

**Product Range**



**Pushbutton Switches**

- **Tiny Push Buttons:** TP, TSP Series
- **Panel Mount Push Buttons:** MSP, MPA Series
- **Higher Current Push Buttons:** MP Green-, A 60 Series

**Main features:**

- Up to 4 poles
- N/O or C/O contact configuration
- Gold or silver contacts
- Sealed or unsealed versions
- Right angle versions
- Single or dual actuator
- Round or rectangular actuator buttons
- Flush actuator versions
- Snap action versions
- Bushing versions with and without thread
- Hermetically sealed versions
- THT or wire lug terminals
- Panel mounting versions
- Accessories: boot seals, caps, ...



**TSP Series, Tiny, Process Sealed** .....page D3



**TP Series, Tiny** .....page D6



**TP\_ES Series, Tiny, Process Sealed** .....page D15



**MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed** .....page D18

**Product Range** (Continued)



**MSPF Series, Front or Rear Mount, 15/32 Bushing** .....page D20



**MPA103 Series, Panel Mount** .....page D22



**MSP103 Series, 2.5mm Travel, Panel Mount** .....page D23



**MPS Series, Snap Action** .....page D25



**MP/A/E/G Green Series** .....page D28



**A60 Series** .....page D33



**Accessories** .....page D35



**BP Series Boot Seals** .....page D37



**BP Series Panel Seals** .....page D39

**TSP Series, Tiny, Process Sealed**

**Features**

- Washable process sealed construction (internal "O" ring)
- Compact design



**Typical performance characteristics**

Contact configuration . . . . . SPST SPDT  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . gold 0.4VA @20VAC/DC  
 Electrical life . . . . . function C: 80,000 cycles  
 . . . . . function F: 60,000 cycles  
 Contact resistance, initial . . . . . max.20 mOhms  
 Insulation resistance . . . . . 1,000 MOhms @ 500VDC  
 Dielectric strength . . . . . function C: 1,000 Volts rms @ sea level  
 . . . . . function F: 500 Volts rms @ sea level  
 Actuator travel . . . . . momentary .035" (0.89)

**Environmental specification**

Operating temperature . . . . . -30°C to +85°C  
 Storage temperature . . . . . -55°C to +85°C  
 Solder heat resistance . . . . . wave solder capable to 265° C  
 Seal . . . . . process sealed with internal "O" ring

**Material specifications**

Contacts . . . . . copper or brass, gold over nickel finish  
 Actuator . . . . . thermoplastic  
 Terminals . . . . . brass with gold over nickel in contact area  
 . . . . . tin over nickel in solder area  
 Case . . . . . thermoplastic (LCP)  
 Spring . . . . . music wire zinc plated  
 Support bracket . . . . . steel tin plated  
 Seal . . . . . "O" ring rubber  
 RoHS Directive 2002/95/EC . . . . . compliant

Product key		Typical product key										
		TSP	D		1	1	C	G	RA	0	04	
<b>Type</b>	<b>TSP</b>	Tiny pushbutton, process sealed										
<b>Bushing</b>	<b>D</b>	plain, not threaded										
<b>Actuator</b>	<b>blank</b>	length .200 (5.08)										
	<b>F</b>	flush										
<b>Number of Poles</b>	<b>1</b>	single pole										
<b>Contact rating</b>	<b>1</b>	0.4VA Gold										
<b>Function</b>	<b>C</b>	SPST, Off (On)				<b>F</b> SPDT, On (On)						
<b>Plating</b>	<b>G</b>	Gold										
<b>Terminals</b>	<b>PC</b>	printed circuit board				<b>RA</b> right angle						
	<b>PCV</b>	printed circuit board, w bracket				<b>VRA</b> vertical right angle						
						<b>WW</b> wire wrap						
<b>Button Color</b>	<b>0</b>	black				<b>2</b> red						
<b>Material</b>	<b>04</b>	RoHS compliant										

