B10029

Material: Brass
Finish: Nickel plate



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K

YM Series 4 Tumbler Miniature Switchlocks

Features/Benefits

- Snap-together assembly allows for pre-wiring of switch
- Wire lead terminations available
- 4 Tumbler lock with positive detent

Typical Applications

- Cable TV connectors
- Automotive accessories
- Computers



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). 4 AMPS @ 125 V AC, 2 AMPS @ 250 V AC, T65, class 1 (VDE). See page L-17 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 90°:2 positions.

Materials

LOCK: Zinc alloy with stainless steel facing. 4 tumbler single bitted lock with integral detent mechanism.

KEYS: Two nickel plated brass keys with code number.

SWITCH HOUSING: 6/6 Nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page L-17 for additional contact materials.

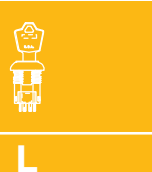
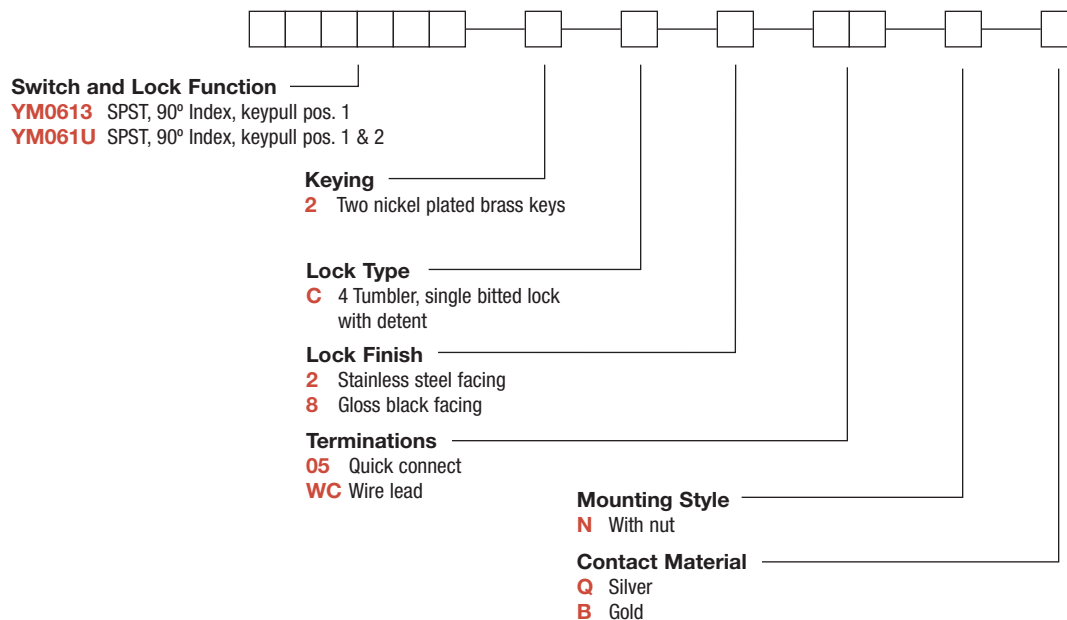
MOUNTING NUT: Brass, bright zinc plated.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-16 and L-17. For additional options not shown in catalog, consult Customer Service Center.



Switchlock



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

YM Series 4 Tumbler Miniature Switchlocks

SWITCH AND LOCK FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING	SCHEMATIC
		POS. 1	POS. 2				
SP	YM0613	OFF	ON	Position 1		90°	
	YM061U			Positions 1 & 2			
<p>SPST</p>							

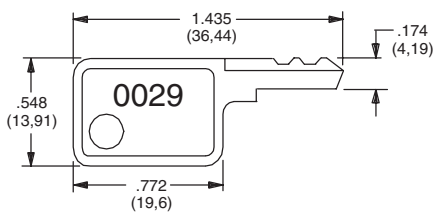
All models with all options when ordered with 'Q' contact material.

LEGEND

- = Detent Positions (90°)
- ⊙ = Key pull possible in these positions
- ⊙ = Stop Positions

KEYING

2 TWO NICKEL PLATED BRASS KEYS

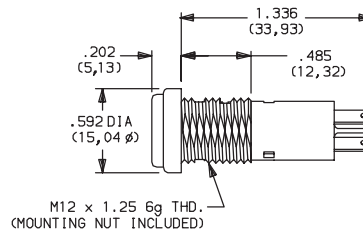


Key part number: 960B10029

NOTE: All orders keyed alike with code number on key. For more than one key code, replacement keys, or other special features, consult Customer Service Center.

LOCK TYPE

C 4 TUMBLER SINGLE BITTED LOCK WITH DETENT



LOCK FINISH

2 STAINLESS STEEL FACING

8 GLOSS BLACK FACING



Switchlock

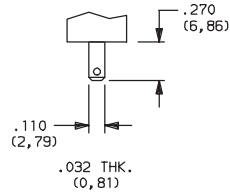


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

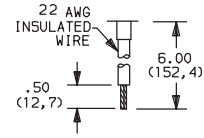
YM Series 4 Tumbler Miniature Switchlocks

TERMINATIONS

05 QUICK CONNECT



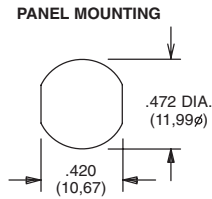
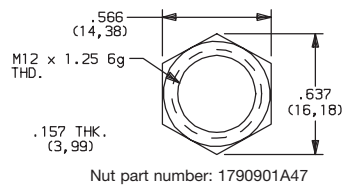
WC WIRE LEAD



Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

MOUNTING STYLE

N WITH NUT



Panel thickness:
.300 (7,62) max.


CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 AC V AC (UL/CSA).
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

All models  with all options when ordered with 'Q' contact material.

AVAILABLE HARDWARE



Key Code: 0029

PART NO. (ONE KEY)

960B10029

Material: Brass
Finish: Nickel plate



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

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Switchlock

P Series 4 Tumbler Snap-in Switchlocks



Models Available

Features/Benefits

- Snap-in mounting
- Multi-pole and multi-position
- Positive detent

Typical Applications

- Computers
- Communication equipment

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC;
1 AMP @ 250 V AC (UL) See page L-20 for additional ratings.
ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.
CONTACT RESISTANCE: Below 10 m Ω typ. initial @
2-4 V DC, 100 mA for both silver and gold plated contacts.
INSULATION RESISTANCE: 10⁹ Ω min.
DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
INDEXING: 45° or 90°, 2-3 positions.

Materials

SWITCH HOUSING & LOCK: One piece construction,
6/6 Nylon (UL 94V-2), black
4 disc tumbler mechanism.
KEYS: One nickel plated brass key and one key with insert
molded plastic head.
TUMBLERS: Disc tumblers, brass.
CONTACTS & TERMINALS: Q contact material: Copper, silver
plated. See page L-20 for additional contact materials.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-19 and L-21. For additional options not shown in catalog, consult Customer Service Center.

Switch and Lock Function

- P10113** SP, 90° Index, keypull pos. 1
- P20113** DP, 90° Index, keypull pos. 1 & 2
- P100AF** SP, 45° Index, keypull pos. 1, 2 & 3
- P200AF** DP, 45° Index, keypull pos. 1, 2 & 3
- P1011U** SP, 90° Index, keypull pos. 1 & 2

Keying

- 2** Two nickel plated brass keys
- T** One nickel plated brass key with insert molded plastic square head and one nickel plated brass key

Lock Type

- C** 4 tumbler lock with detent

Lock Finish

- M** Plastic lock with matte finish

Terminations

- 03** Solder lug
- WC** Wire lead

Contact Material

- Q** Silver
- G** Gold over silver

Lock Color

- 2** Black

Key Color

- 2** Black
- NONE** Nickel plated brass



Switchlock



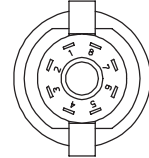
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

P Series 4 Tumbler Snap-in Switchlocks

SWITCH AND LOCK FUNCTION

NO. POLES	MODEL NO.	CONNECTED TERMINALS			KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
		POS. 1	POS. 2	POS. 3			
SP DP	P10113 P20113	8-1 8-1, 4-5	1-3 1-3, 5-7		Position 1		90°
DP	P100AF P200AF	8-1 8-1, 4-5	1-2 1-2, 5-6	2-3 2-3, 6-7	Positions 1, 2 & 3		45°
SP	P1011U	8-1	1-3		Positions 1 & 2		90°

TERMINAL NUMBERS

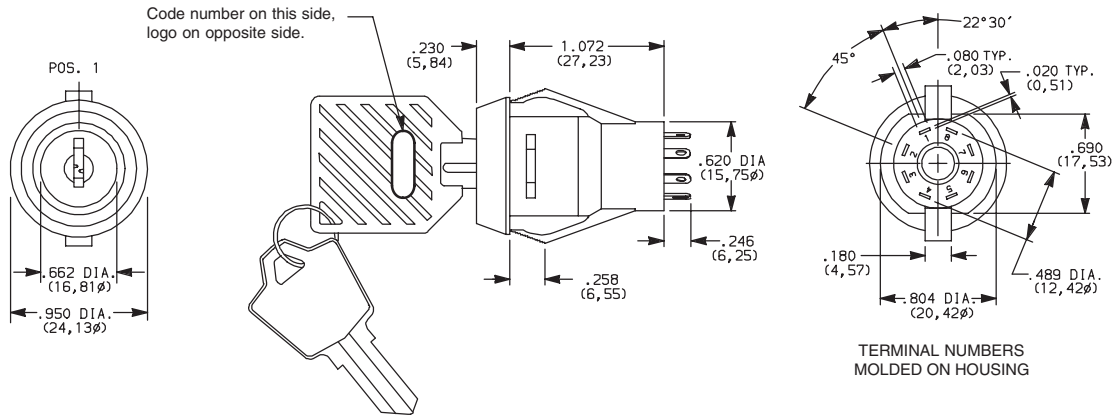


Terminal numbers molded on housing.

All models with all options when ordered with 'Q' contact material.

LEGEND

- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- = Stop Positions

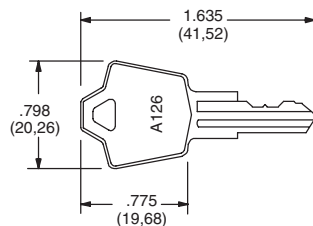


Part number shown: P100AFTCM03Q22

KEYING

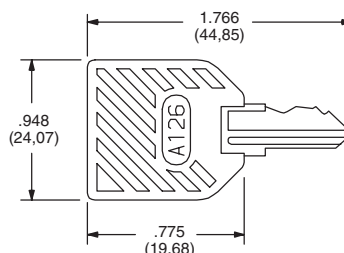
OPTION CODE	KEYING OPTIONS	CODE NO. ON KEY	CODE NO. ON LOCK
2	2 NICKEL PLATED BRASS KEYS	YES	NO
T	1 NICKEL PLATED BRASS KEYS, WITH PLASTIC INSERT MOLDED SQUARE HEAD & 1 NICKEL PLATED BRASS KEY	YES	NO

NICKEL PLATED BRASS KEY



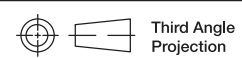
Key part number: 115140126

NICKEL PLATED BRASS KEY WITH PLASTIC INSERT MOLDED SQUARE HEAD



Key part number: 11599112602

NOTE: All orders keyed alike with code number on key. For more than one key code, replacement keys, or other special features, consult Customer Service Center.



Third Angle Projection

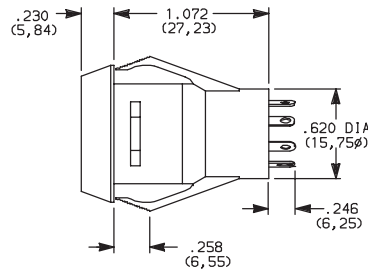
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



P Series 4 Tumbler Snap-in Switchlocks

LOCK TYPE

C 4 TUMBLER LOCK WITH DETENT



OPTION CODE	LOCK COLOR
2	BLACK

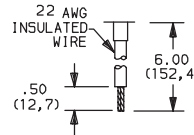
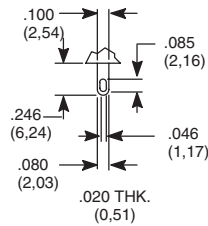
LOCK FINISH

M PLASTIC LOCK WITH MATTE FINISH

TERMINATIONS

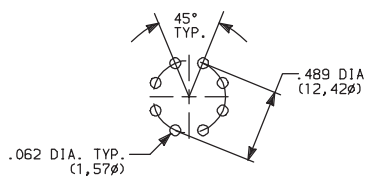
03 SOLDER LUG

WC WIRE LEAD

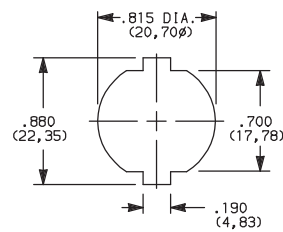


Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

PC MOUNTING



PANEL MOUNTING



Panel Thickness: .100-.200 (2,54-5,08)

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
				POWER	4 AMPS @ 125 V AC; 1 AMP @ 250 V AC (UL/CSA)
Q	YES	YES	SILVER ²	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or 4 AMPS @ 125 V AC; 1 AMP @ 250 V AC (UL/CSA)
G	YES	YES	GOLD OVER SILVER ³		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options)
³ CONTACTS & TERMINALS: Copper, with gold plate over silver plate termination

All models **C&K** **US** with all options when ordered with 'Q' contact material.



Third Angle Projection

Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change



P Series 4 Tumbler Snap-in Switchlocks

AVAILABLE HARDWARE



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
115140126
Material: Brass
Finish: Nickel plate



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
1159112602 BLACK
Material: Brass
Finish: Nickel plate
6/6 Nylon insert molded head



Switchlock

PF Series 5 Tumbler Miniature Snap-in Switchlocks



Features/Benefits

- Snap-in mounting
- Multi-pole and multi-position
- Positive detent

Typical Applications

- Computers
- Point-of-sale terminals
- Instrumentation



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page L-25 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 45°: 3 positions, 90°:2 positions.

Materials

LOCK: 6/6 nylon with matte finish (UL 94V-2), black,

5 tumbler, single bitted lock with integral detent mechanism.

KEYS: Two nickel plated brass keys with black plastic head.

SWITCH HOUSING: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page L-25 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-23 through L-25. For additional options not shown in catalog, consult Customer Service Center.

Switch and lock Function

PF011U SP, 90° Index, keypull pos. 1 & 2

PF201U DP, 45° Index, keypull pos. 1 & 3

PF211U DP, 90° Index, keypull pos. 1 & 2

Keying

E Two nickel plated brass keys with insert molded plastic head

Lock Type

B 5 Tumbler lock with detent

Lock Finish

M Plastic lock with matte finish

Terminations

03 Solder lug with hole

WC Wire lead

Lock Style

K Cone shaped facing

Contact Material

Q Silver

B Gold

Lock Color

2 Black

Key Color

2 Black



Third Angle Projection

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



PF Series 5 Tumbler Miniature Snap-in Switchlocks

SWITCH AND LOCK FUNCTION



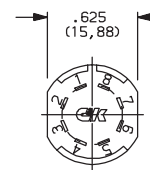
SINGLE & DOUBLE POLE SWITCHES							
NO. POLES	MODEL NO.	CONNECTED TERMINALS			KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
		POS. 1	POS. 2	POS. 3			
DP	PF201U	8-1, 4-5	1-2, 5-6	2-3, 6-7	Positions 1 & 3		45°
SP DP	PF011U PF211U	8-1 8-1, 4-5	1-3 1-3, 5-7		Positions 1 & 2		90°

All models with all options when ordered with 'Q' contact material.

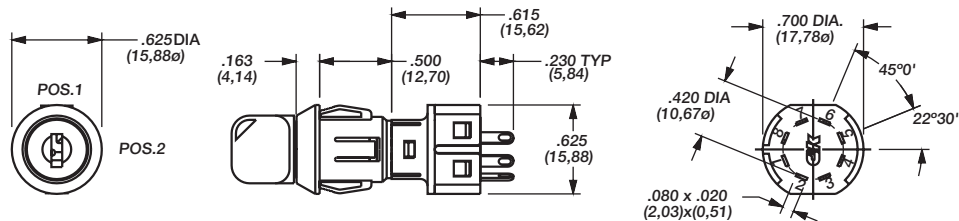
LEGEND

- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop Positions

TERMINAL NUMBERS



Terminal numbers molded on housing.

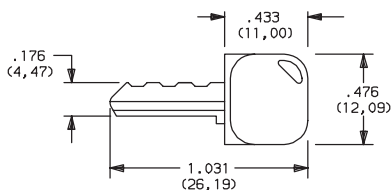


Part number shown: PF011UEBM03KQ22

KEYING



E TWO NICKEL PLATED BRASS KEYS WITH INSERT MOLDED PLASTIC HEAD



Key part number: 617D1004102

OPTION CODE	KEY COLOR
2	BLACK

NOTE: All orders keyed alike, standard. For more than one key code, replacement keys, or other special features, consult Customer Service Center.



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change

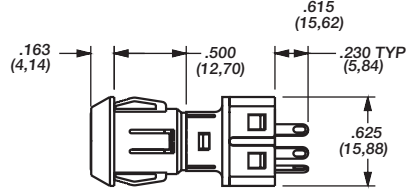


Switchlock

PF Series 5 Tumbler Miniature Snap-in Switchlocks

LOCK TYPE  LOCK COLOR

B 5 TUMBLER LOCK WITH DETENT



OPTION CODE	LOCK COLOR
2	BLACK

LOCK FINISH 

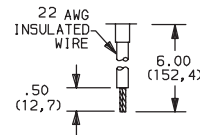
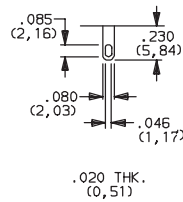
M PLASTIC LOCK WITH MATTE FINISH



TERMINATIONS 

03 SOLDER LUG WITH HOLE

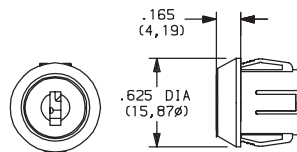
WC WIRE LEAD



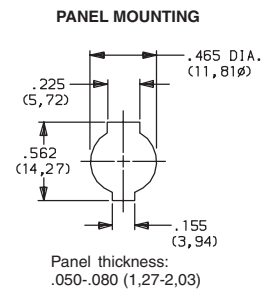
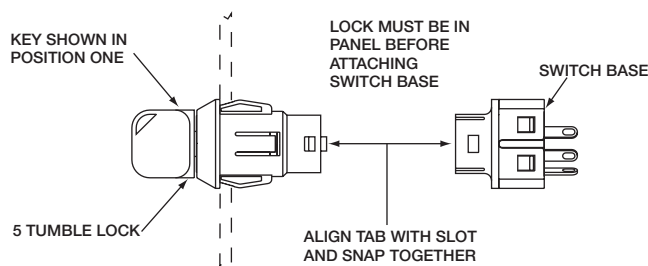
Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

LOCK STYLE 

K CONE SHAPED FACING



Switch and Lock Assembly Instructions



NOTE: Switch installation is permanent. Switch cannot be removed from lock after assembly. Attempts to separate switch and lock may damage switch.



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

PF Series 5 Tumbler Miniature Snap-in Switchlocks


CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA).
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

All models  with all options when ordered with 'Q' contact material.

AVAILABLE HARDWARE



Key Code: 041

PART NO. (ONE KEY)

617D1004102 BLACK

Material: Brass
Finish: Nickel plate
6/6 Nylon insert molded head



Switchlock



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change

PM Series 5 Tumbler Miniature Snap-in Switchlocks



Models Available

Features/Benefits

- International agency listings
- Snap-in mounting
- Wire lead terminations available
- 5 Tumbler lock with positive detent

Typical Applications

- Computers
- Point-of-sale terminals
- Marine equipment

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA); 4 AMPS @ 125 V AC, 2 AMPS @ 250 V AC, T65 (VDE). See page L-28 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 90°:2 positions.

Materials

LOCK: 6/6 nylon with matte finish (UL 94V-2), color black, 5 tumbler, single bitted lock with integral detent mechanism.

KEYS: Two nickel plated brass keys with black plastic head, other colors available.

SWITCH HOUSING: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page L-28 for additional contact materials.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-27 and L-28. For additional options not shown in catalog, consult Customer Service Center.

Switch and lock Function

PM0613 SP, 90°, Index, keypull pos. 1

PM061U SP, 90° Index, keypull pos. 1 & 3

Keying

E Two nickel plated brass keys with insert molded plastic head

Lock Type

B 5 Tumbler lock with detent

Lock Finish

M Plastic lock with matte finish

Terminations

05 Quick connect

WC Wire lead

Lock Style

K Cone shaped facing

Contact Material

Q Silver

B Gold

Lock Color

2 Black

Key Color

2 Black

Switchlock



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

PM Series 5 Tumbler Miniature Snap-in Switchlocks

SWITCH AND LOCK FUNCTION



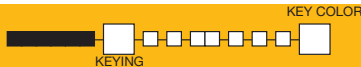
NO. POLES	MODEL NO.	SWITCH FUNCTION		KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
		POS. 1	POS. 2			
SP	PM0613	OFF	ON	Position 1		90°
	PM061U			Positions 1 & 2		
SP						

All models with all options when ordered with 'Q' contact material.

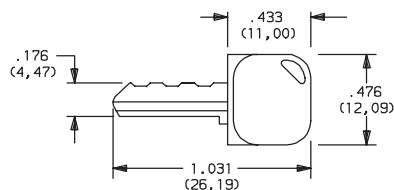
LEGEND

- = Detent Position (90°)
- ⊙ = Key pull possible in these positions.
- ⦿ = Stop Positions

KEYING



E TWO NICKEL PLATED BRASS KEYS WITH INSERT MOLDED PLASTIC HEAD

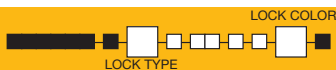


Key part number: 617D1004102

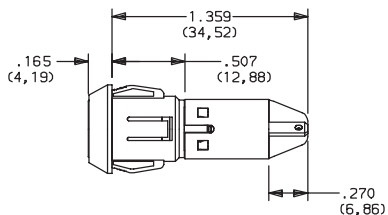
OPTION CODE	KEY COLOR
2	BLACK

NOTE: Molded plastic head color is black, standard. For more than one key code, replacement keys, or other special features, consult Customer Service Center.

LOCK TYPE



B 5 TUMBLER LOCK WITH DETENT



OPTION CODE	LOCK COLOR
2	BLACK



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



PM Series 5 Tumbler Miniature Snap-in Switchlocks

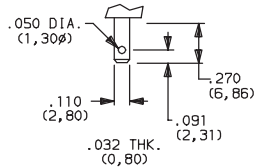
LOCK FINISH

M PLASTIC LOCK WITH MATTE FINISH

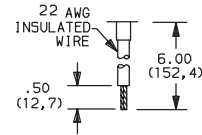


TERMINATIONS

05 QUICK CONNECT



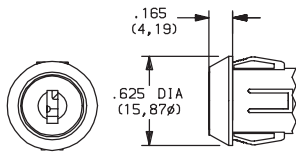
WC WIRE LEAD



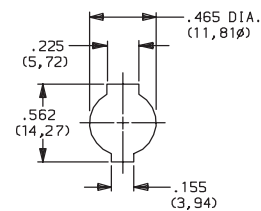
UL style 1015.
Black wire standard, other colors and lengths available, consult Customer Service Center.

LOCK STYLE

K CONE SHAPED FACING



PANEL MOUNTING



Panel thickness:
.050-.080 (1,27-2,03)

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). 4 AMPS @ 125 V AC; or 2 AMPS @ 250 V AC; T65 (VDE).
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

All models



with all options when ordered with 'Q' contact material.

² CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

AVAILABLE HARDWARE



Key Code: 041

PART NO. (ONE KEY)

617D1004102 BLACK

Material: Brass

Finish: Nickel plate

6/6 Nylon insert molded head



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



Switchlock

A Series 4 & 5 Tumbler 1-4 Pole Switchlocks

Features/Benefits

- Multi-pole and multi-position
- Shorting and non-shorting contacts available
- Low level and power capability
- PCB mounting

Typical Applications

- Security alarm systems
- Medical equipment
- Computer servers



Models Available

Specifications

CONTACT RATING: Q contact material: Switch-2.5 AMPS @ 125 V AC; 350 mA @ 125 V DC (UL/CSA). Carry-5 AMPS continuous. See page L-33 for additional ratings.

ELECTRICAL LIFE: 15,000 make-and-break cycles at full load up to 300,000 detent operations.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

INDEXING: 30°: 2-4 positions, 45° or 90°: 2-3 positions.

STATIC RESISTANCE: Anti-static models exceed 20 KV DC static resistance @ sea level, lock body to terminals.

Materials

LOCK: Zinc alloy with stainless steel facing.

KEYS: Two nickel plated brass keys with code number.

SWITCH HOUSING: Glass filled 6/6 nylon (UL 94V-0).

MOVABLE CONTACT: Q contact material: Coin silver, silver plated. See page L-38 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: Q contact material: Brass, silver plated. See page L-33 for additional contact materials.

MOUNTING NUT: Zinc alloy.

DRESS NUT: Brass, nickel plated.

TERMINAL SEAL: Epoxy.

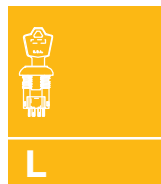
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-30 through L-33. For additional options not shown in catalog, consult Customer Service Center.

<p>Switch and lock Function</p> <p>A21613 DP, 30°, keypull pos. 1 A11413 SP, 90°, keypull pos. 1 A31413 3P, 90°, keypull pos. 1 A3141U 3P, 90°, keypull pos. 1 & 2 A11513 SP, 45°, keypull pos. 1 A31513 3P, 45°, keypull pos. 1 A3151U 3P, 45°, keypull pos. 1 & 3 A21582 DP, 45°, keypull pos. 1 A11613 SP, 30°, keypull p05. 1 A1161U SP, 30°, keypull pos. 1 & 4 A12112 SP, 45°, keypull p05. 1 A42112 4P, 45°, keypull pos. 1</p>	<p>Keying</p> <p>2 Two nickel plated brass keys</p>	<p>Lock Type</p> <p>A 4 Tumbler lock G 5 Tumbler lock with anti-static switch Y 4 Tumbler lock with anti-static switch</p>	<p>Lock Finish</p> <p>2 Stainless steel facing 1 Nickel plated with removable dress nut 8 Gloss black facing</p>	<p>Shorting/Non-Shorting</p> <p>N Non-shorting contacts S Shorting contacts</p>	<p>Terminations</p> <p>Z Solder lug C PC Thru-hole</p>	<p>Mounting/Lock Style</p> <p>N With nut R With removable dress nut</p>	<p>Contact Material</p> <p>Q Silver B Gold</p>	<p>Seal</p> <p>NONE No seal E Epoxy seal</p>
--	---	--	--	---	--	---	--	--



Switchlock



Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

A Series 4 & 5 Tumbler 1-4 Pole Switchlocks

SWITCH AND LOCK FUNCTION

NO. POLES	MODEL NO.	CONNECTED TERMINALS				KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
		POS. 1	POS. 2	POS. 3	POS. 4			
SP 3P	A11413 * A31413	A-1 A-1, B-5, C-9	A-4 A-4, B-8, C-12			Position 1		90°
3P	A3141U	A-1, B-5, C-9	A-4, B-8, C-12			Positions 1 & 2		
SP 3P	A11513 * A31513	A-1 A-1, B-5, C-9	A-2 A-2, B-6, C-10	A-4 A-4, B-8, C-12		Position 1		45°
3P	A3151U	A-1, B-5, C-9	A-2, B-6, C-10	A-4, B-8, C-12		Positions 1 & 3		
DP	A21582	A-4, C-10	A-5, C-11	A-2, C-8		Position 1		
SP DP	A11613 * A21613	A-1 A-1, C-7	A-2 A-2, C-8	A-3 A-3, C-9	A-4 A-4, C-10	Position 1		30°
SP	A1161U *	A-1	A-2	A-3	A-4	Positions 1 & 4		
SP 4P	A12112 * A42112	A-1 A-1, B-4, C-7, D-10	A-2 A-2, B-5, C-8, D-11			Position 1		45°

LEGEND

- = Detent Positions (30°, 45° or 90°)
- ⊙ = Key pull possible in these positions.
- = Stop Positions

TERMINAL NUMBERS



4P MODEL



3P MODEL

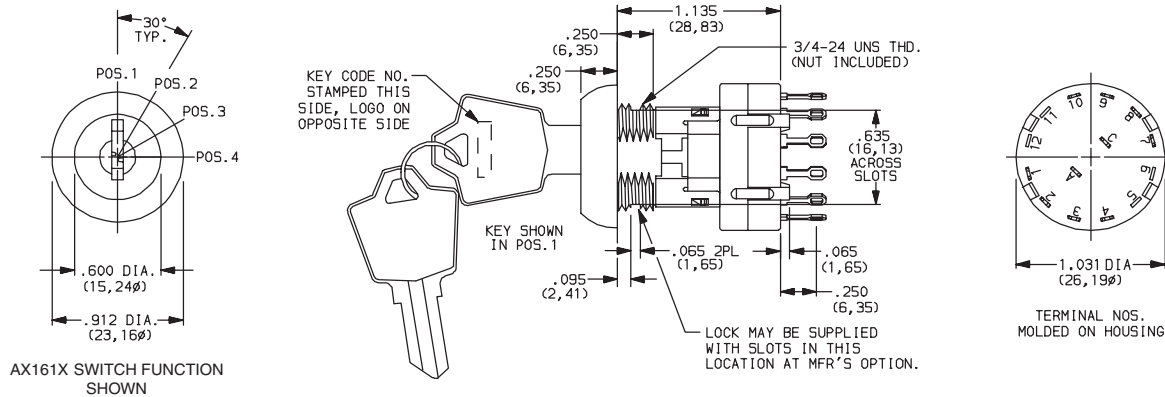
***NOTE:** Switchlock models A114XX, A115XX, A116XX and A12112 with 'C' terminations have additional terminal no. 8 as switch support only. This terminal is not connected electrically inside switch.

All models **C&K** **US** with all options when ordered with 'Q' contact material.
AX14 models not available with 'S' shorting contacts.

SP MODEL (omit terminals B, C & D)
DP MODEL (omit terminals B & D)

Terminal numbers molded on housing bottom.

Switchlock



AX161X SWITCH FUNCTION SHOWN

Part number shown: A116132Y2NZNQ



Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

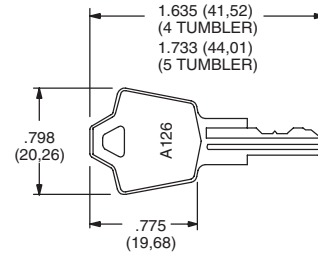


A Series 4 & 5 Tumbler 1-4 Pole Switchlocks

KEYING

OPTION CODE	KEYING OPTIONS	CODE NO. ON KEY	CODE NO. ON LOCK
2	2 NICKEL PLATED BRASS KEYS	YES	NO

NOTE: All orders keyed alike, standard. For more than one key code, replacement keys, or other special features, consult Customer Service Center.

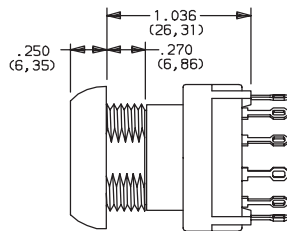


Key part number: 115140126

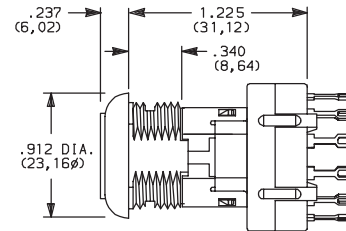
NOTE: Key head shape subject to change without notice.

LOCK TYPE

A 4 TUMBLER LOCK WITH REMOVABLE DRESS NUT

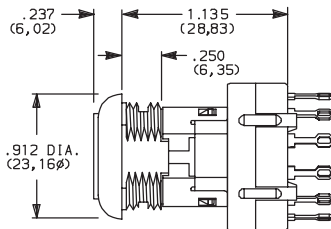


G 5 TUMBLER LOCK WITH ANTI-STATIC SWITCH



Not available with AX23 models.

Y 4 TUMBLER LOCK WITH ANTI-STATIC SWITCH



NOTE: For available option combinations, see page L-38.

AVAILABLE OPTION COMBINATIONS		
LOCK TYPES	MOUNTING STYLES	
	N	R
G	•	
A		•
Y	•	

LOCK FINISH

2 STAINLESS STEEL



1 NICKEL



8 GLOSS BLACK



AVAILABLE OPTION COMBINATIONS					
FINISH OPTIONS	LOCK TYPES			MOUNTING STYLES	
	G	A	Y	N	R
1		•			•
2	•		•	•	
8	•	•	•		•

NOTE: For available option combinations, see page M-38.

SHORTING/NON-SHORTING

N NON-SHORTING CONTACTS (break-before-make)

S SHORTING CONTACTS (make-before-break)

Not available with AX14 models.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

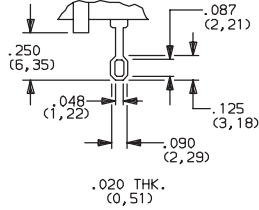


Switchlock

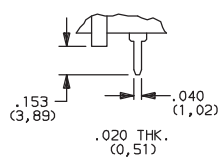
A Series 4 & 5 Tumbler 1-4 Pole Switchlocks

TERMINATIONS

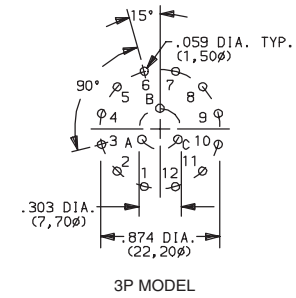
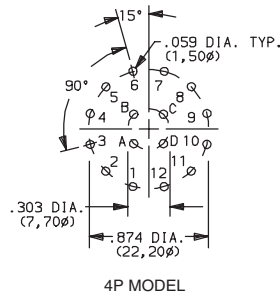
Z SOLDER LUG



C PC THRU-HOLE



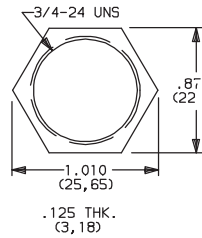
PC MOUNTING



SP MODEL (omit terminals B, C, D)
DP MODEL (omit terminals B & D)

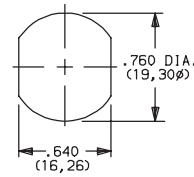
MOUNTING/LOCK STYLE

N WITH NUT

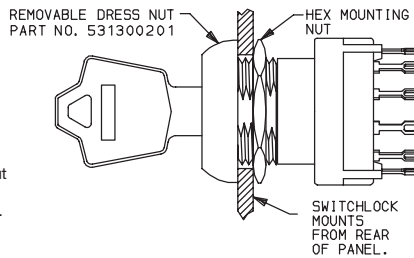
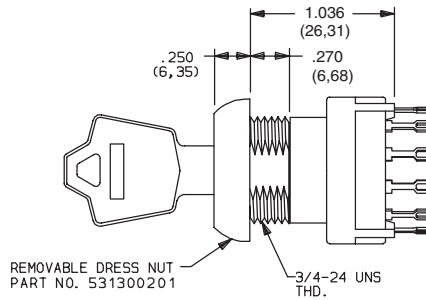
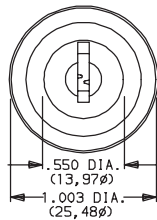


Nut part number: 937C00000

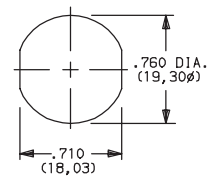
PANEL MOUNTING



R REMOVABLE DRESS NUT



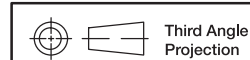
PANEL MOUNTING



TYPICAL INSTALLATION

Install hex nut with enough clearance to allow for dress nut and panel. Place switch through cutout in rear of panel. Install and tighten dress nut by hand, then tighten hex nut. Always tighten assembly with back of panel hex nut to avoid damaging front of panel.

Switchlock



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

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A Series 4 & 5 Tumbler 1-4 Pole Switchlocks

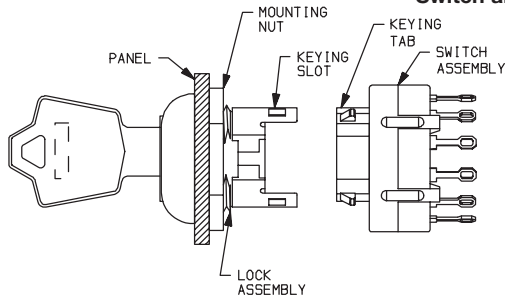
MOUNTING/LOCK STYLE

Mounting Information (All Models)

MOUNTING STYLES	PANEL THICKNESS	
	A & Y LOCK TYPES	G LOCK TYPES
N	.105 (2,67) max.	.195 (4,95) max.
R	.125 (3,18) max.	.215 (5,46) max.

AVAILABLE OPTION COMBINATIONS						
MOUNTING STYLES	LOCK FINISHES			LOCK TYPES		
	1	2	8	G	A	Y
N		•	•	•		•
R	•		•		•	

Switch and Lock Assembly Instructions



1. Place lock assembly in mounting hole on panel, secure with mounting nut.
2. Align keying tab on switch assembly with keying slot on lock assembly.
3. Snap assemblies together.
4. Switch installation is permanent. Switch cannot be removed from lock after assembly. Attempting to separate switch and lock may cause damage to switchlock.

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
Q	YES	YES	SILVER ²	POWER	SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125 V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS.
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.

¹ MOVABLE CONTACT: Copper alloy, with gold plate over nickel plate.
STATIONARY CONTACTS & TERMINALS: Brass, with gold plate over nickel plate.
² MOVABLE CONTACT: Coin silver, silver plated.
STATIONARY CONTACTS & TERMINALS: Brass, silver plated (standard with all termination options).

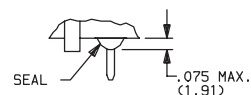
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

All models with all options when ordered with 'Q' contact material.

SEAL

NONE NO SEAL

E EPOXY SEAL



AVAILABLE HARDWARE



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
115140126
Material: Brass
Finish: Nickel plate

Key Code: D001
5 TUMBLER
PART NO. (ONE KEY)
115441001
Material: Brass
Finish: Nickel plate

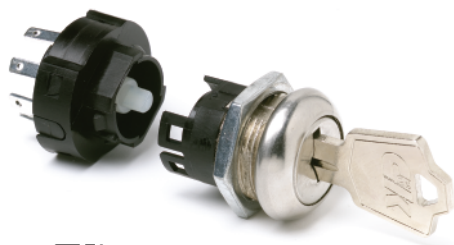


Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

H Series 4 & 6 Tumbler Power Switchlocks



Models Available

Features/Benefits

- Positive detent
- Multi-pole and multi-position
- Snap-together assembly
- Power switching

Typical Applications

- Machine controls
- Elevators

Specifications

CONTACT RATING: Q contact material: 12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC (UL/CSA). See page L-37 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

INDEXING: 45° or 90°, 2-4 Positions.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switchlocks with standard options. For information on specific and custom switchlocks, consult Customer Service Center.

Materials

LOCK: Zinc alloy with stainless steel facing (4 tumbler locks and 6 tumbler tubular lock).

KEYS: Two nickel plated brass keys with code number (4 tumbler). Two die cast chrome plated zinc alloy keys (6 tumbler).

SWITCH HOUSING: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated. See page L-37 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Zinc alloy.

MOUNTING CLIP: Steel, zinc plated.

DRESS NUT: Brass, nickel plated.

TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-35 through L-38. For additional options not shown in catalog, consult Customer Service Center.

Switch and Lock Function

- H10113** SP, 90° Index, keypull pos.1
- H2011U** DP, 90° Index, keypull pos. 1 & 2
- H100AA** SP, 45° Index, keypull pos. 1,2 & 3
- H200AA** DP, 45° Index, keypull pos. 1, 2 & 3
- H20113** DP, 90° Index, keypull pos. 1
- H1011U** SP, 90° Index, keypull pos.1 & 2
- H1417U** SP, 90° Index, keypull pos. 1,2 & 3

Keying

- 2** Two nickel plated brass keys (4 tumbler) or two die cast zinc alloy keys with chrome plating (6 tumbler)
- T** One nickel plated brass key with plastic insert molded square head and one nickel plated brass key

Lock Type

- F** 4 Tumbler lock with detent
- V** 6 Tumbler tubular lock

Lock Finish

- 2** Stainless steel facing
- 8** Gloss black facing

Terminations

- 05** Quick connect
- WC** Wire lead

Mounting/Lock Style

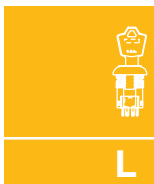
- N** With nut
- D** With clip

Contact Material

- Q** Silver
- B** Gold

Key Color

- NONE** Nickel plated brass (4 tumbler) or chrome plated zinc alloy (6 tumbler)
- 2** Black



Switchlock



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

H Series 4 & 6 Tumbler Power Switchlocks

SWITCH AND LOCK FUNCTION

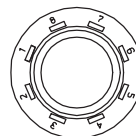
NO. TUMBLERS	NO. POLES	MODEL NO.	CONNECTED TERMINALS				KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
			POS. 1	POS. 2	POS. 3	POS. 4			
4	SP DP	H100AA H200AA	7-8 7-8, 3-4	8-1 8-1, 4-5	6-7 6-7, 2-3		Positions 1, 2 & 3		45°
4 & 6	SP DP	H10113 H20113	7-8 7-8, 3-4	8-2 8-2, 4-6			Position 1		
4 & 6	SP DP	H1011U H2011U	7-8 7-8, 3-4	8-2 8-2, 4-6			Positions 1 & 2		90°
4	SP	H1417U	6-8	8-2	5-6		Positions 1, 2 & 3		

All models with all options when ordered with 'G' or 'Q' contact material.