**TSP Series, Tiny, Process Sealed (Continued)**

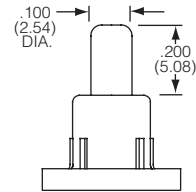
**Actuator**



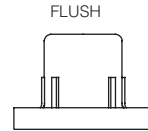
blank, F

**standard actuator, flush actuator**

blank, standard actuator



F, flush actuator



**Terminations**

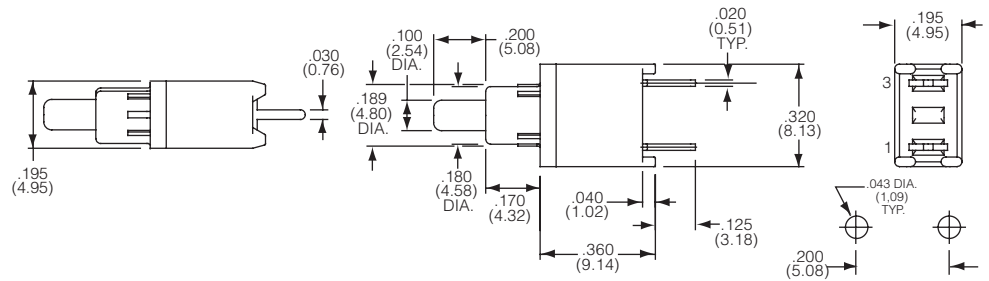


**PC**

**printed circuit board**

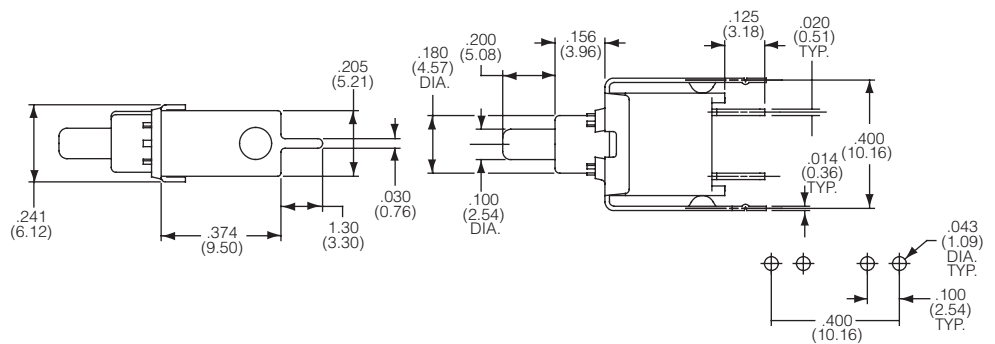


TSPD11CPC004



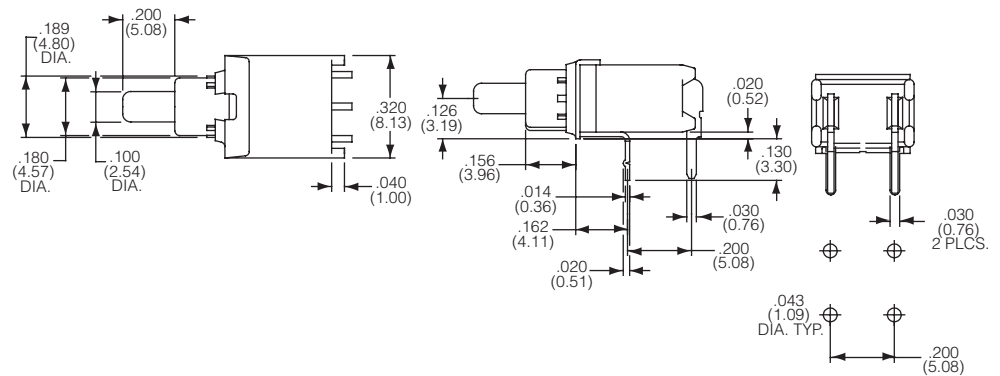
**PCV**

**printed circuit board with vertical bracket**



**RA**

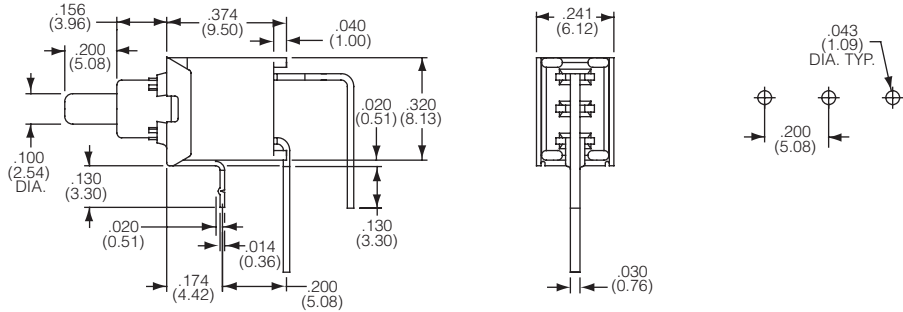
**right angle**



**TSP Series, Tiny, Process Sealed (Continued)**

**VRA**

**vertical right angle**



**WW**

**wire wrap**



Product key	Bushing	Act.	Poles	Rating	Function	Conn.	Conn.	Plating	Terminals	Btn.	Material	Part Number
TSPD11CGPC004	plain,	length	1	0.4VA	Off (On)	Off	1-3	Gold	pcb	black	RoHS	1571990-1
TSPD11CGPC204	not	.200								red	compliant	1571990-2
TSPD11CGPCV004	threaded	(5.08)								black		1571990-3
TSPD11CGRA004									right angle			1571990-4
TSPD11CGRA204										red		1571990-5
TSPD11CGVRA004									vertical r.a.	black		1-1571990-3
TSPD11CGWW004									wire wrap			1-1571990-4
TSPD11FGPC004					On (On)	1-2	2-3		pcb			1-1571990-5
TSPD11FGPCV004									pcb w brack.			1-1571990-6
TSPD11FGRA004									right angle			1-1571990-7