TERMINAL NUMBERS

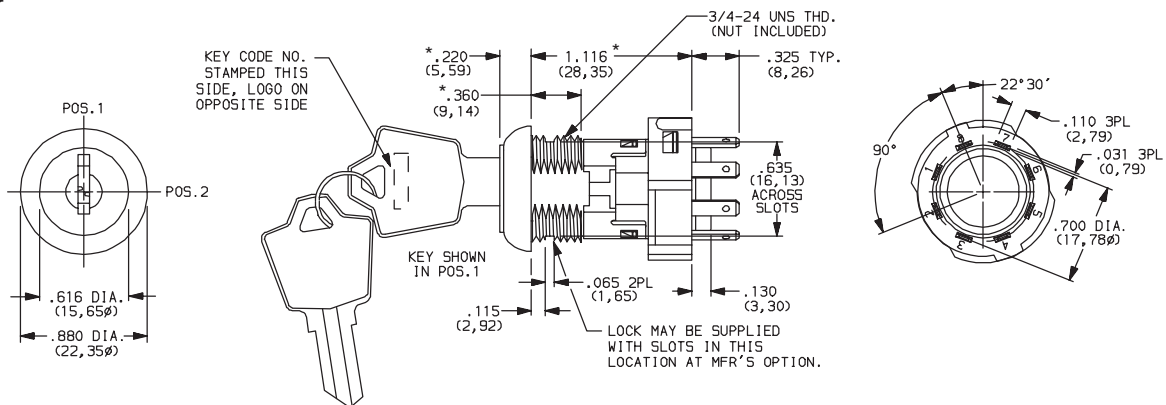
LEGEND

- = Detent Positions (45° or 90°)
- ⊙ = Key pull possible in these positions.
- = Stop Positions



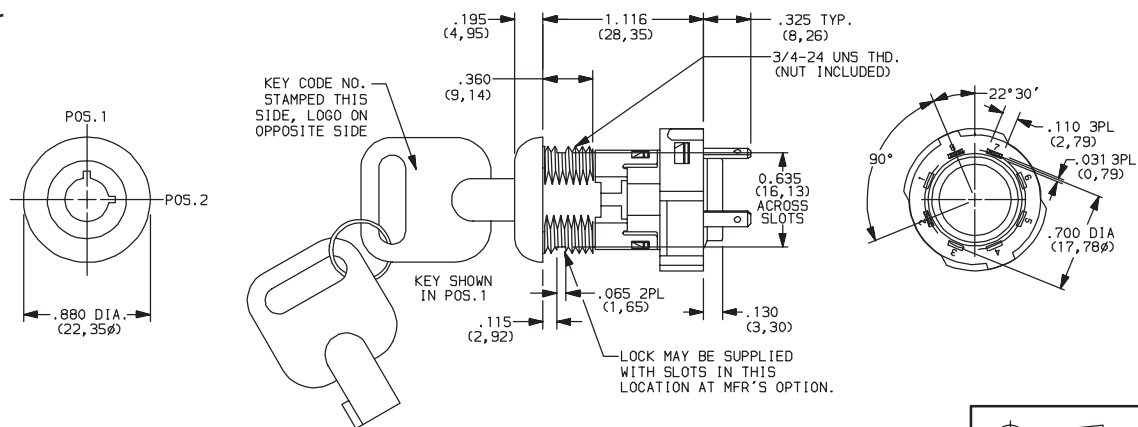
Terminal numbers molded on housing.

4 Tumbler



Part number shown: H101132F205NQ

6 Tumbler

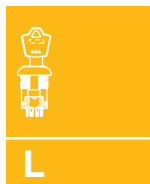


Part number shown: H1011U2V205NQ



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



Switchlock

H Series 4 & 6 Tumbler Power Switchlocks

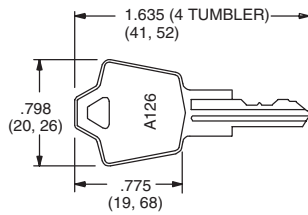
KEYING

OPTION CODE	KEY OPTIONS	CODE NO. ON KEY	CODE NO. ON LOCK
2	2 NICKEL PLATED BRASS KEYS (4 TUMBLER) OR 2 CHROME PLATED ZINC ALLOY KEYS (6 TUMBLER)	YES	NO
T	1 NICKEL PLATED BRASS KEY WITH PLASTIC INSERT MOLDED SQUARE HEAD & 1 NICKEL PLATED BRASS KEY	YES	NO

OPTION CODE	KEY COLOR
NONE	NICKEL PLATED BRASS (4 TUMBLER) OR CHROME PLATED ZINC ALLOY (6 TUMBLER)
2	BLACK

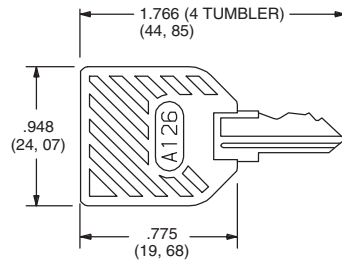
NOTE: All orders keyed alike, standard. For more than one key code, replacement keys, or other special features, consult Customer Service Center.

NICKEL PLATED BRASS KEY



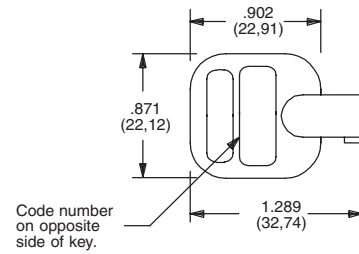
Key part number: 115140126

NICKEL PLATED BRASS KEY WITH PLASTIC INSERT MOLDED SQUARE HEAD



Key part number: 11599112602

CHROME PLATED ZINC ALLOY KEY

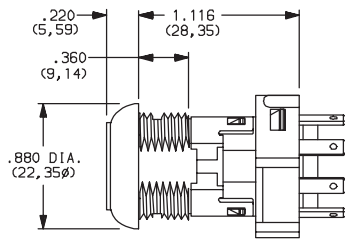


Key part number: 363C1AAAA

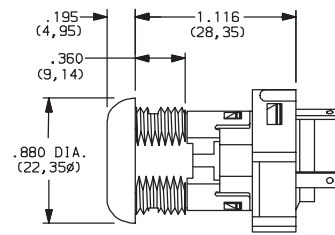
NOTE: Key head shape subject to change without notice.

LOCK TYPE

F 4 TUMBLER LOCK WITH ADDED DETENT



V 6 TUMBLER TUBULAR LOCK



LOCK FINISH

2 STAINLESS STEEL FACING



Available with V lock type only.

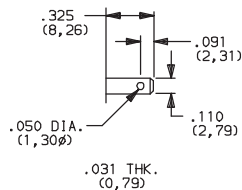
8 GLOSS BLACK FACING



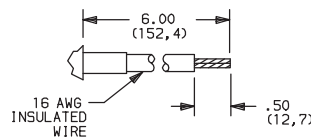
Switchlock

TERMINATIONS

05 .110" QUICK CONNECT



WC WIRE LEAD



Black wire standard, other colors, gages and lengths available, consult Customer Service Center. UL style 1015.



Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

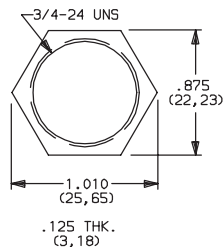


www.ck-components.com

H Series 4 & 6 Tumbler Power Switchlocks

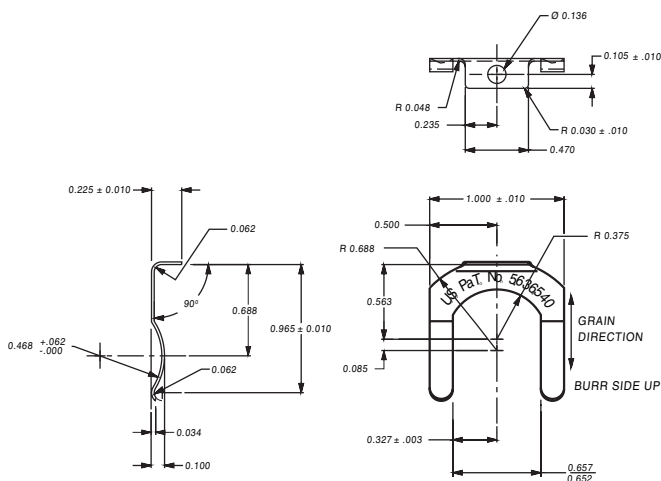
MOUNTING/LOCK STYLE

N WITH NUT



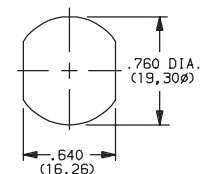
Nut part number: 937C00000

D WITH CLIP



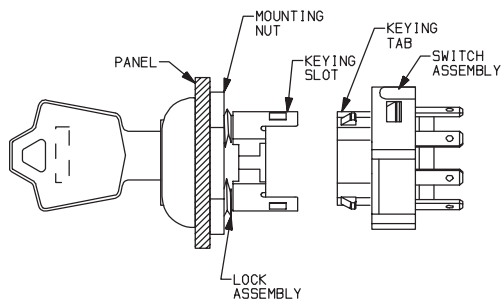
Clip part number: 906B00000

PANEL MOUNTING



MOUNTING STYLES	PANEL THICKNESS
D	.065-.085 (1,65-2,16)
N	.195 (4,95) max.

Switch and Lock Assembly Instructions



1. Place lock assembly in mounting hole on panel, secure with mounting nut.
2. Align keying tab on switch assembly with keying slot on lock assembly.
3. Snap assemblies together.
4. Switch installation is permanent. Switch cannot be removed from lock after assembly. Attempting to separate switch and lock may cause damage to switchlock.

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT*	RoHS COMPATIBLE*	CONTACT AND TERMINAL MATERIAL	RATING	
				POWER	12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC (UL/CSA).
Q	YES	YES	SILVER ²	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX.
B	YES	YES	GOLD ¹		

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
² CONTACTS & TERMINALS: Copper, silver plated.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

All models  with all options when ordered with 'Q' contact material.



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



Switchlock

H Series 4 & 6 Tumbler Power Switchlocks

AVAILABLE HARDWARE



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
115140126
Material: Brass
Finish: Nickel plate



Key Code: AAAA
PART NO. (ONE KEY)
363C1AAAA
Material: Zinc Alloy
Finish: Chrome plate



Key Code: A126
4 TUMBLER
PART NO. (ONE KEY)
1159112602 BLACK
Material: Brass
Finish: Nickel plate
6/6 Nylon insert molded head



Switchlock

PL Series 5 Tumbler Miniature Camlocks

Features/Benefits

- Cost-effective security
- Custom cams available

Typical Applications

- Office furniture
- Cash registers
- Copy machines



Specifications

INDEXING: 90°: 2 positions.

NOTE: Specifications and materials listed above are for camlocks with standard options. For information on specific and custom camlocks, consult Customer Service Center.

Materials

LOCK: 6/6 nylon (UL 94V-2). Color, black.

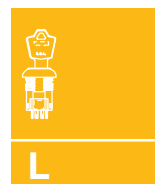
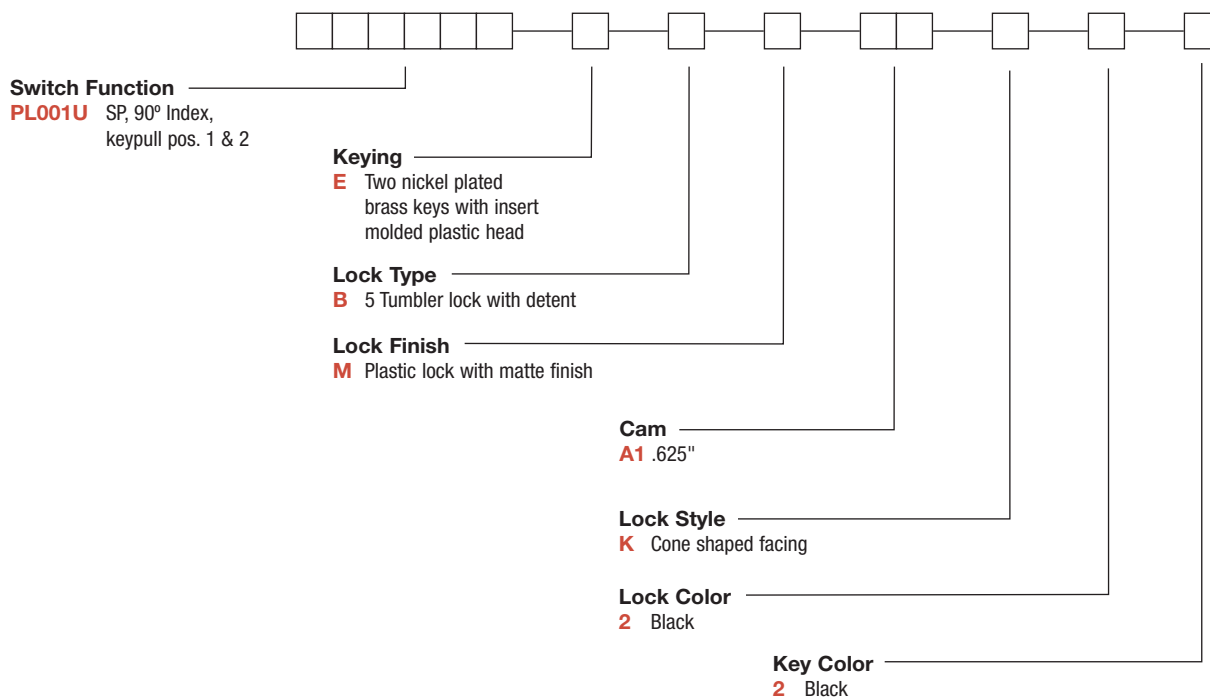
5 tumbler, single bitted lock with integral detent mechanism.

KEYS: Two nickel plated brass keys with black plastic insert molded head.

CAM: 6/6 nylon (UL 94V-2).

Build-A-Switch


To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages L-40 and L-41. For additional options not shown in catalog, consult Customer Service Center.

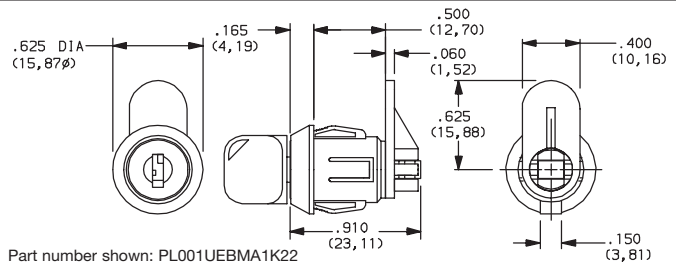


Switchlock

PL Series 5 Tumbler Miniature Camlocks

LOCK FUNCTION

MODEL NO.	KEY PULL POSITIONS	LOCK CONFIGURATION	INDEXING
PL001U	Positions 1 & 2		90°



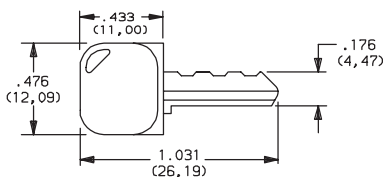
Part number shown: PL001UEBMA1K22

LEGEND

- = Detent Position (90°)
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop Positions

KEYING

E TWO NICKEL PLATED BRASS KEYS WITH INSERT MOLDED PLASTIC HEAD



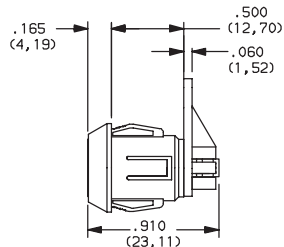
Key part number: 617D1004102

OPTION CODE	KEY COLOR
2	BLACK

NOTE: All orders keyed alike, standard. For more than one key code, replacement keys, or other special features, consult Customer Service Center.

LOCK TYPE

B 5 TUMBLER LOCK WITH DETENT



OPTION CODE	LOCK COLOR
2	BLACK

LOCK FINISH

M PLASTIC LOCK WITH MATTE FINISH



Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

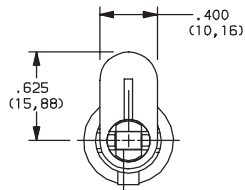


Switchlock

PL Series 5 Tumbler Miniature Camlocks

CAM

A1 .625"

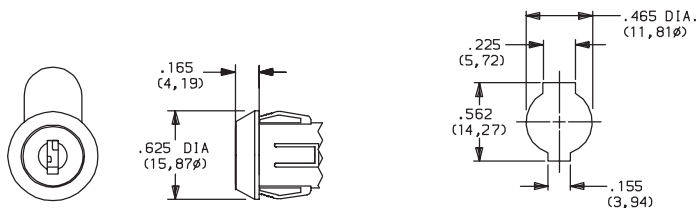


NOTE: Cam not assembled to switch. Other cam lengths and styles available, consult Customer Service Center.

LOCK STYLE

K CONE SHAPED FACING

PANEL MOUNTING



Panel thickness: .050-.080 (1,27-2,03)

AVAILABLE HARDWARE



Key Code: 041

PART NO. (ONE KEY)

617D1004102 BLACK

Material: Brass
Finish: Nickel plate
6/6 Nylon insert molded head




Switchlock



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change

Thumbwheel Product Selection Guide

Thumbwheel	
Series	3
Switch Type	Thumbwheel
Sealed	•
Dust Lens	•
Max. Current	1 Amp
Actuators	
Thumbwheel Actuator	•
Number of Positions	
10 Position	•
16 Position	•
Mounting Options	
Board Mount w/Pins	•
Front Mount	•
Rear Mount	•
Snap-in	•
Page Number	M-3

Thumbwheel



*Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change*

3 Series Thumbwheel Switches

Features/Benefits

- Most complete product offering in the industry
- Spacers available to fit most panel cutouts
- Front or rear mounting options

Typical Applications

- Test & measurement equipment
- Industrial equipment
- Computer devices



Specifications

CONTACT RATING:
 CARRY: 1 AMP continuous.
 SWITCH: 100 mA max.
 OPERATING VOLTAGE: 50 mV to 28 V DC or 120 V AC.
 ELECTRICAL LIFE: 100,000 actuations.
 CONTACT RESISTANCE: Below 100 m Ω typ. initial @
 2-4 V DC, 100 mA.
 INSULATION RESISTANCE: 10⁹ Ω min.
 DIELECTRIC STRENGTH: 500 Vrms min. @ sea level
 between common terminal and any output.
 OPERATING TEMPERATURE: -40°C to 65°C.

Materials

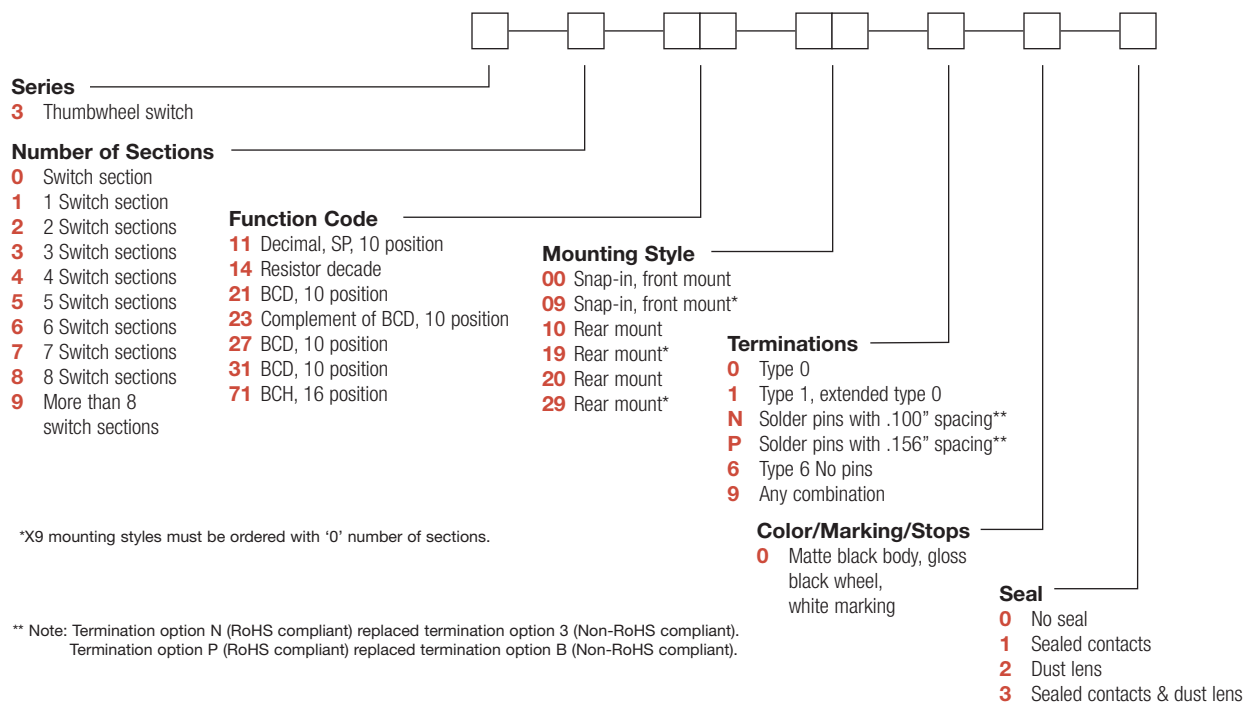
HOUSING: ABS plastic.
 THUMBWHEEL: ABS plastic.
 ROTOR CONTACTS: Precious metal on copper alloy.
 STATOR CONTACTS: Hard gold over nickel over copper
 on epoxy fiberglass.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

* Note: All models listed are RoHS compliant. See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages M-4 thru M-10. For additional options not shown in catalog, consult Customer Service Center. Consult factory for illumination availability.



Thumbwheel

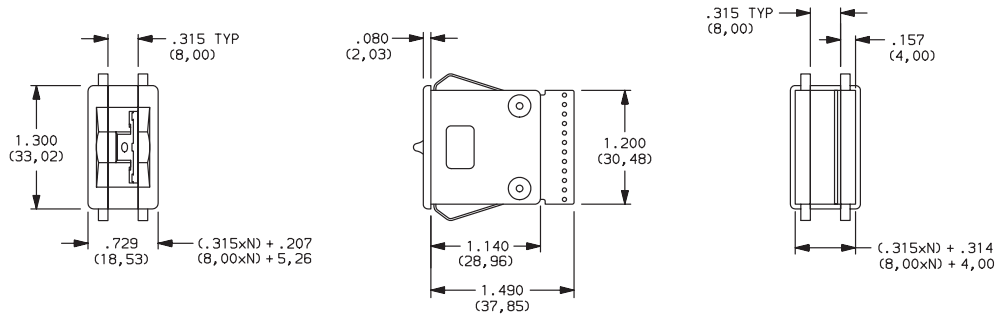


Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change

3 Series Thumbwheel Switches

SERIES

3 THUMBWHEEL SWITCHES



NUMBER OF SECTIONS

- 0** Switch section only, no assembly. Blank bodies are considered sections; endplates are not sections. Must be ordered with 09 or 19 mounting style options, see pages M-5 and M-6.
- 1-8** Number of switch sections in assembly, includes endplates.
- 9** More than 8 switch sections, specify on CONFIGURATION FORM, page M-10 and consult Customer Service Center.

NOTE: Endplates and blank sections available separately, see pages M-13 and M-14.

FUNCTION CODE

- 11** DECIMAL-1 POLE; 10 POSITION
- 14** RESISTOR DECADE; 1-2-2-2-2 CODE (RESISTORS NOT SUPPLIED)
- 21** BCD 1-2-4-8; 10 POSITION

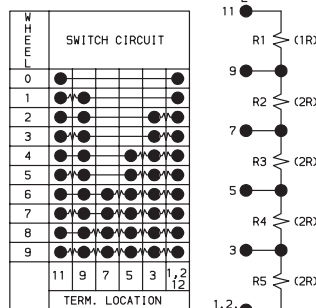
Thumbwheel



M

W H E E L	SIGNALS CONNECTED TO COMMON SIGNAL C										
	0	1	2	3	4	5	6	7	8	9	C
0	●										●
1		●									●
2			●								●
3				●							●
4					●						●
5						●					●
6							●				●
7								●			●
8									●		●
9										●	●
	2	3	4	5	6	7	8	9	10	11	12
	TERM. LOCATION										

Available Terminations: 0, 1, N
See fig. 1, page M-7.

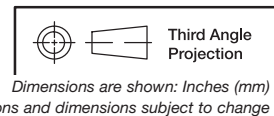


Available Terminations: 1
See fig. 1, page M-7.

W H E E L	SIGNALS CONN. TO COMM. SIG. C				
	1	2	4	8	C
0					●
1	●				●
2		●			●
3	●	●			●
4			●		●
5	●	●	●		●
6	●	●	●	●	●
7	●	●	●	●	●
8	●	●	●	●	●
9	●	●	●	●	●
	3	5	7	11	9
	TERM. LOCATION				

Available Terminations: 0, 1, N
See fig. 1, page M-7.

NOTE: For terminal location diagram, see page M-7.



3 Series Thumbwheel Switches

FUNCTION CODE

23 COMPLEMENT OF BCD 1-2-4-8;
10 POSITION

W H E E L	SIGNALS CONN. TO COMM. SIG. C			
	1	2	4	8
0	●	●	●	●
1	●	●	●	●
2	●	●	●	●
3	●	●	●	●
4	●	●	●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8	●	●	●	●
9	●	●	●	●
	3	9	11	5
	TERM. LOCATION			

Available Terminations: 0, 1, N
See fig. 1, page M-7.

27 BCD 1-2-4-8; 10 POSITION

W H E E L	SIGNALS CONN. TO COMM. SIG. C			
	1	2	4	8
0				●
1	●			●
2	●			●
3	●			●
4	●			●
5	●			●
6	●			●
7	●			●
8	●			●
9	●			●
	4	5	1	2
	TERM. LOCATION			

Available Terminations: P
See fig. 2, page M-7.

31 BCD 1-2-4-8; 10 POSITION

W H E E L	SIGNALS CONN. TO COMM. SIG. C			
	1	2	4	8
0				●
1	●			●
2	●			●
3	●			●
4	●			●
5	●			●
6	●			●
7	●			●
8	●			●
9	●			●
	2	3	11	9
	TERM. LOCATION			

Available Terminations: 0, 1, N
See fig. 1, page M-7.

71 BINARY CODED HEXADECIMAL,
16 POSITION

W H E E L	SIGNALS CONN. TO COMM. SIG. C			
	1	2	4	8
0				●
1	●			●
2	●			●
3	●			●
4	●			●
5	●			●
6	●			●
7	●			●
8	●			●
9	●			●
A	●	●	●	●
B	●	●	●	●
C	●	●	●	●
D	●	●	●	●
E	●	●	●	●
F	●	●	●	●
	3	5	7	11
	TERM. LOCATION			

Available Terminations: 0, 1, N
See fig. 1, page M-7.

NOTE: For terminal location diagram, see page M-7.

MOUNTING STYLE

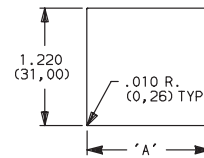
Type 0 Snap-In Front Mount

MOUNTING STYLE	DIM. 'A'
00	$(.315 \times N) + .326$ $(8,00 \times N) + (8,28)$

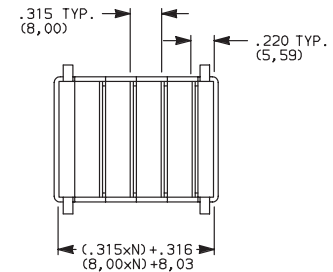
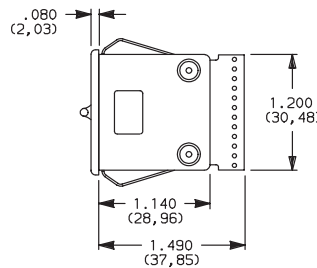
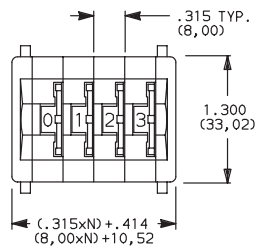
N = Number of sections.

Recommended panel thickness:
0.46-.125
(1,16-3,18)

PANEL MOUNTING



00 SWITCH ASSEMBLY W/ ENDPLATES--315 (8,00) SECTION PITCH



N = Number of sections.

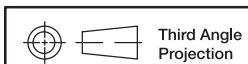
09 SWITCH SECTION ONLY--UNASSEMBLED WITHOUT ENDPLATES OR SPACERS
(Must be ordered with number of sections option "0", see Page M-4.)

NOTE: Endplates, blank sections, spacers
and assembly hardware available separately, see pages M-8 and M-9.

Thumbwheel



M



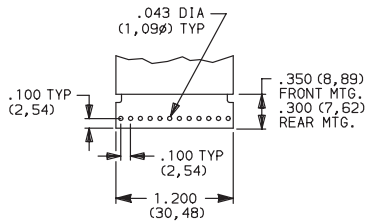
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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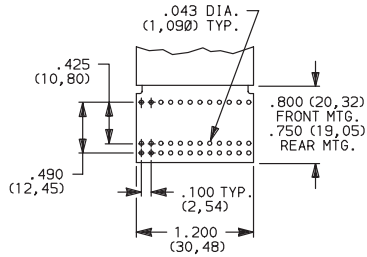
3 Series Thumbwheel Switches

TERMINATIONS

0 TYPE 0

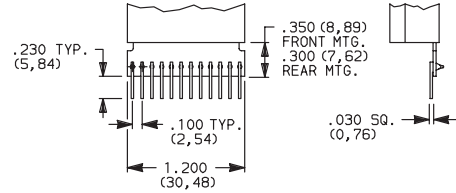


1 TYPE 1, EXTENDED TYPE 0

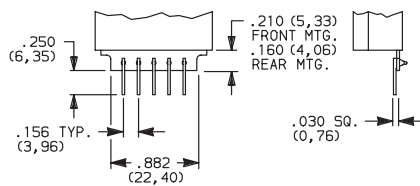


Signal traces cut except for common(s).

N SOLDER PINS WITH .100" SPACING

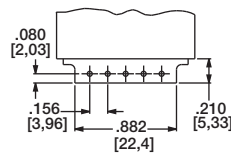


P SOLDER PINS WITH .156" SPACING



PC Board 1/32" (0,79) thick.

6 TYPE 6, NO PINS



9 ANY COMBINATION OF TERMINATION CONFIGURATIONS OR SPECIAL TERMINATIONS.

Specify on configuration form, page M-10 and consult Customer Service Center.

NOTE: All terminal holes shown may not be present for all function codes, consult Customer Service Center. Terminal connector available for termination options 0 & 1, see page M-9.

NOTE: Termination option N (RoHS compliant) replaced termination option 3 (Non-RoHS compliant). Termination option P (RoHS compliant) replaced termination option B (Non-RoHS compliant).

Terminal Location Numbers

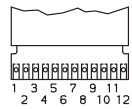


FIG. 1

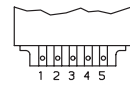
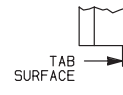


FIG. 2



NOTE: See function codes, pages M-4 and M-5, for signal locations.

COLOR/MARKING/STOPS

0 MATTE BLACK HOUSING (Gloss black wheel with white characters; no stops.)

NOTE: Stop pins are available separately, see page M-8.

SEAL

0 UNSEALED SWITCHING CONTACTS.

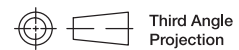
1 SEALED SWITCHING CONTACTS. (Sealing is by means of an o-ring rotary seal and a cured-in-place elastomer gasket. Switching contact area is protected from moisture, oil, and airborne contaminants.)

2 DUST LENS. (Protects the character face of the wheel from abrasion and dirt).

3 SEALED SWITCHING CONTACTS AND DUST LENS



Dust Lens



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



3 Series Thumbwheel Switches

AVAILABLE HARDWARE

Blank sections, Type 0,
.315 THK.



PART NO.
413602000 W/RIB-BLACK
400502000 W/RIB & W/OUT SPRINGS-BLACK

Blank sections, Front mount, Type 0,
.315 THK.



PART NO.
413502000 PLAIN-BLACK
400702000 PLAIN & W/OUT SPRINGS-BLACK

Blank sections, Rear mount, Type 1,
.350 THK.



PART NO.
400602000 W/RIB-BLACK
400802000 PLAIN-BLACK

Blank sections, Rear mount, Type 2,
.350 THK.



PART NO.
473402000 W/RIB-BLACK
473302000 PLAIN-BLACK

End plates, Front mount, Type 0



PART NO.
413402000 BLACK
Two required for complete assembly.

End plates, Rear mount, Type 1



PART NO.
400402003 BLACK
Two required for complete assembly.

End plates, Rear mount, Type 2



PART NO.
473202003 BLACK
Two required for complete assembly.

Spacers, Front mount, Type 0 & 3, .078 THK.
(Makes section pitch 10mm)



PART NO.
410802000 BLACK

Stop pins



PART NO.
402900000

Thumbwheel



*Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change*

3 Series Thumbwheel Switches

AVAILABLE HARDWARE

Terminal connector



605A00000



605A02000

PART NO.

605A00000 PC

605A02000 SOLDER LUG

Fits 0 & 1 terminations only.

Screws for field assembly of thumbwheel switches
(2 screws needed per assembly + 403500000 nuts)

SCREW PART NUMBER (0-80 UNF THD. SIZE)	NUMBER OF SECTIONS IN ASSEMBLY	
	FRONT MOUNTING	REAR MOUNTING
	MTG. STYLE - 00	MTG. STYLE - 10
412700000	1-2	1-2
412701000	3-4	3
412702000	5-7	4-6

Nut



Two nuts required per assembly and screws.

PART NO.

403500000

Nut driver (For 403500000 nut)



PART NO.

406100652

Thumbwheel



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

3 Series Thumbwheel Switches

Configuration Form

GRAY SHADED AREAS TO BE FILLED IN BY CUSTOMER SERVICE.

CATALOG PART NO.

3

C&K PART NUMBER

C&K PART NUMBER

COMPANY NAME _____












CUSTOMER PRINT REVISION:

ADDRESS _____ TEL.# _____

CUSTOMER CONTACT _____ DATE _____

DETAILS:

ORIGINATED BY _____ SALES REP. _____

THUMBWHEEL SECTIONS	NO. OF SEC.	FUNCTION CODE – TERMINATIONS – COLOR/MARKING/STOPS/SEAL – ILLUMINATION <small>ENTER OPTION CODES IN APPROPRIATE BOXES. FUNCTION CODES INCLUDE BLANK SECTIONS (SEE PAGES M-9 & M-10).</small>	DESCRIBE IN APPROPRIATE ROW
	1	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	2	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	3	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	4	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	5	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	6	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	7	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	8	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	9	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	10	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	11	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	

Thumbwheel



QUALITY CONTROL INSTRUCTIONS

PRODUCTION APPROVAL

DATE

Q.C. APPROVAL

DATE

REV.

INITIALS

DATE

FOR SWITCHES WITH MORE THAN 11 SECTIONS, CONTINUE ON ADDITIONAL SHEETS.

SPECIAL INSTRUCTIONS OR SPECIFICATIONS:

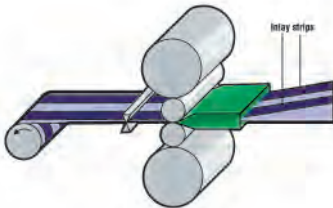
SHEET ____ OF ____



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Design Features of C&K Smart Card Connectors

C&K Components has a successful track record of manufacturing innovative interconnect devices with a strong emphasis on reliability and flexibility. As a long established supplier of such devices for Smart Cards in a wide range of applications, we have extensive experience matching performance with the need to remain cost sensitive. We consider the true cost of the interconnect to be a function not just of price, but also the ease with which the device can be integrated into the customer's production process and its performance in the field. We have built in a number of features which set our products apart, such as:



Inlay contact finish

A means of applying precious metal to the contact area utilizing pressure as opposed to conventional plating. We have found this to be the most durable finish available without compromising the electrical performance of the contact. Our research has shown that our inlay finish lasts over ten times as long as standard gold plating. Where we state the life of the precious metal this is intended to be the "worst case" scenario, because the test has been made using the most abrasive smart card that we can find on the market (given that the equipment maker can rarely control which smart cards are used). Note that the inlay finish is silver in color, being an alloy of gold, silver, and palladium.



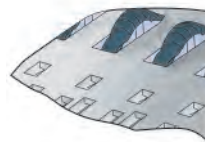
Card detection switches

As a manufacturer of switches as well as interconnects, we have been able to integrate high performance dome switches into many of our devices. These are variants of switch products which are already in high volume production as stand alone components.



Mechanical robustness

Four metal pegs, to be soldered in PCB metalized holes at the same time than the SMT terminals, have been designed on the smart card connectors in order to increase the resistance of the connector to card insertion force. This participates to the life time and to the overload resistance.



Contact design

The geometry of the contact has an important bearing on its electrical performance. Our contacts are designed to give an efficient wiping action and to maximize the stress between contact and card, thus minimizing the contact resistance. The "spooned" contact area is also shaped so as to protect it from damage during card insertion.



PCI (security standard for POS applications)

Two levels of PCI compatibility level are available:

PCI ready:

Specific features are designed in the connector in order to ease the integration of security devices around and below the connector.

PCI:





Additional accessories are integrated on the connector in order to avoid access to the data contacts and to detect any connection attempt.

Materials

The contact material has been chosen because of its resistance to atmospheric pollution, solderability and performance over time in giving a consistent normal force. Since all of our new interconnects are designed for surface mounting, the plastic materials used must withstand high temperature soldering processes without deforming or adversely affecting performance.



FULL SIZE CARD CONNECTORS

				
Series	CCM01	CCM02	CCM04	
Applications	Professional	Professional	Consumer/Professional	
PCI*	PCI ready	PCI/PCI ready		
EMV	•	•		
Insertion force	40N max	40N max	10N max	
Overload	250N	180N	40N	
Card guide	•	•		
Sealed switch	•	•		
Operating life	100,000 cycles	500,000 cycles	>50,000 cycles	
Contact plating	inlay	inlay	gold	
Number of contacts	8	8	6 or 8	
Contact type	friction	friction	friction/vandal proof	
Page No.	7	12	17	

SIM / SAM CARD CONNECTORS

			
Series	CCM03	CCM04	
Applications	Consumer/Professional	Consumer/Professional	
Cover	hinged / fixed	hinged / fixed	
Operating life	10,000 to 50,000 cycles	30,000 cycles	
Sealed switch	•		
Contact plating	inlay / gold	inlay / gold	
Card end travel switch	with / without	without	
Number of contacts	6 or 8	6 or 8	
Page No.	24	43	

* PCI

PCI ready: specific features are designed into the connector in order to ease the integration of security devices around and below the connector.

PCI: specific additional accessories are integrated on the connector in order to avoid access to the data contacts and to detect any connection attempt.

The logo for C&K, featuring the letters 'C' and 'K' in a bold, red, italicized font, with an ampersand '&' in a smaller, black font between them. A registered trademark symbol (®) is located at the top right of the 'K'.

C&K[®]

Full Size Cards



ANY BANK CARD
1234 5678 9000
00/00 00/00

CCM01 MK2 Series

Features

- Operating life up to 100,000 cycles
- 40N card insertion force
- EMV
- PCI ready
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS



Full Size

Mechanical

Number of Contacts	8
Mechanical life	Up to 500,000 cycles
Card insertion force	40N max.
Card extraction force	1 N min / 10 N max
Contact force	0,2N / 0,50 N max
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop)
	1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35mm
Max elect. discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis

Packaging

Tray 30 parts / Cartons 300 parts
Reel 200 parts / Cartons 1,000 parts

Soldering

Compatible with lead free SMT reflow soldering process

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10 mA max
Maximum power	0.2 VA

Environmental Data

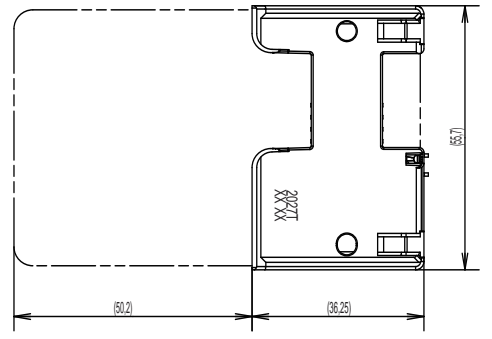
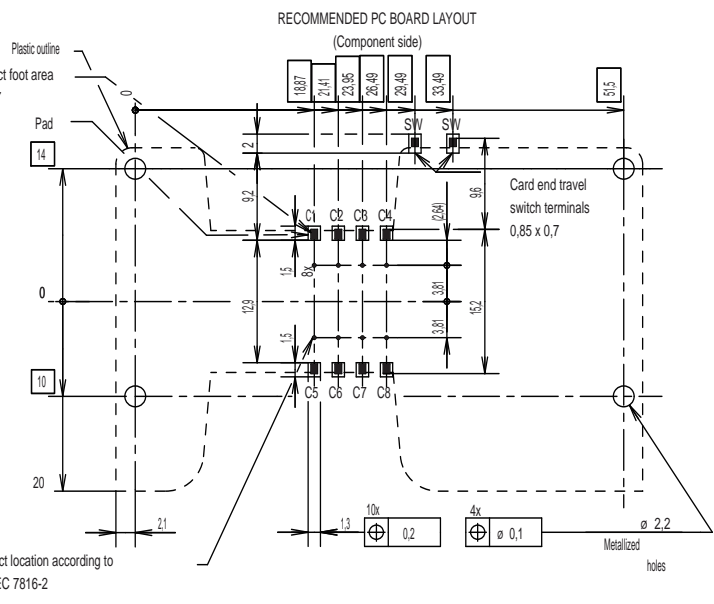
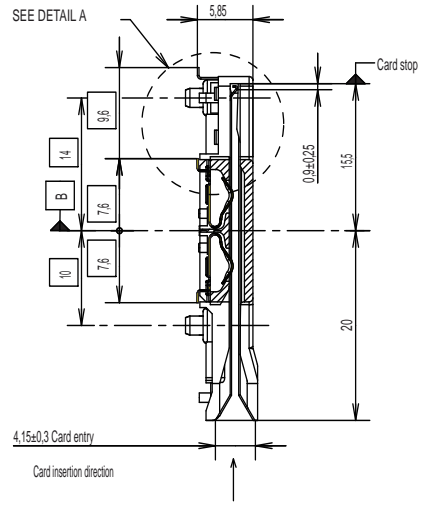
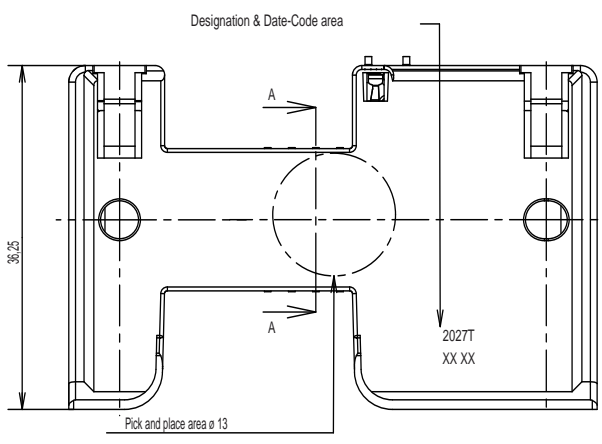
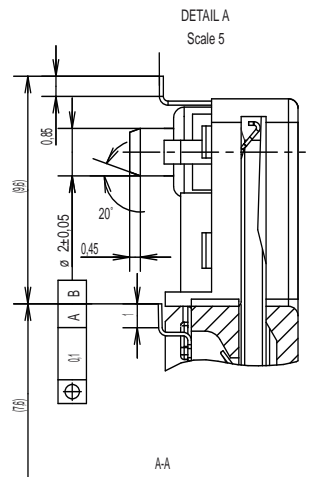
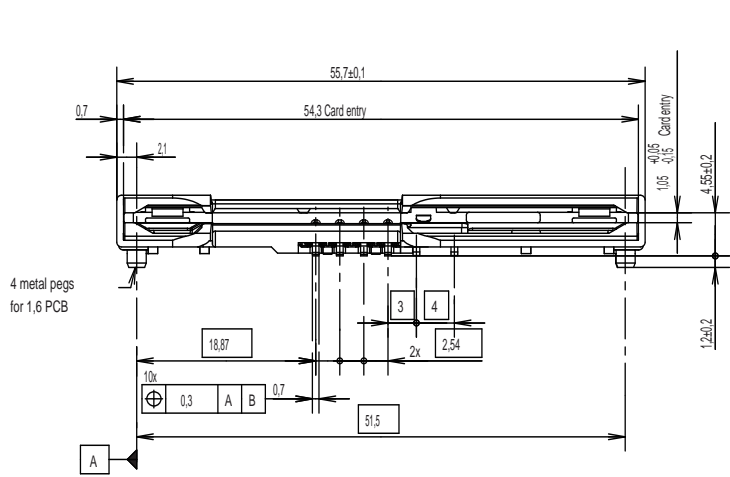
Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed against dust
RoHS compliant	

Designation	Termination	Operating Life	Card Insertion Force
CCM01-2027LFT	SMT	100,000 cycles	40N

CCM01 MK2 Series

CCM01-2027 LFT

Full Size



Dimensions are shown in mm
Specifications and dimensions subject to change

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CCM01 MK5 Series

Features/Benefits

- Operating life 500,000 cycles
- Low profile 4 mm and 3.2 mm height
- PCI ready
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS
- MPOS



Full Size

Mechanical

NUMBER OF CONTACTS:	8
MECHANICAL LIFE:	500,000 cycles
CARD INSERTION FORCE:	10 N max.
CARD EXTRACTION FORCE:	1 N min. / 10 N max.
CONTACT FORCE:	0,2 N / 0,60 N max.