TSPD11FGVRA004									vertical r.a.			2-1571990-1
TSPDF11CGPC004		flush			Off (On)	Off	1-3		pcb			2-1571990-2
TSPDF11CGRA004									right angle			2-1571990-5
TSPDF11CGVRA004									vertical r.a.			2-1571990-7
TSPDF11FGPC004					On (On)	1-2	2-3		pcb			2-1571990-8
TSPDF11FGRA004									right angle			2-1571990-9

**TP Series, Tiny**

**Features**

- Compact design
- Round or rectangular actuator buttons.
- Vertical or right angle versions



Pushbutton Switches

**Typical performance characteristics**

Contact configuration . . . . . SPST, SPDT, DPDT  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . gold: 0.4VA @20VDC or peak AC  
 . . . . . silver: 1A @ 125VAC or 28 VDC resistive  
 Electrical life . . . . . 1 pole2 . . .2 pole  
 . . . . . gold . . . . . 100,000 . . .80,000 cycles  
 . . . . . silver . . . . . 60,000 . . .50,000 cycles  
 Contact resistance, initial . . . . . max.20 mOhms  
 Insulation resistance . . . . . 1,000 MOhms @ 500VDC  
 Dielectric strength . . . . . 1,000 Volts rms @ sea level  
 Actuation force . . . . . 0.5 to 4N (50-400gf)  
 Actuator travel . . . . . momentary .030" (.762)

**Environmental specification**

Operating temperature . . . . . -30°C to +65°C  
 Storage temperature . . . . . -30°C to +65°C  
 Solder heat resistance . . . . . wave solder capable to 265° C

**Material specifications**

Contacts . . . . . copper or brass, gold over nickel finish or silver  
 . . . . . clad with silver over nickel finish  
 Actuator . . . . . thermoplastic  
 Terminals . . . . . brass with gold over nickel or silver over nickel  
 Case . . . . . thermoplastic  
 Frame and support bracket . . . . . steel with tin over copper finish  
 RoHS Directive 2002/95/EC . . . . . compliant

<b>Product key</b>	Typical product key										
	<b>TP</b>	<b>A</b>		<b>1</b>	<b>1</b>	<b>C</b>	<b>G</b>	<b>PC</b>	<b>0</b>	<b>04</b>	
<b>Type</b>	Tiny pushbutton series										
<b>Bushing</b>											
<b>blank</b>	square, no bushing										
<b>A</b>	round, no bushing										
<b>B</b>	round .188 (4.78) dia. bushing not threaded										
<b>C</b>	round 10/48 UNS 2B thread										
<b>D</b>	.250" (6.35) dia. bushing, not threaded										
<b>F</b>	round 1/4-40 UNS 2B thread										
<b>Actuator</b>											
<b>blank</b>	standard										
<b>F</b>	flush (available with B and C bushings only)										
<b>Number of Poles</b>											
<b>1</b>	single pole					<b>2</b> double pole					
<b>Contact rating</b>											
<b>1</b>	0.4VA Gold										
<b>2</b>	1.0 A Silver (Silver available only in wire lug and PC termination)										
<b>Function</b>											
<b>single pole</b>						<b>double pole</b>					
<b>C</b>	single throw, momentary					<b>M</b> single throw, momentary					
<b>F</b>	double throw, momentary					<b>R</b> double throw, momentary					
<b>CC</b>	dual function C - 2 x single throw, momentary										
<b>FF</b>	dual function F - 2 x double throw, momentary										
<b>Plating</b>											
<b>G</b>	Gold					<b>blank</b> Silver (Silver available only in wire lug and PC termination)					
<b>Terminals</b>											
<b>blank</b>	wire lug										
<b>PC</b>	printed circuit board					<b>RA</b> right angle					
						<b>VRA</b> vertical, right angle (available only in single pole)					
<b>Button Color</b>											
<b>0</b>	black			<b>2</b> red			<b>6</b> blue				
<b>Material</b>											
<b>04</b>	RoHS compliant										

**TP Series, Tiny (Continued)**

**Bushing**

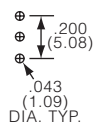
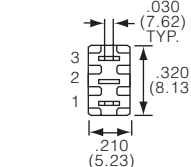
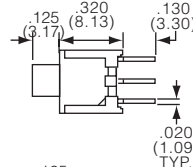
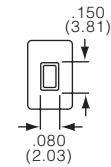


**blank, square, no bushing**

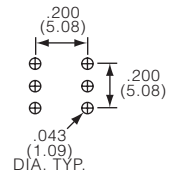
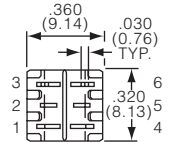
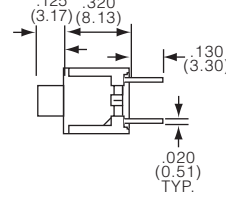
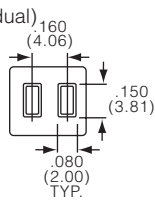
**printed circuit board**



Single pole



2 x Single pole (dual)

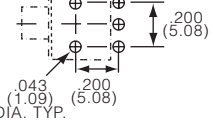
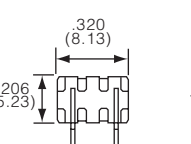
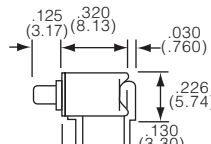
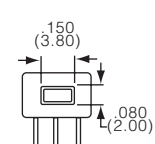