Packaging

Tray 25 parts or Reel 350 parts

Soldering

Compatible with lead free SMT reflow soldering process

Contact Electrical Data

INSULATION RESISTANCE:	1,000 M Ω min.
CONTACT RESISTANCE:	100 m Ω max.
CURRENT RATING:	10 μ A min. / 1A max.
DIELECTRIC STRENGTH:	750 Vrms min.

Switch Electrical Data

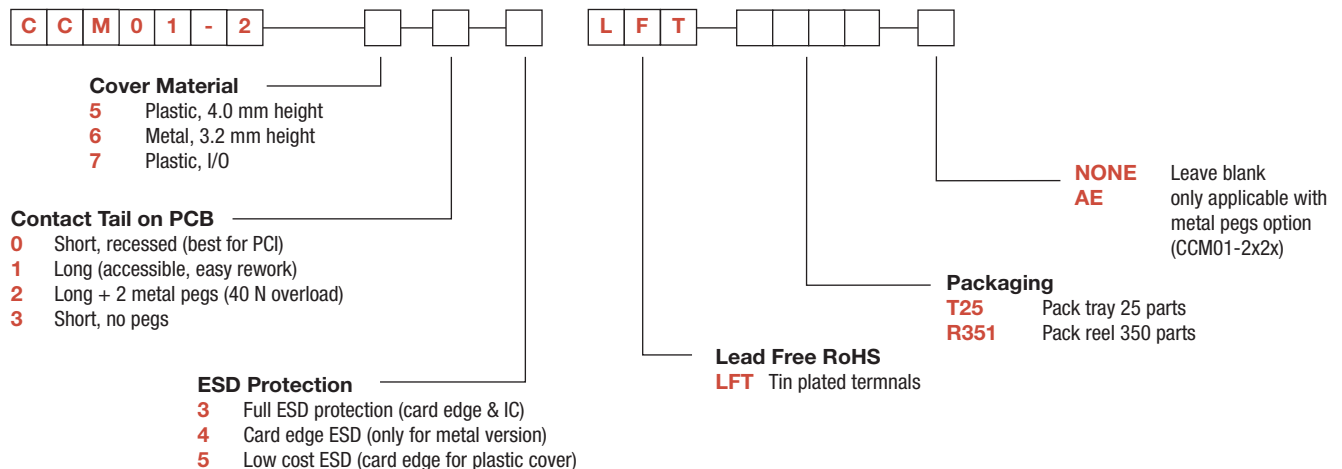
CARD DETECTION SWITCH:	Normally open
CONTACT RESISTANCE:	100 m Ω max.
DIELECTRIC STRENGTH:	250 Vrms min.
CURRENT RATING:	1 mA min. / 10 mA max.
MAXIMUM POWER:	0.2 VA

Environmental Data

OPERATING TEMPERATURE:	-40°C to + 85°C
CARD DETECTION SWITCH:	Sealed against dust
RoHS compliant	

How To Order

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult our Customer Service Center.

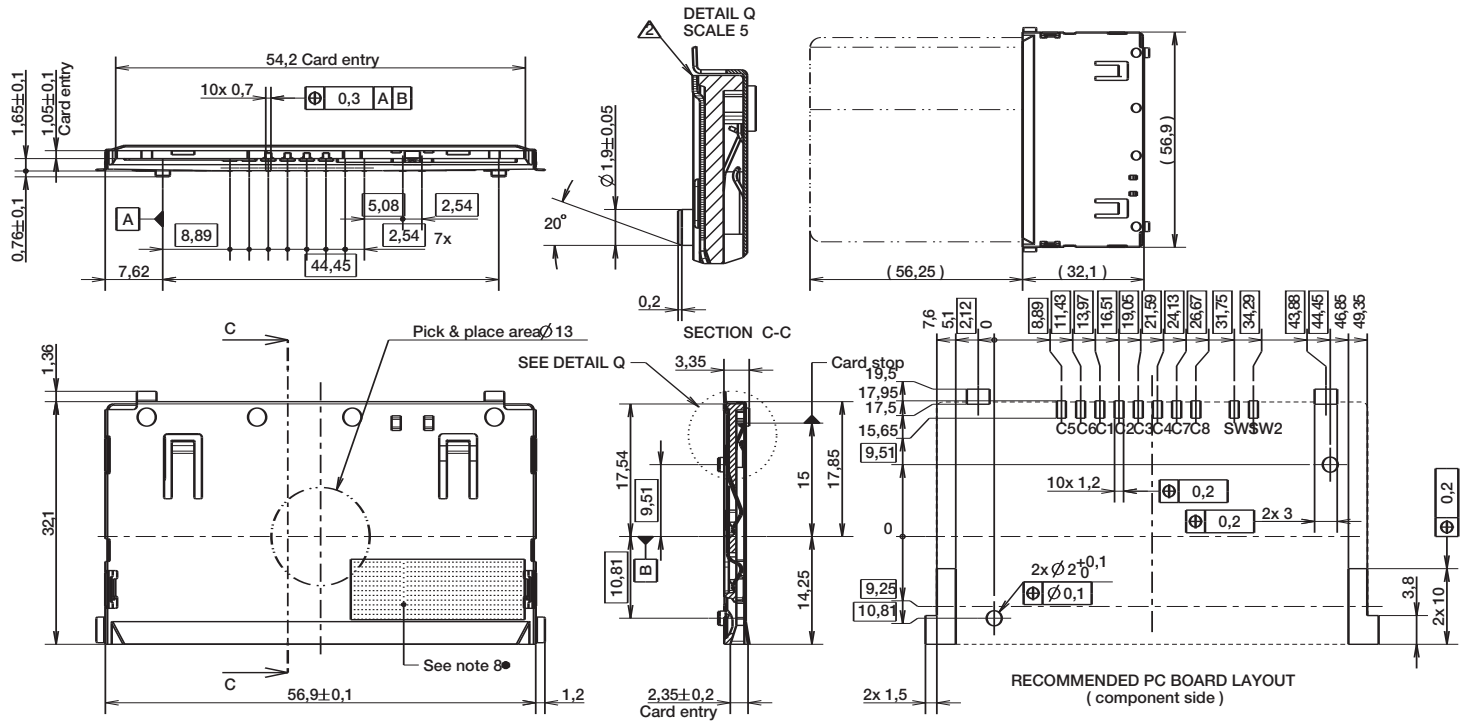


Dimensions are shown in mm
Specifications and dimensions subject to change

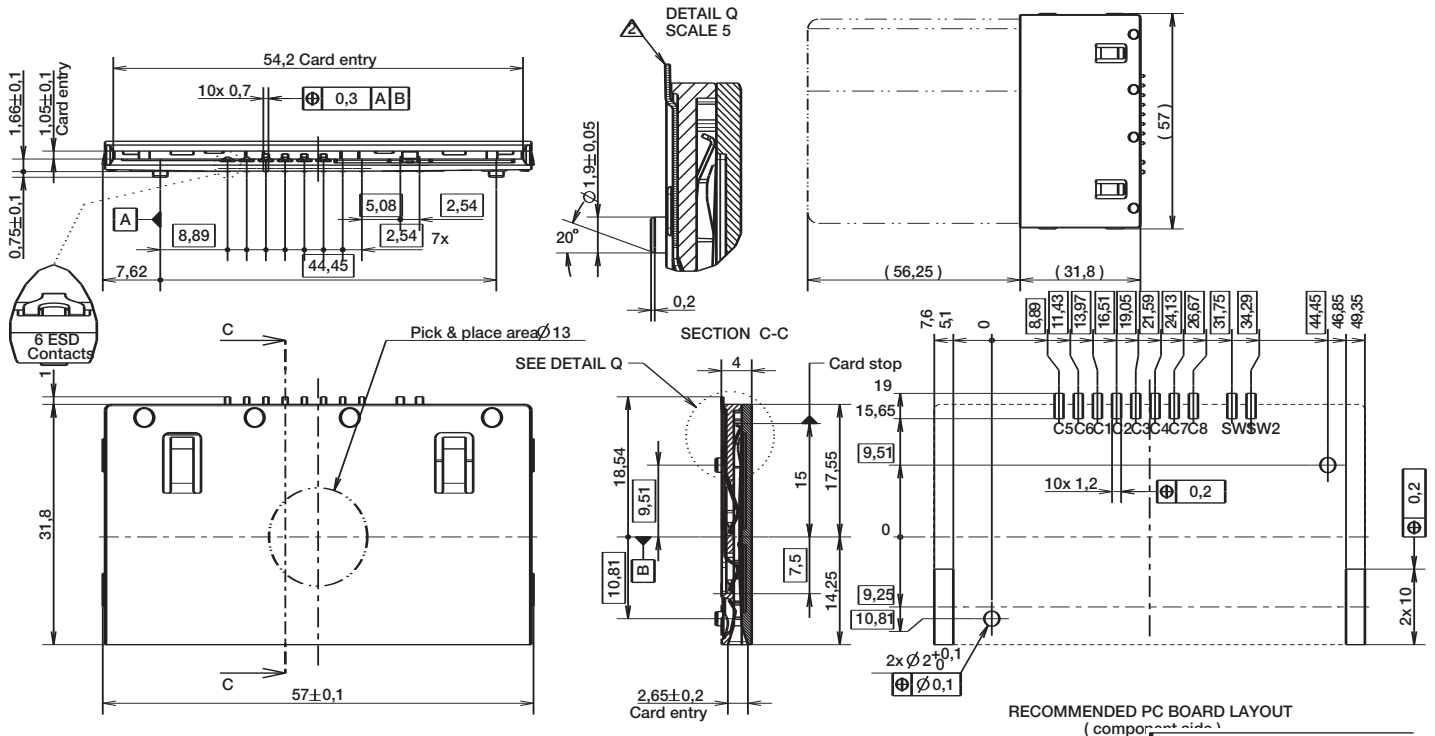
www.ck-components.com

CCM01 MK5 Series

CCM01-2604 LFT T25 Metal cover, short tails



CCM01-2513 LFT T25 Plastic cover, long tails, full ESD protection



First Angle Projection
 Dimensions are shown in mm
 Specifications and dimensions subject to change

CCM02 MK2 Series



Features

- Operating life 500,000 cycles
- Insertion force 40N
- EMV
- PCI & PCI ready
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS

Mechanical

Number of Contacts	8
Mechanical life	500,000 cycles min
Card insertion force	10N to 40N
Card extraction force	1N min / 10N max
Contact force	0,2N / 0,50N max
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop) 1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35mm
Max elect. discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis

Packaging

Tray 30 parts / Cartons 300 parts
Reel 120 parts

Soldering

Compatible with lead free reflow soldering process
For version with security cover, please contact Customer Service for soldering recommendations.

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10 mA max
Maximum power	0.2 VA

Environmental Data

Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed against dust
RoHS compliant	

Designation	Termination	Contact Type	PCI Features		Total Height (mm)	Dimension	PCB version
			I/O Protect	Security Cover			
CCM02-2503LFT	THT	landing			6,25	38,5 X 55,6	4 clips
CCM02-2504LFT	SMT	landing			6,25	38,5 X 55,6	4 clips
CCM02-F503LFT	THT	friction			6,25	38,5 X 55,6	4 clips
CCM02-F504LFT	SMT	friction			6,25	38,5 X 55,6	4 clips
CCM02-F844LFT	SMT	friction	Yes	Yes	6,6	40,5 X 58	4 metal pegs

PCI: I/O Protect

Definition

Special accessory in order to avoid and detect frontal access to data contact. It is electrically connected to the PCB through spring finger contacts.

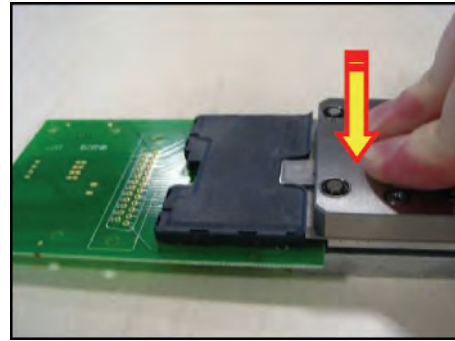
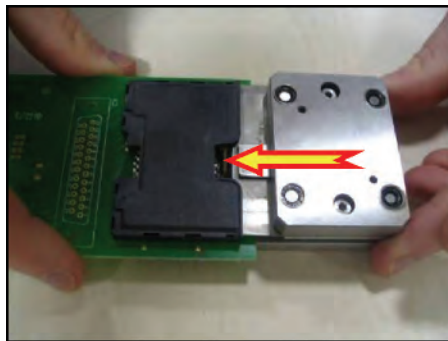
Process

It must be in open position during the reflow soldering of the connector and has to be locked in closed position after soldering.



I/O Protect locking tool

C&K is proposing a manual tool to lock the I/O protect accessory after soldering.
Ordering code: C-CM02-E50



PCI: Security Cover



Definition

It is a multilayer cover placed over the connector to avoid and detect data contact access, especially from the top. It is connected to the PCB through 6 SMT terminals that are soldered at the same time as the other smart card terminals.

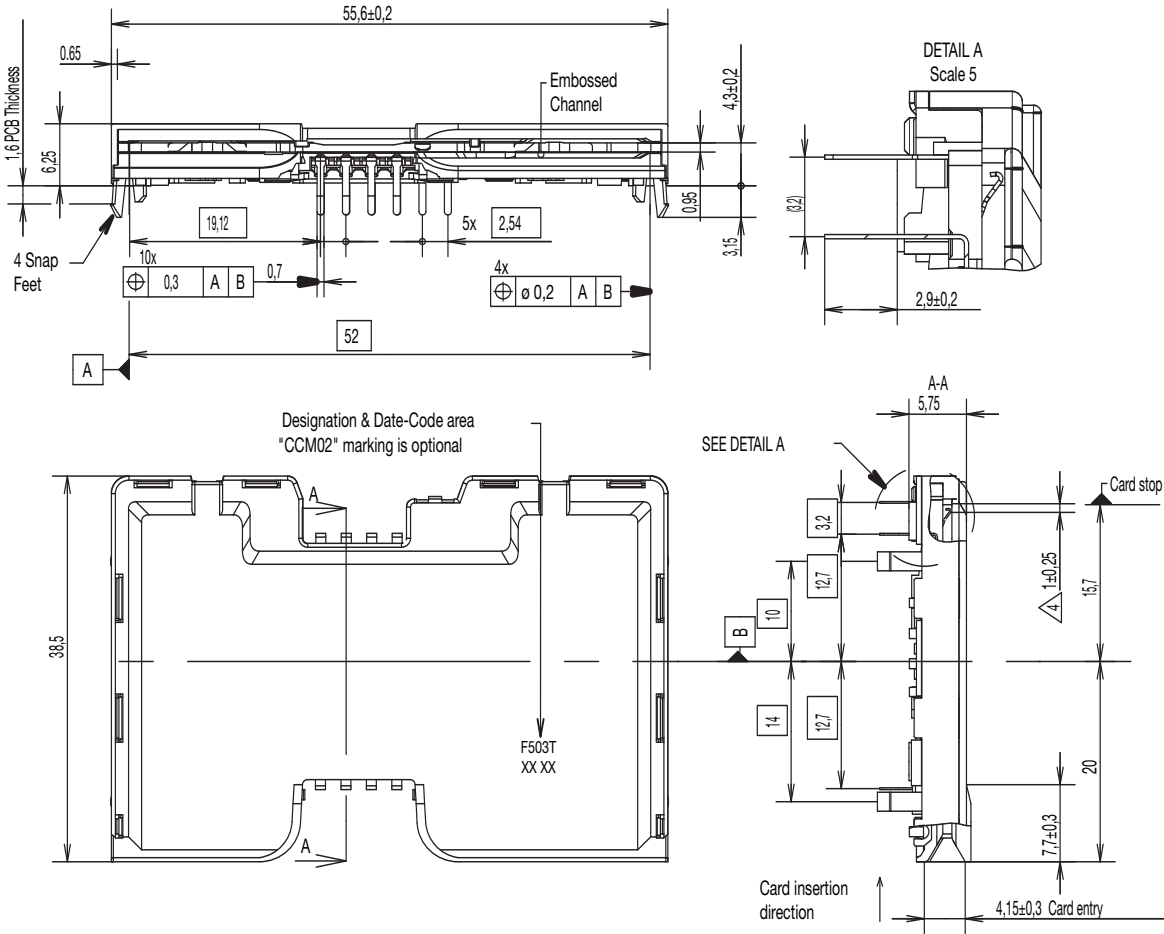
Process

Please contact your Sales Representative for advice and recommendations about soldering this version.