Note: no center terminal on 'C' and 'M' function switch

**right angle**



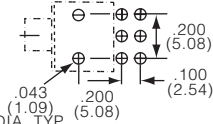
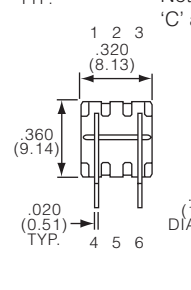
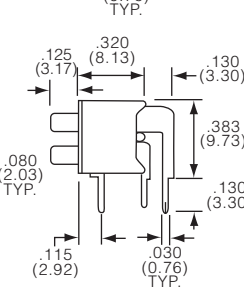
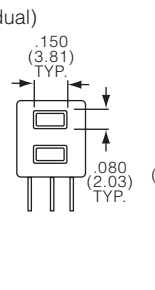
Single pole



Note: no center terminal on 'C' and 'M' function switch



2 x Single pole (dual)

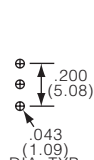
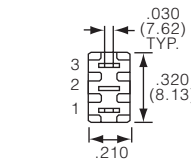
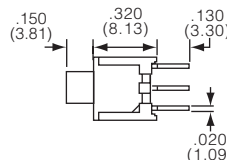
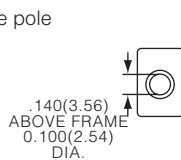


**A, Round, no bushing**

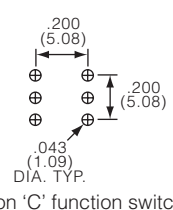
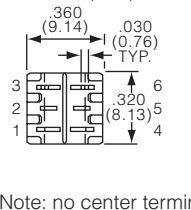
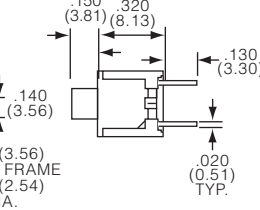
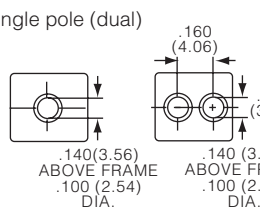
**printed circuit board**



Single pole



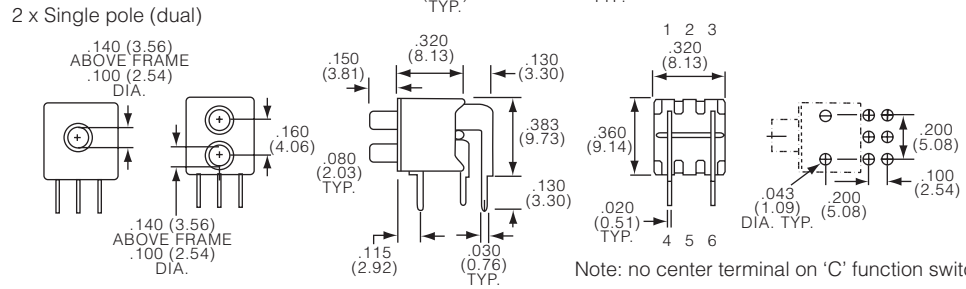
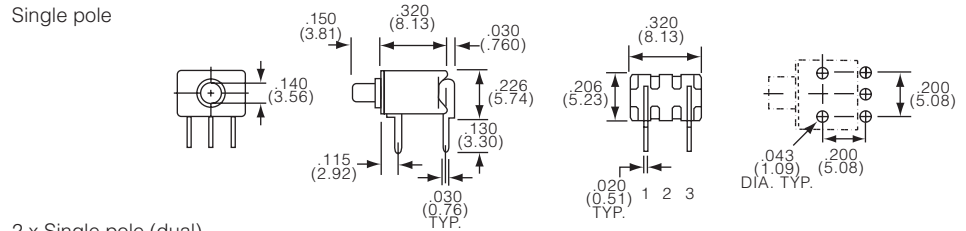
2 x Single pole (dual)



Note: no center terminal on 'C' function switch

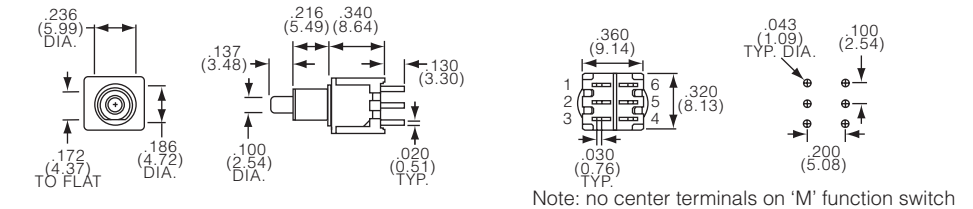
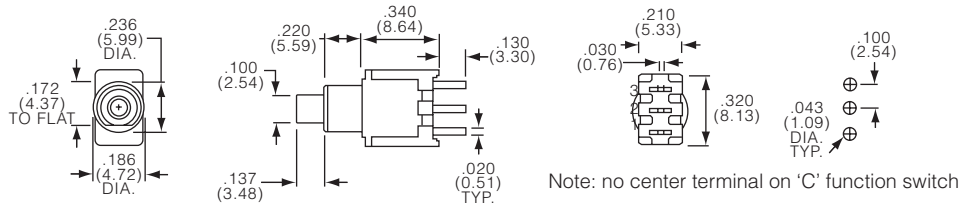
**TP Series, Tiny (Continued)**

**right angle**

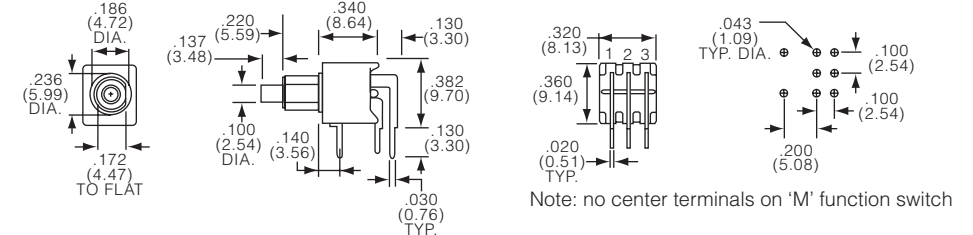
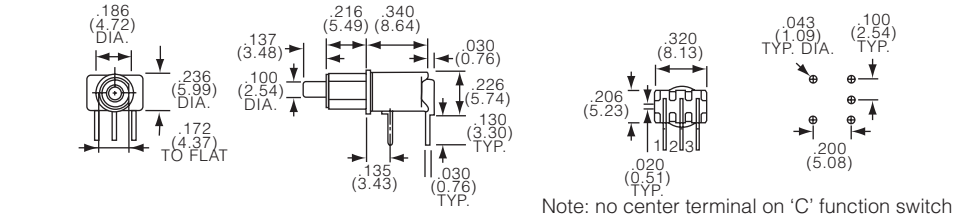