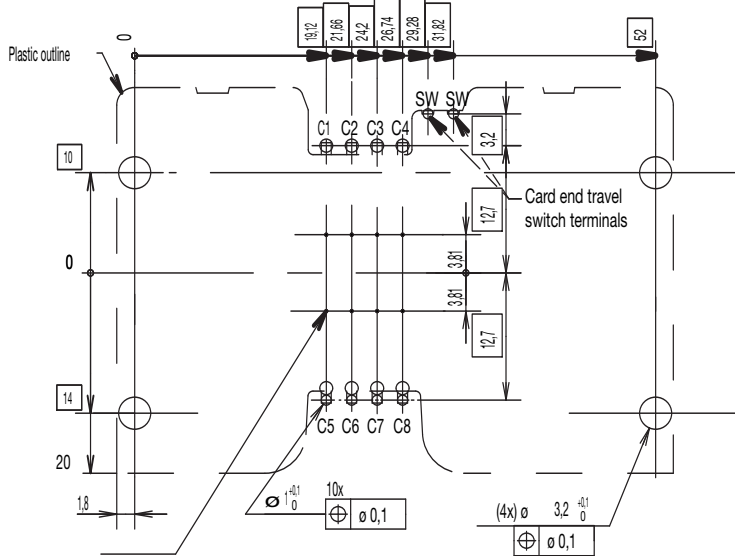
CCM02 MK2 Series

CCM02-2503 LFT / CCM02-F503 LFT

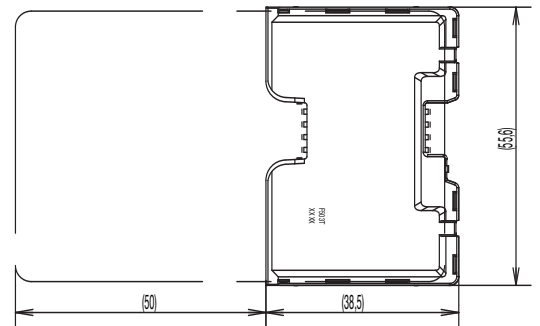
Full Size



RECOMMENDED PC BOARD LAYOUT
(Component side)



Contact location according to ISO/IEC 7816-2



First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

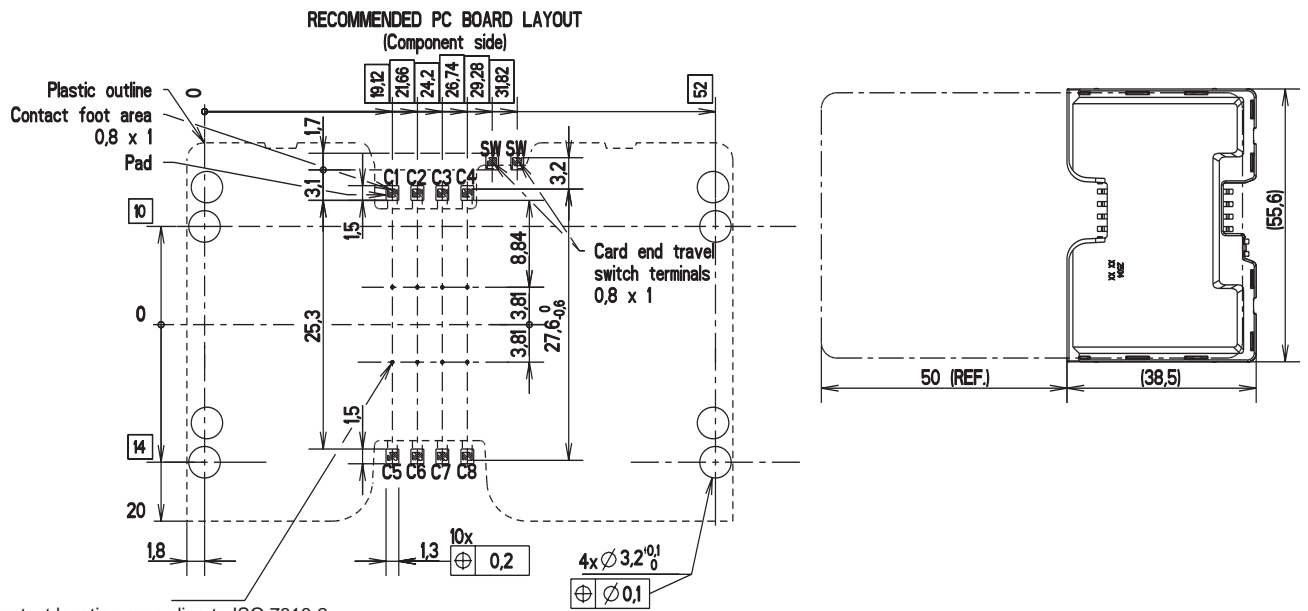
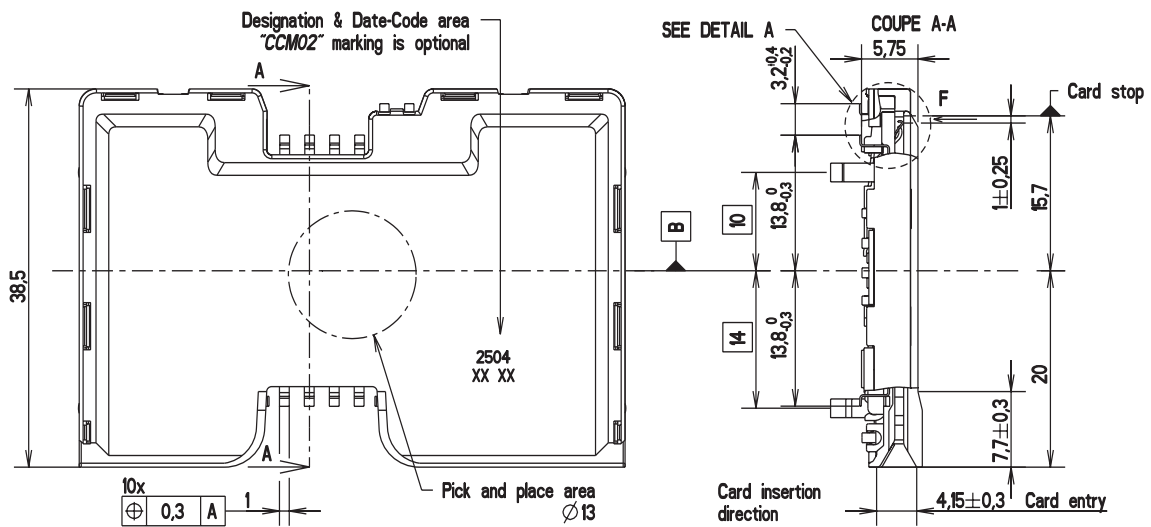
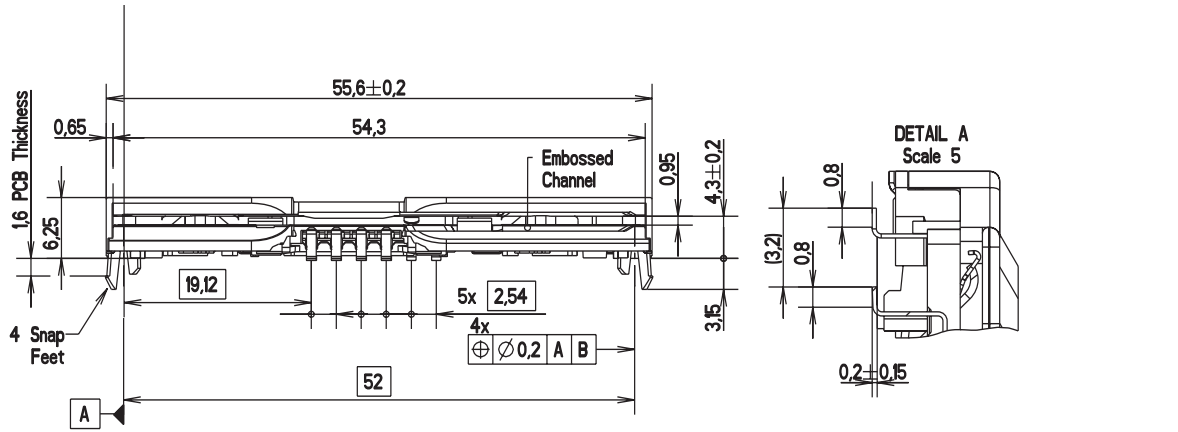
www.ck-components.com



CCM02 MK2 Series

CCM02-2504 LFT / CCM02-F504 LFT

Full Size



Contact location according to ISO 7816-2



Dimensions are shown in mm
Specifications and dimensions subject to change

www.ck-components.com

Features

- ID1 full size card acceptance
- Card detection sealed switch
- Compatible with pick and place and lead free soldering

Typical Applications

- Transaction
- POS
- Identification



Mechanical

Number of contacts	6 or 8
Mechanical life	50,000 cycles
Card insertion force	10N max
Card extraction force	1N min / 10N max
Contact force	0,4N to 0,7N
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop)
	1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35mm
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis
Max elect. discontinuity	1µs

Packaging

See table below

Soldering Process

Compatible with lead free SMT reflow soldering process

Contact Electrical Data

Insulation resistance	1000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Rc card detection switch	100 mΩ max
Dielectric strength	250 Vrms min
Switch current rating	1 mA min / 10 mA max
Maximum switch power	0.2 VA

Environmental Data

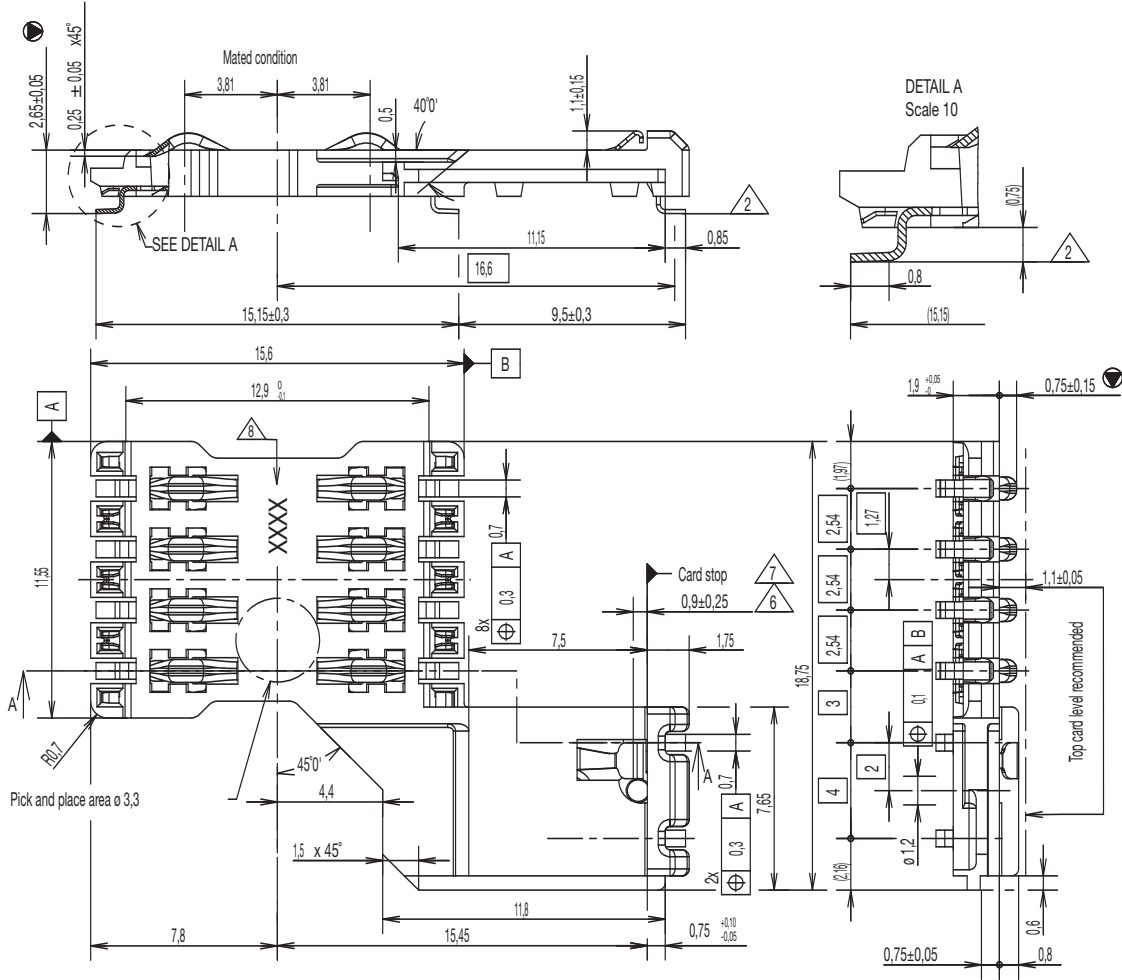
Operating temperature	-40°C to +85°C
Salt mist	IEC 512 test number 11f (96 hours)
Damp heat	IEC 512 test number 11c (10 days)
Card detection switch	Sealed against dust
RoHS compliant	

Designation	Housing Type	# of Contacts	Contact Force	Total Height (mm)	Total Dim. (mm)	Packaging
CCM04-5427LFT	standard	8	0,4N to 0,7N	2,65	18,75 X 25	reels of 1,000 pcs
CCM04-5436LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs
CCM04-5468LFT	stand-off	8	0,4N to 0,7N	3,5	18,75 X 24	reels of 1,000 pcs
CCM04-5454LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs
CCM04-5455LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs

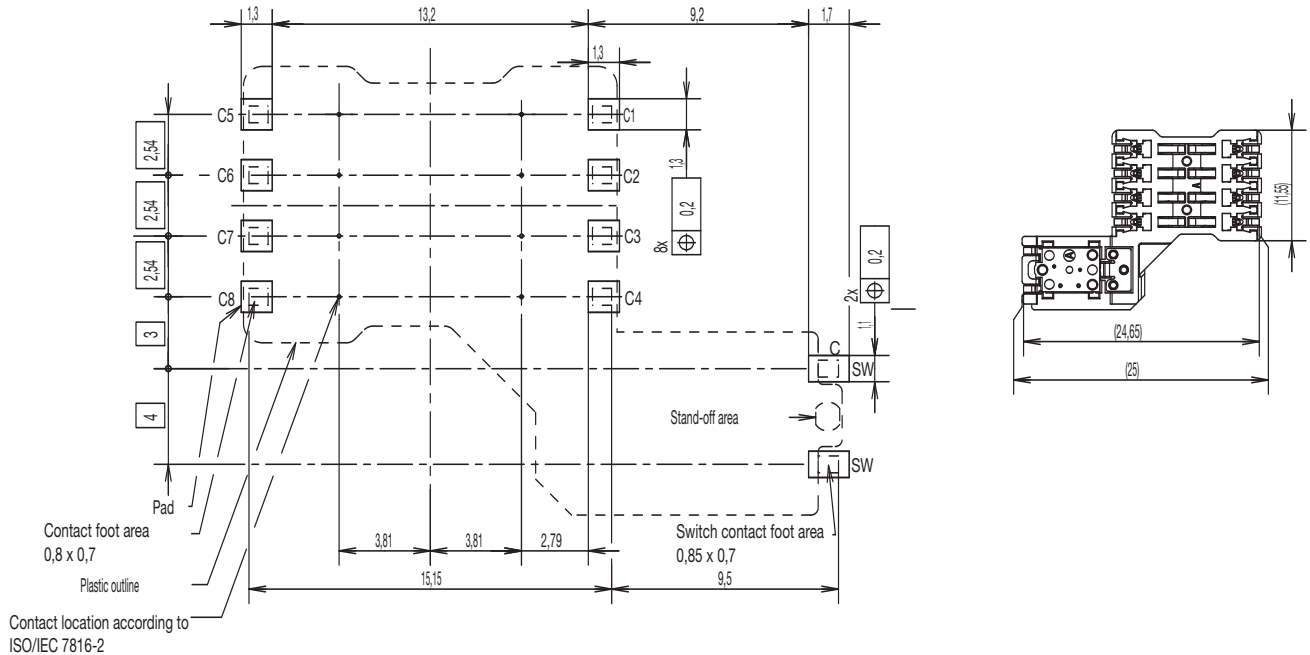
CCM04 MK4 Series

CCM04-5427 LFT

Full Size



RECOMMENDED PC BOARD LAYOUT
(Component side)



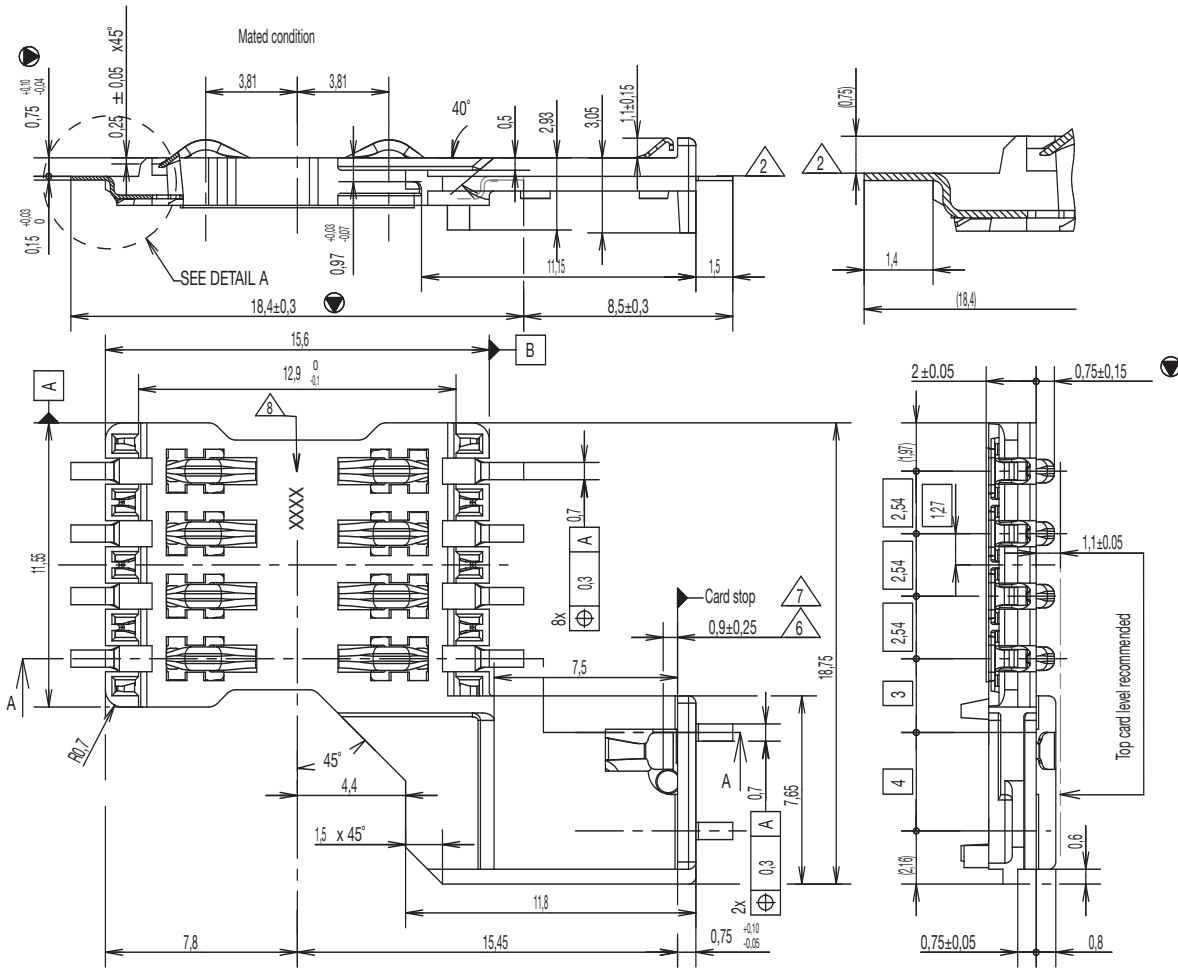
Dimensions are shown in mm
Specifications and dimensions subject to change

www.ck-components.com

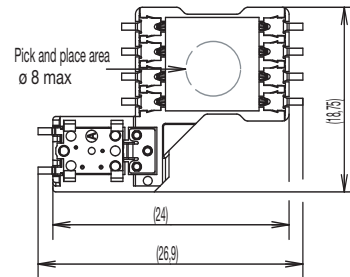
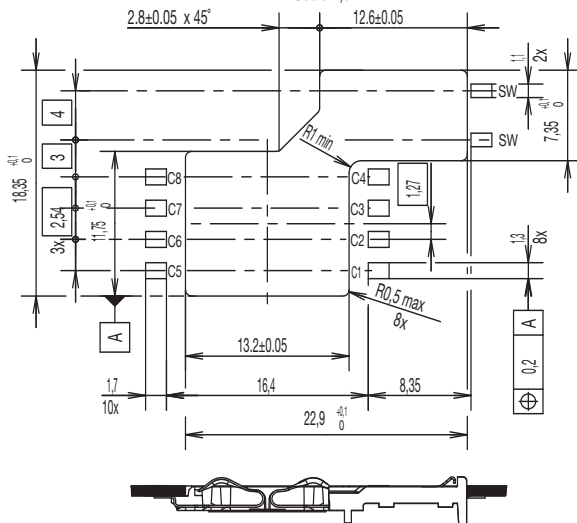
CCM04 MK4 Series

CCM04-5455 LFT

Full Size



RECOMMENDED PC BOARD LAYOUT
(Component side)
Scale 2,5



First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

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The logo for C&K, featuring the letters 'C' and 'K' in a bold, red, italicized font, with an ampersand '&' in black between them. A registered trademark symbol (®) is located at the top right of the 'K'.

C&K

A horizontal red bar containing the text 'SIM / SAM Cards' in white, bold, sans-serif font.