**B, Round .188 (4.78) dia. bushing not threaded**

**printed circuit board**



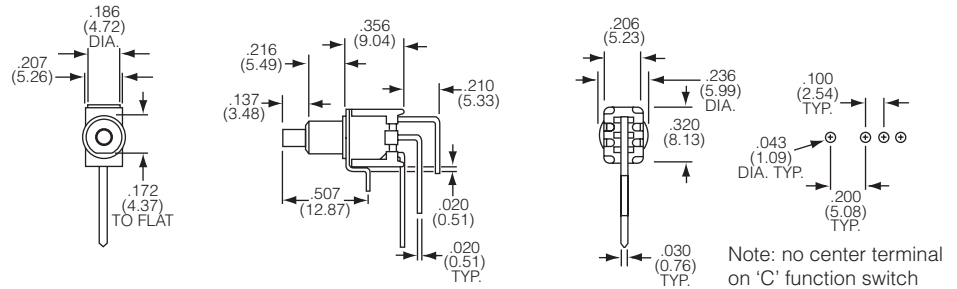
**right angle**



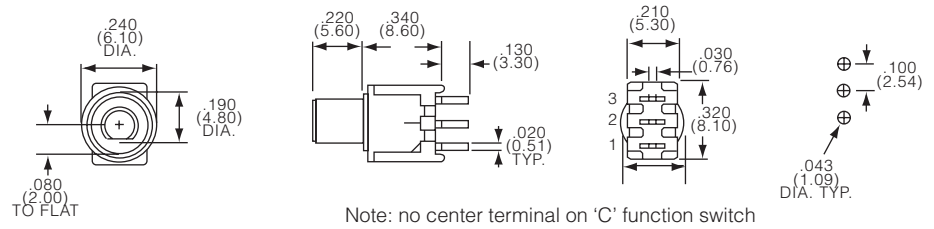


**TP Series, Tiny (Continued)**

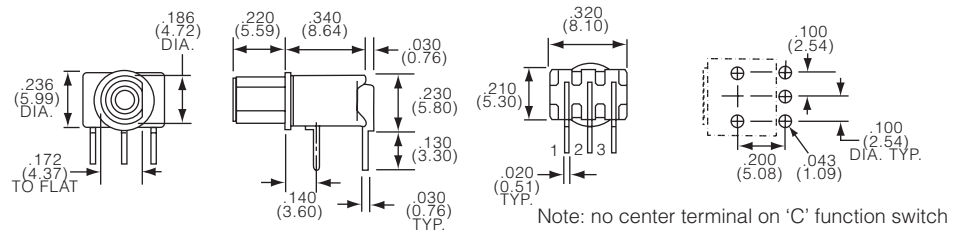
**vertical right angle**



**printed circuit board, flush actuator**

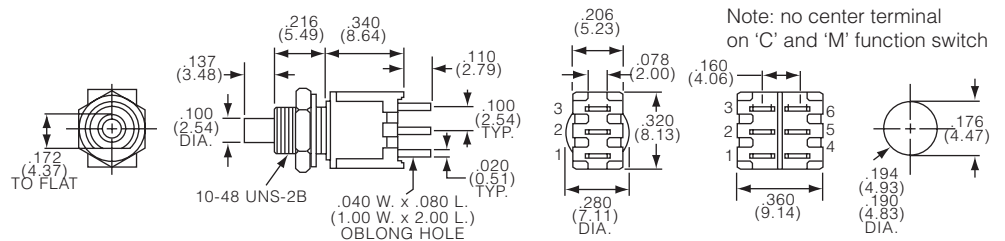


**right angle, flush actuator**

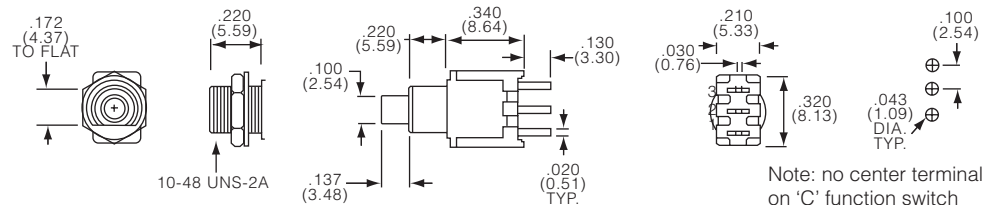


**C, Round 10/48 UNS 2B thread**

**wire lug**



**printed circuit board**

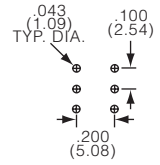
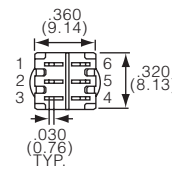
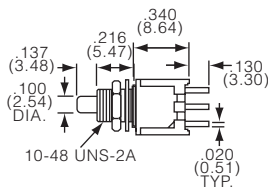