SIM / SAM Cards



CCM03 MK2 Series



Features

- SIM/SAM card acceptance
- Hinged and fixed covers
- Compatible with pick and place and lead free soldering

Typical Applications

- Handheld products
- Identification
- POS
- Automotive

Mechanical

Number of Contacts	6 or 8
Mechanical life, hinged cover	10,000 cycles min
Mechanical life, fixed cover	50,000 cycles
Card insertion force	Hinged cover: 1N max Fixed cover: 3N max
Card extraction force	Hinged cover: 1N max Fixed cover: 0,80N min / 3N max
Contact force	0,25N min / 0,50N max
Slide locking force	2N min / 6N max
Vibration Frequency	1,8N max. for complete depression 10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35 mm
Max electrical discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10m A max
Maximum power	0.2 VA

Environment Data

Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
RoHS compliant	

Soldering Process

Compatible with lead free SMT soldering process



Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 µA min / 1 A max
Dielectric strength	750 Vrms min

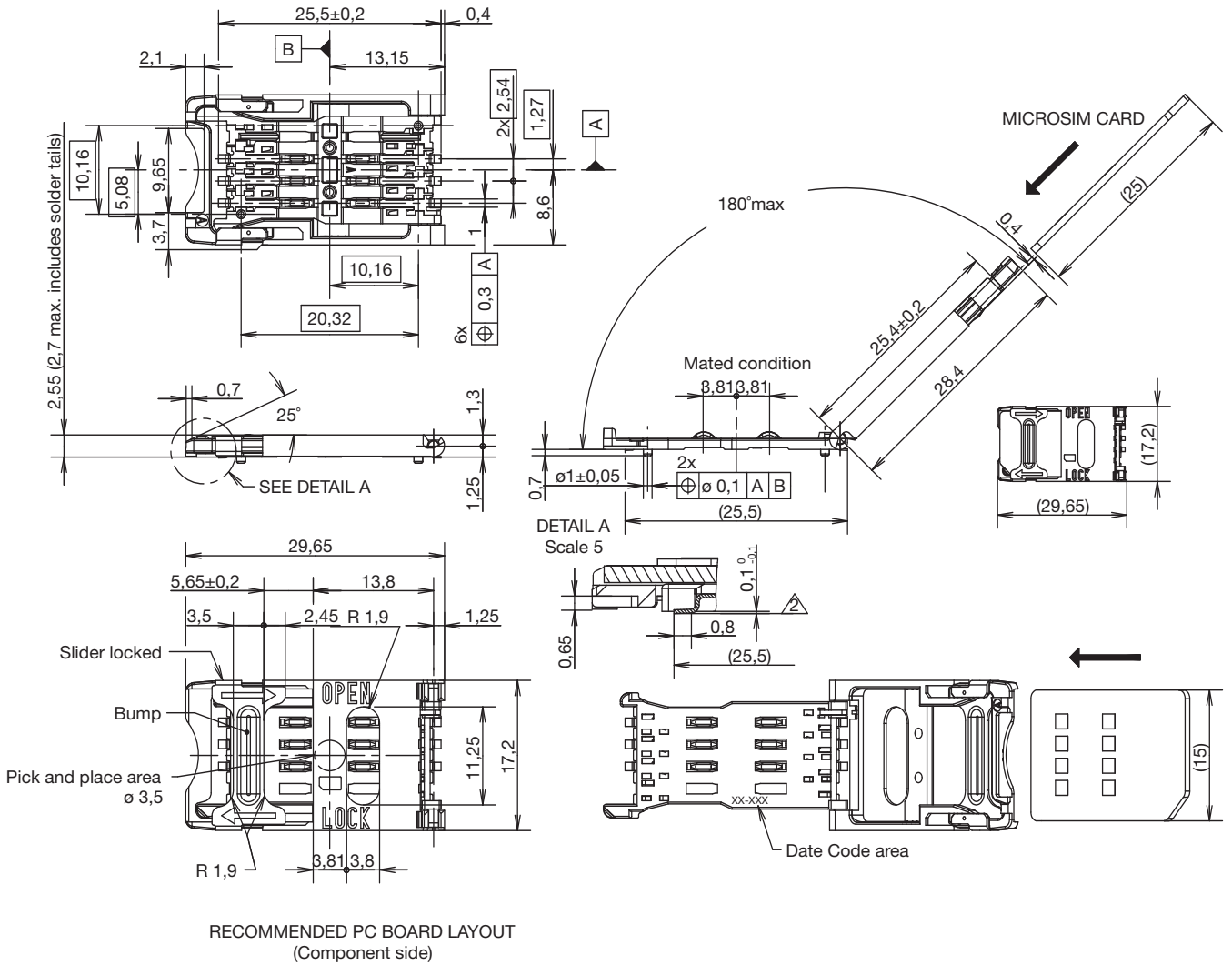
Designation	Contact Plating	Cover	# of Contacts	PCB Version	Card Presence Switch	Operating Life	Total Height (mm)	Dim. (mm)	Packaging
CCM03-3001LFT	inlay	hinged	6		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3002LFT	inlay	hinged	6	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3003LFT	inlay	hinged	8		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3004LFT	inlay	hinged	8	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3009LFT	gold	hinged	6		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3010LFT	gold	hinged	6	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3011LFT	gold	hinged	8		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3012LFT	gold	hinged	8	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3013LFT	gold	hinged	6		with	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3512LFT	gold	hinged	6	Large soldering pads*	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3504LFT	gold	fixed	8		without	50,000	2,85	17,2 x 25,5	reels of 1,000 pcs
CCM03-3505LFT	gold	fixed	6		without	50,000	2,85	17,2 x 25,5	reels of 1,000 pcs
CCM03-3754LFT	inlay	fixed	6		with	10,000	3,5	16,5 x 18,05	reels of 1,000 pcs
CCM03-3760LFT	inlay	fixed	6		without	10,000	3,45	16,5 x 15,85	reels of 1,000 pcs
CCM03-3764LFT	inlay	none	6		with	10,000	2,9	16,5 x 15,85	reels of 1,000 pcs

* Can go through reflow upside down

CCM03 MK2 Series

CCM03-3002 LFT / CCM03-3010 LFT

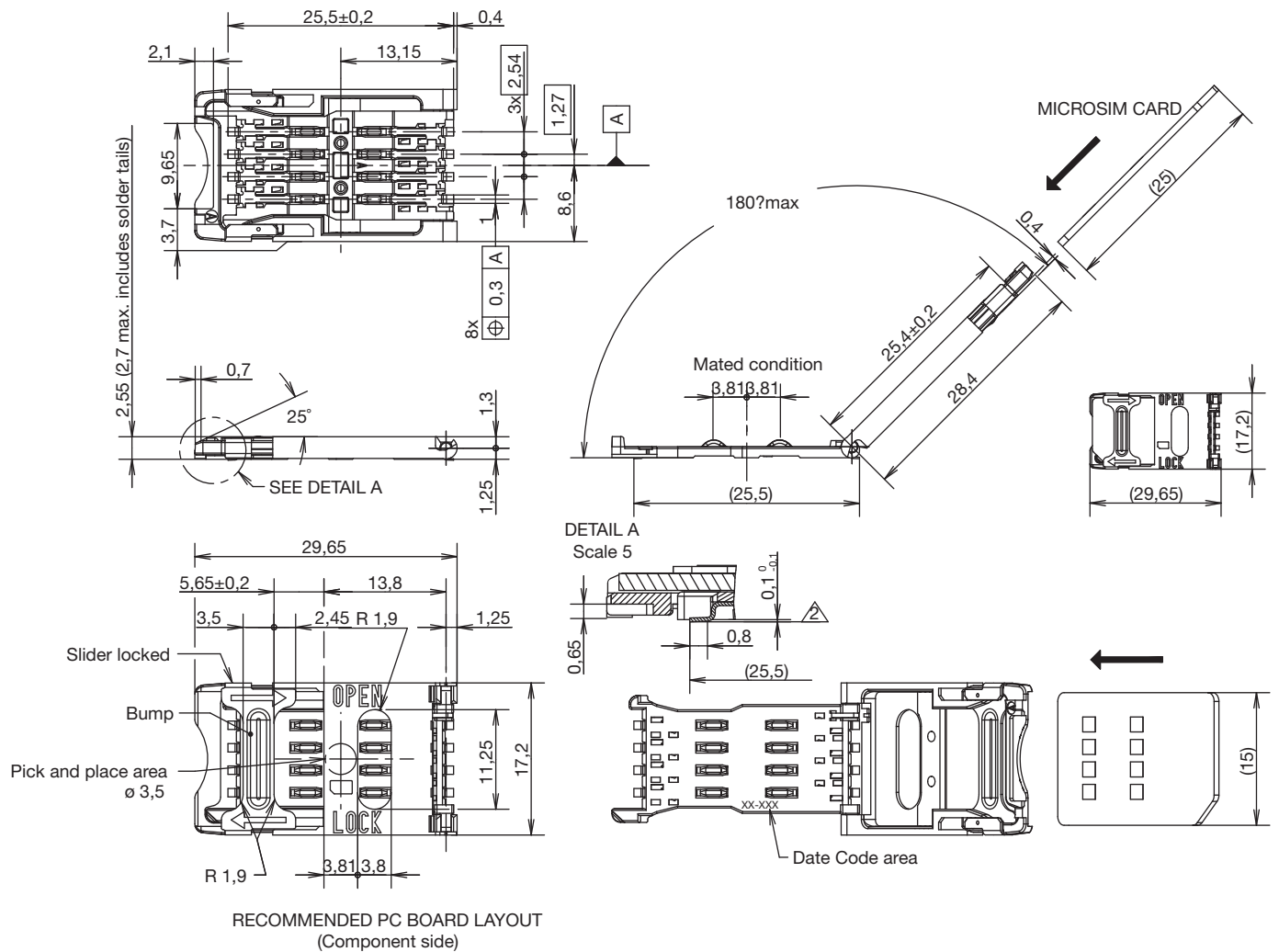
SIM/SAM



Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03 MK2 Series

CCM03-3003 LFT



SIM/SAM

Contact location according to ENV1375-1 & GSM11-11

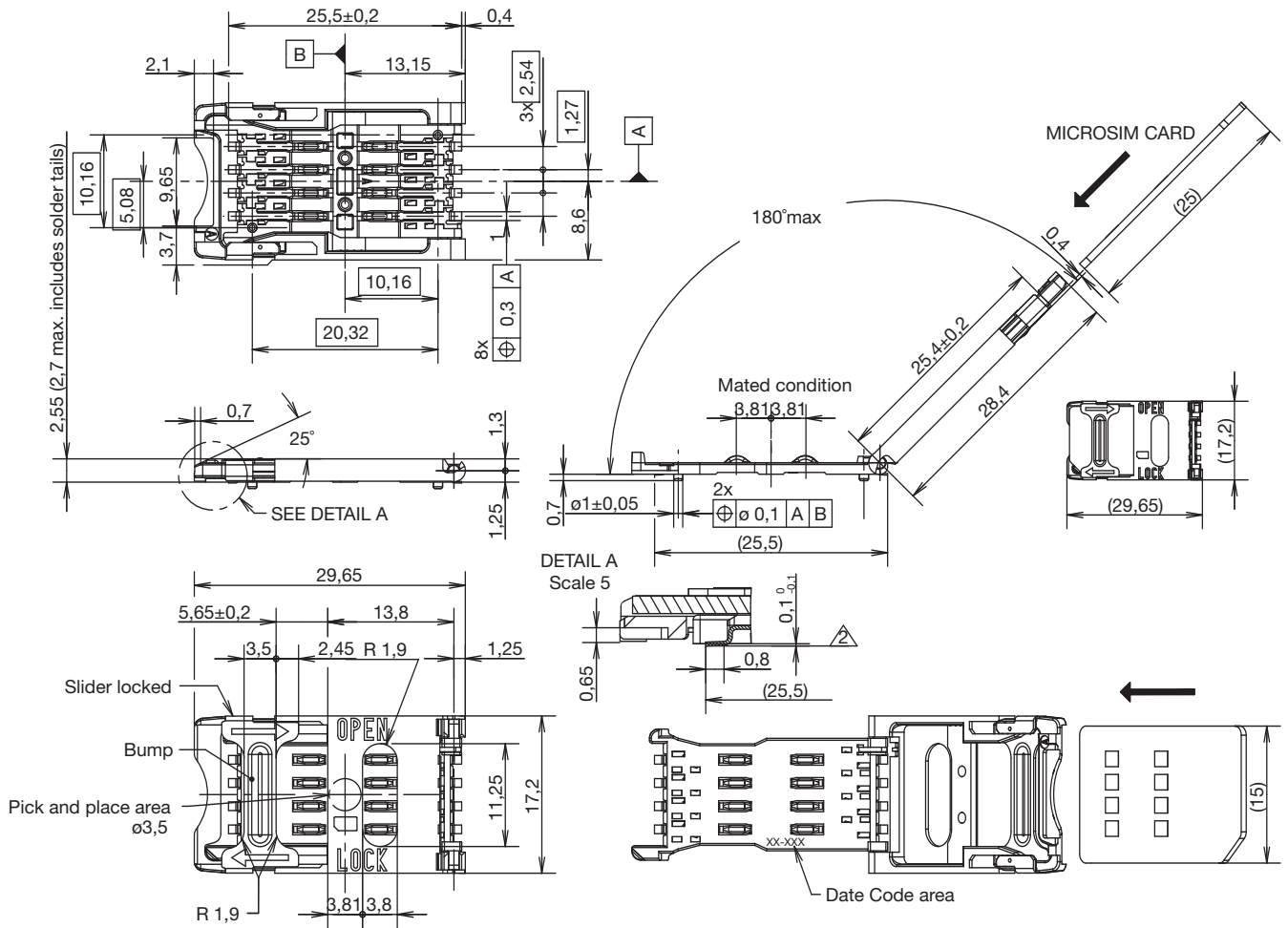


Dimensions are shown in mm
Specifications and dimensions subject to change

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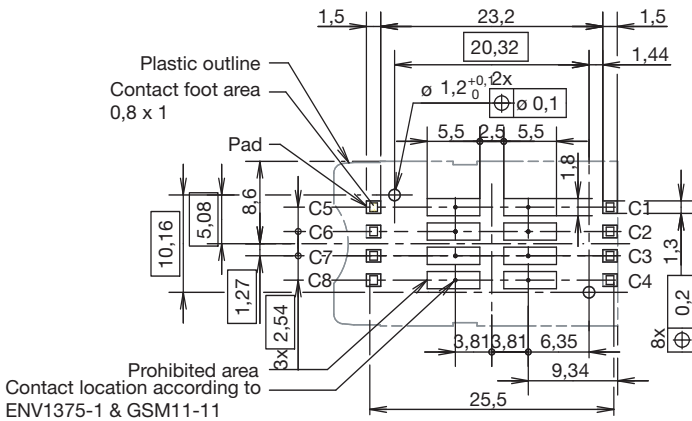
CCM03 MK2 Series

CCM03-3004 LFT



SIM/SAM

RECOMMENDED PC BOARD LAYOUT
(Component side)

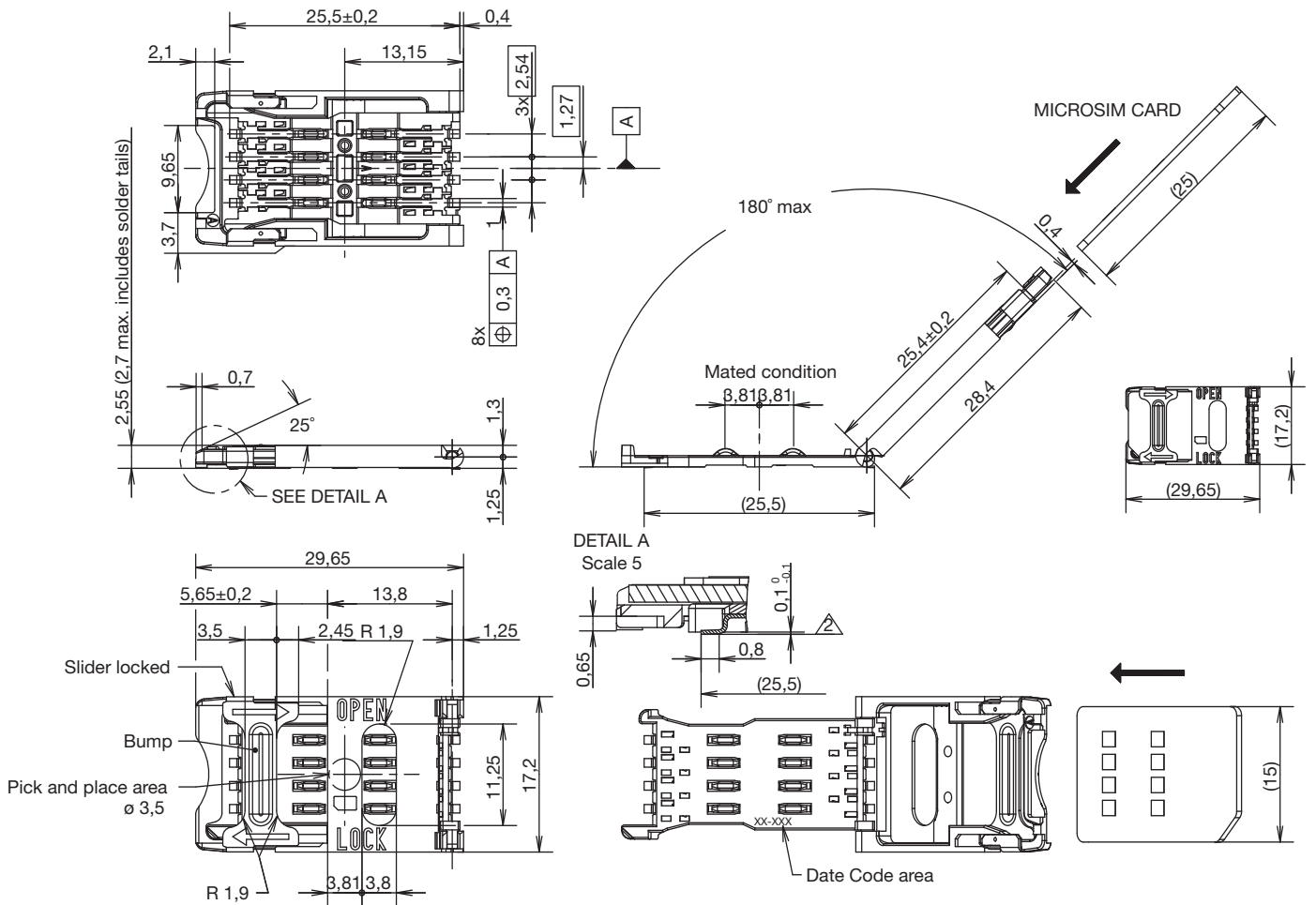


Dimensions are shown in mm
Specifications and dimensions subject to change

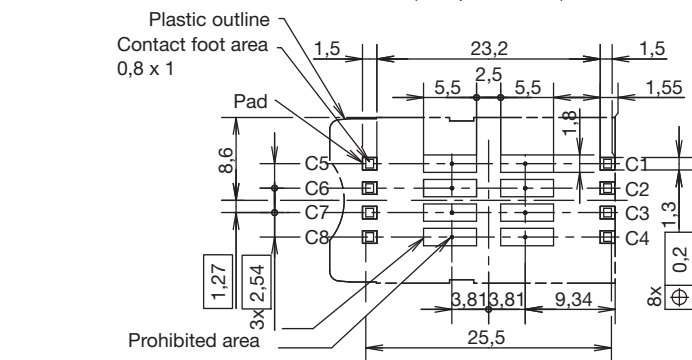


CCM03 MK2 Series

CCM03-3011 LFT



RECOMMENDED PC BOARD LAYOUT (Component side)



Contact location according to
ENV1375-1 & GSM11-11

SIM/SAM



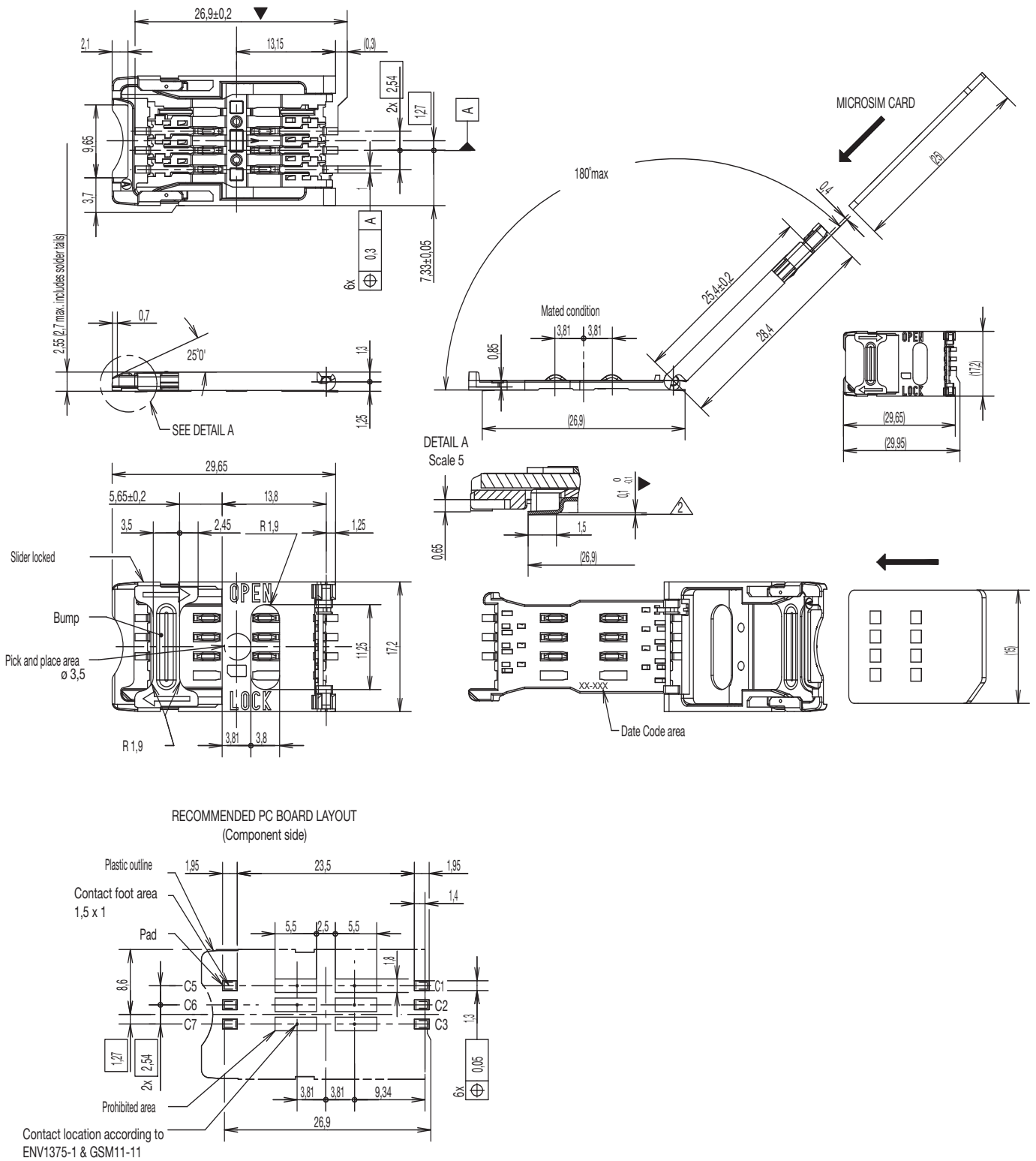
Dimensions are shown in mm
Specifications and dimensions subject to change

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CCM03 MK2 Series

CCM03-3512 LFT

SIM/SAM

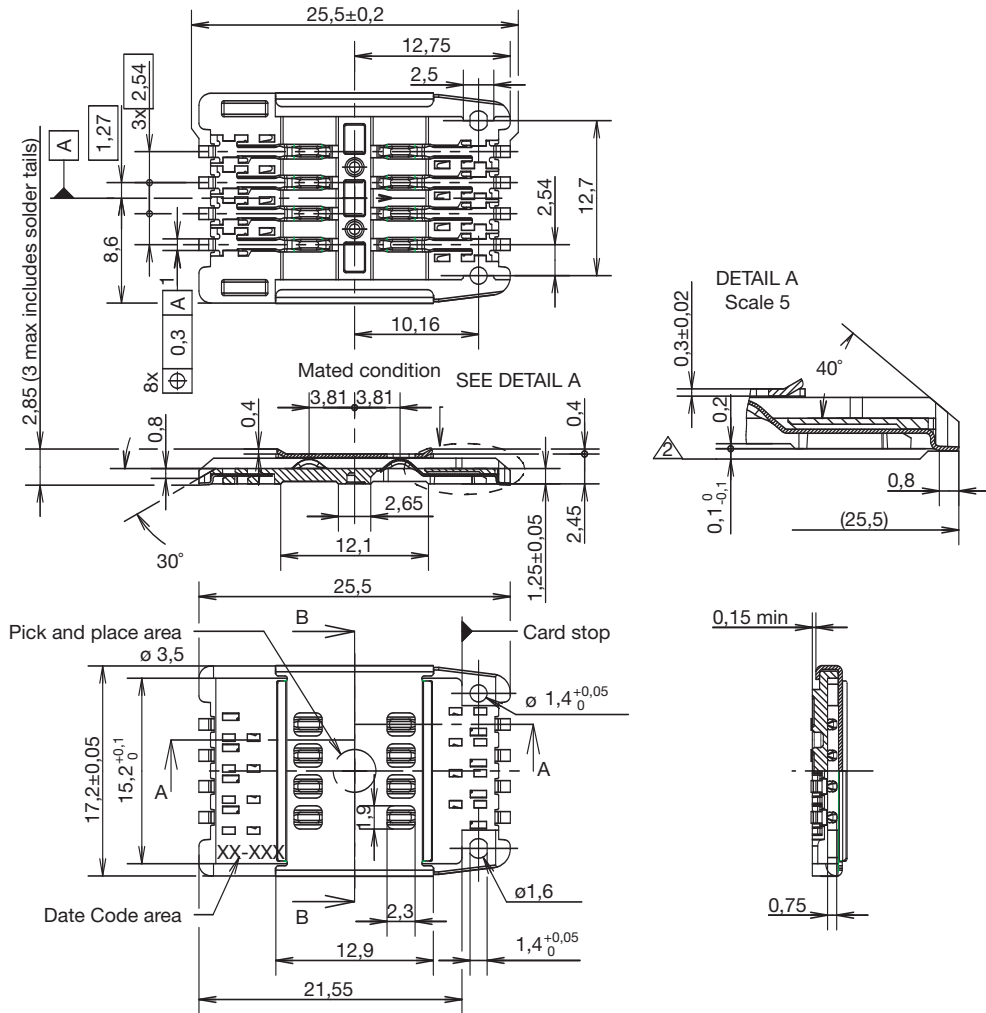


Dimensions are shown in mm
Specifications and dimensions subject to change

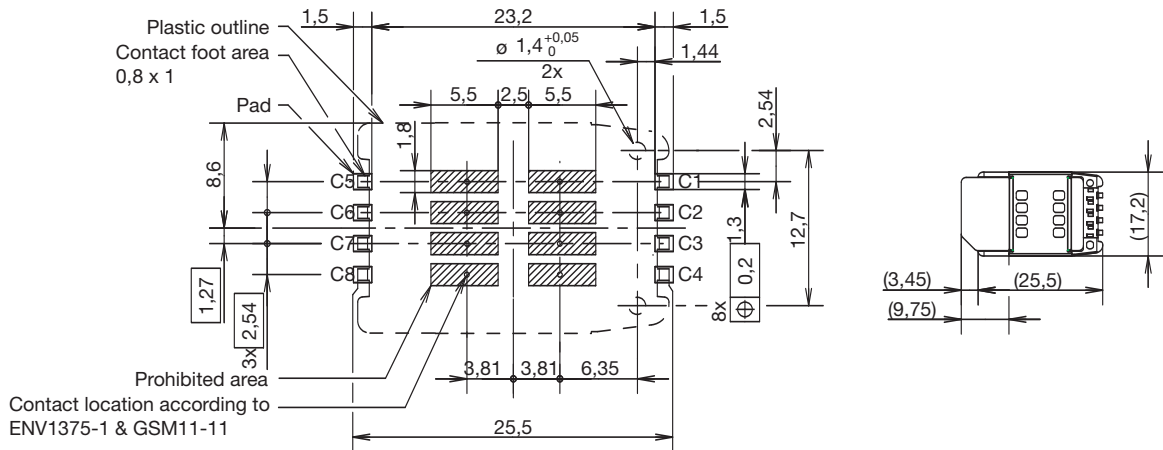
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CCM03 MK2 Series

CCM03-3504 LFT / CCM03-3505 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)

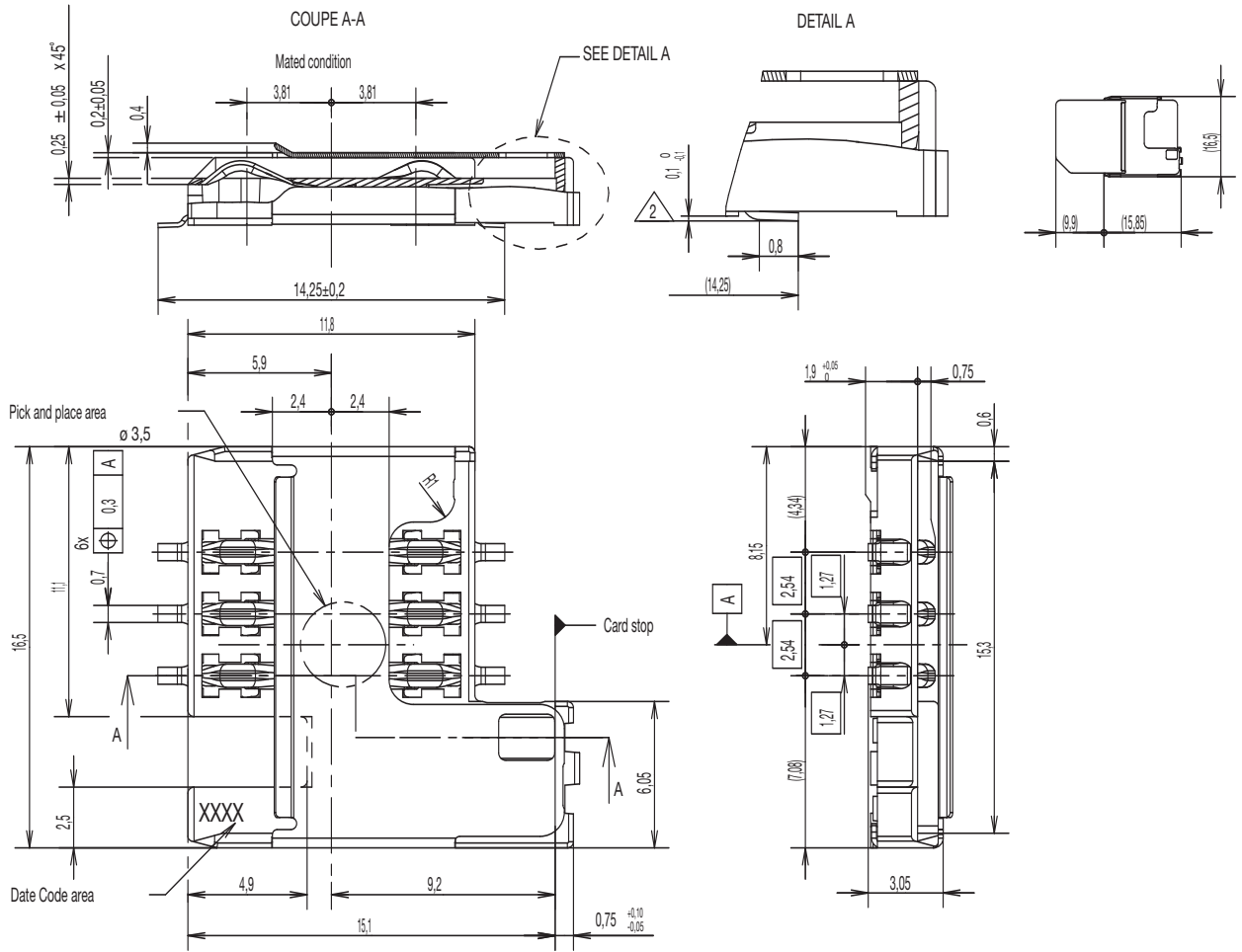


Dimensions are shown in mm
Specifications and dimensions subject to change

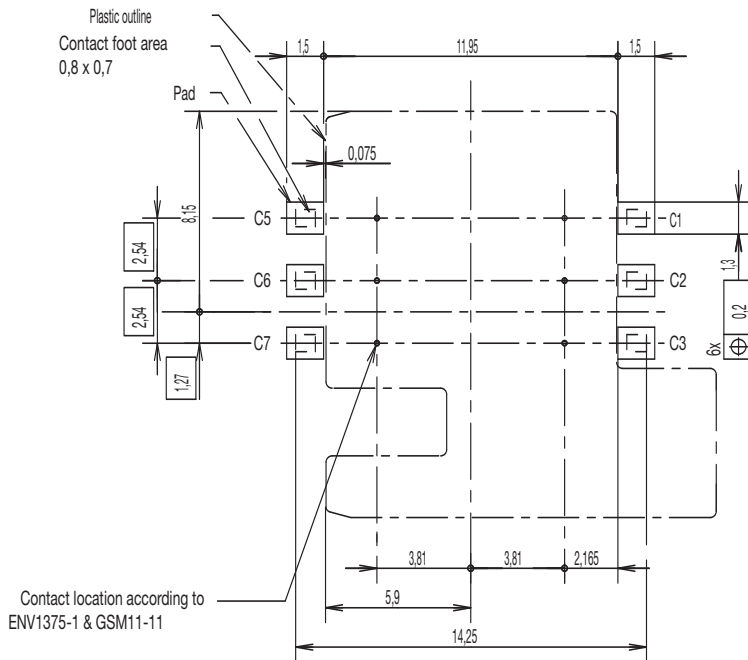
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CCM03 MK2 Series

CCM03-3760 LFT



RECOMMENDED PC BOARD LAYOUT
 (Component side)

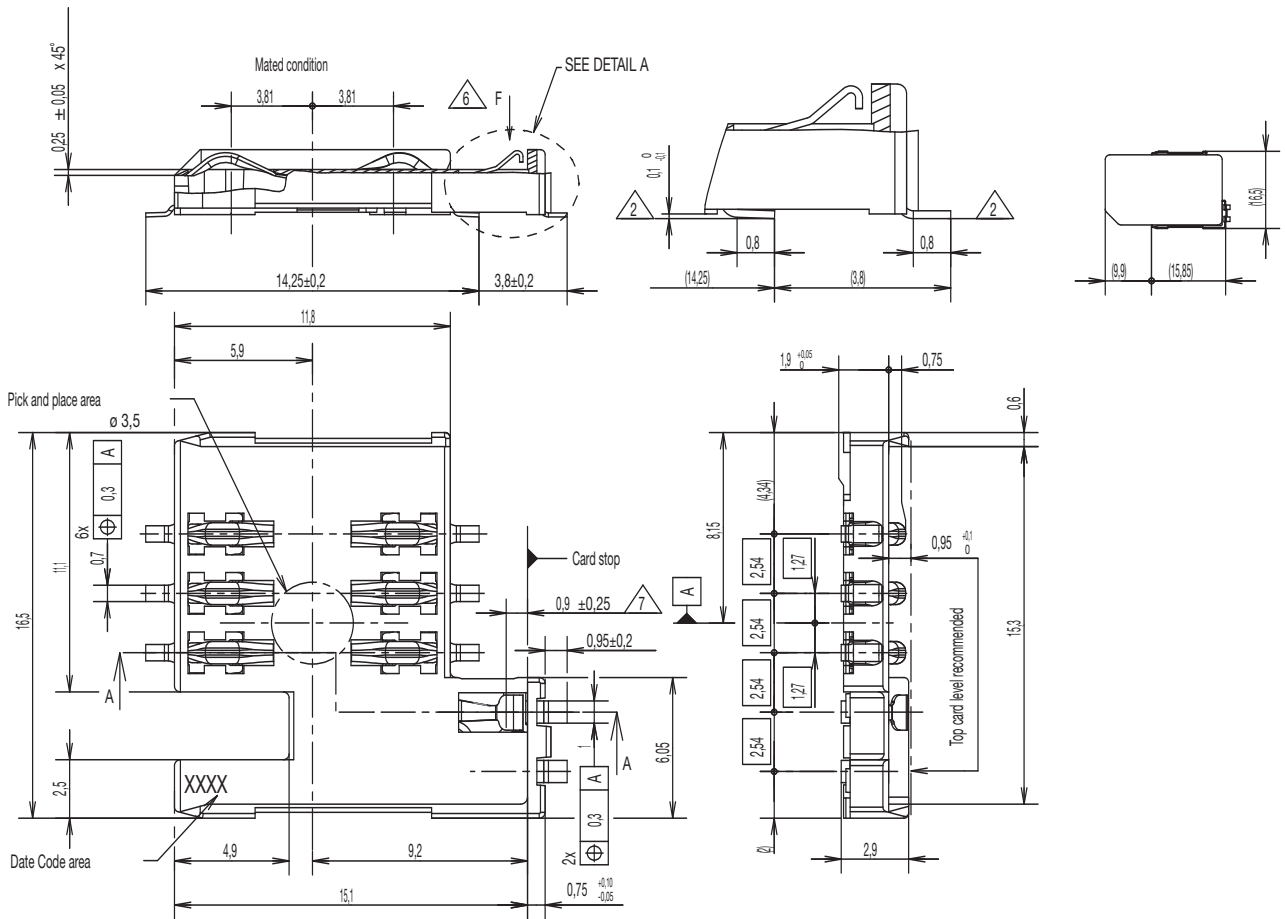


Dimensions are shown in mm
 Specifications and dimensions subject to change

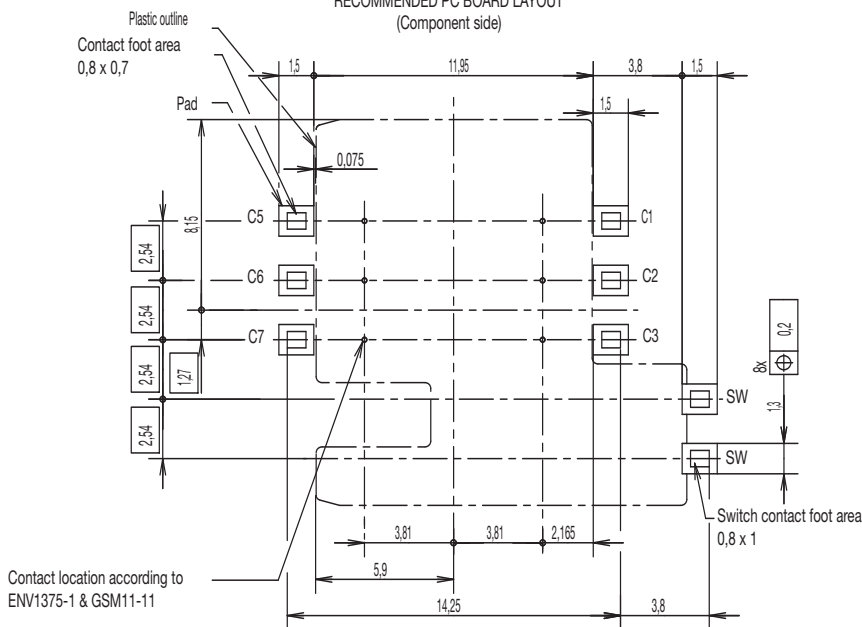
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CCM03 MK2 Series

CCM03-3764 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)



Dimensions are shown in mm
Specifications and dimensions subject to change

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SIM/SAM

CCM04 MK3 Series



Features

- SIM and SAM card acceptance
- Compatible with pick and place and lead free soldering

Typical Applications

- Mobile
- POS
- Identification
- GPS

Mechanical

Number of contacts	6 or 8
Mechanical life	30,000 cycles
Card insertion force	10N max
Card extraction force	1N min / 10N max
Contact force	0,35N min to 0,65N
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35mm
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis
Max elect. discontinuity	1µs

Packaging

See table below

Soldering Process

Compatible with lead free SMT soldering process

Contact Electrical Data

Insulation resistance	1000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Environmental Data

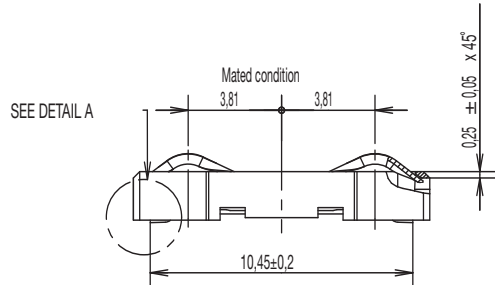
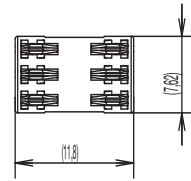
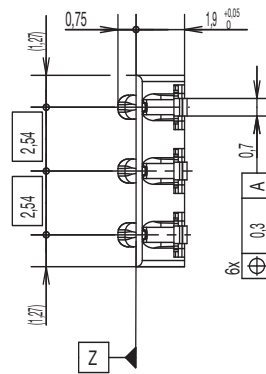
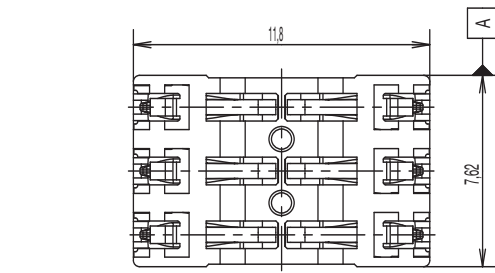
Operating temperature	-40°C to +85°C
Salt mist	IEC 512 test number 11f (96 hours)
Damp heat	IEC 512 test number 11c (10 days)
RoHS compliant	

SIM/SAM

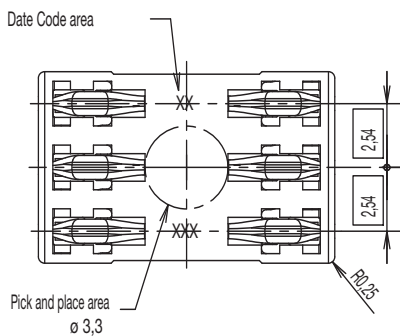
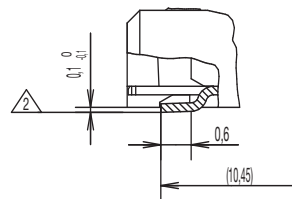
Designation	# of Contacts	Contact Plating	PCB Version	Height (mm)	Dim. (mm)	Packaging
CCM04-5137LFS	6	gold	SMT IN	1,9	8,15 X 10,45	reels of 1,900 pcs

CCM04 MK3 Series

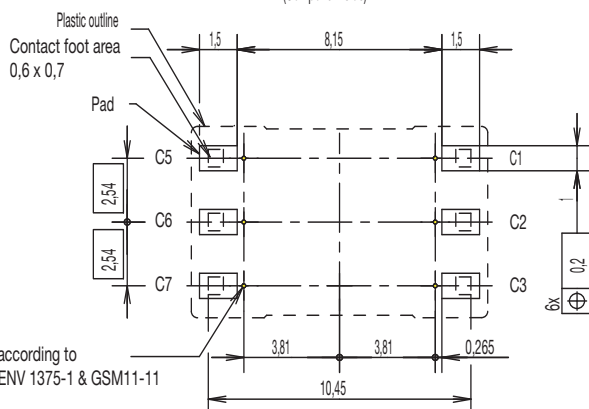
CCM04-5137 LFS



DETAIL A
Scale 10



RECOMMENDED PC BOARD LAYOUT
(Component side)



Contact location according to
ISO 7816-2 & ENV 1375-1 & GSM11-11



Dimensions are shown in mm
Specifications and dimensions subject to change

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