Pushbutton Switches

**TP Series, Tiny (Continued)**



TPC21RGPC

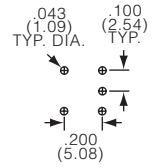
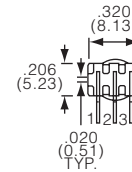
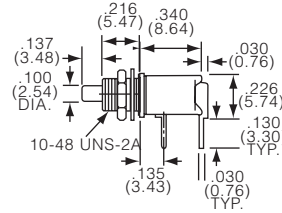


Note: no center terminals on 'M' function switch

**right angle**



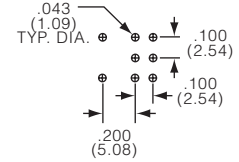
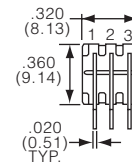
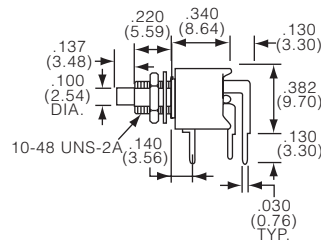
TPC11CGRA



Note: no center terminal on 'C' function switch

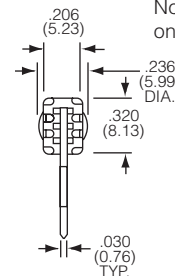
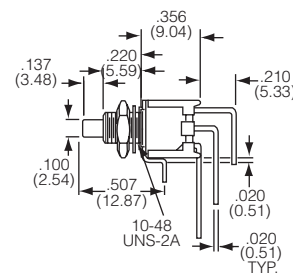
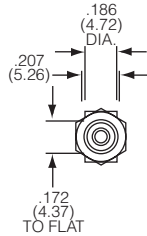


TPC21MGRA

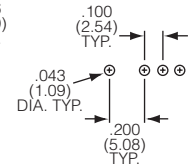


Note: no center terminals on 'M' function switch

**vertical right angle**



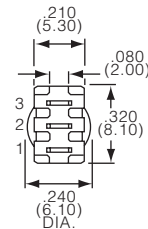
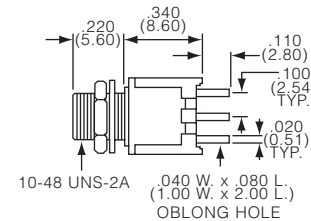
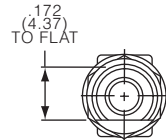
Note: no center terminal on 'C' function switch



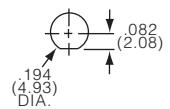
**wire lug, flush actuator**



TPCF13C



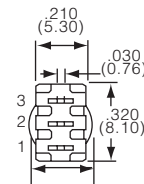
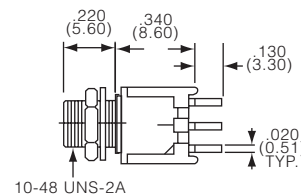
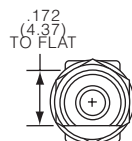
Note: no center terminal on 'C' function switch



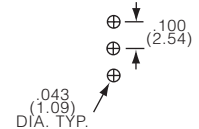
**printed circuit board, flush actuator**



TPCF11CGPC

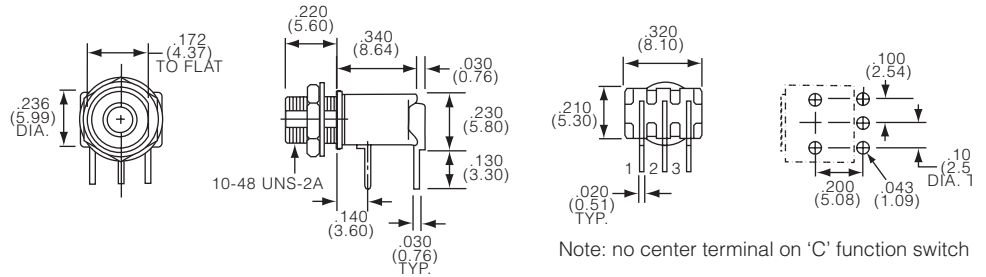


Note: no center terminal on 'C' function switch



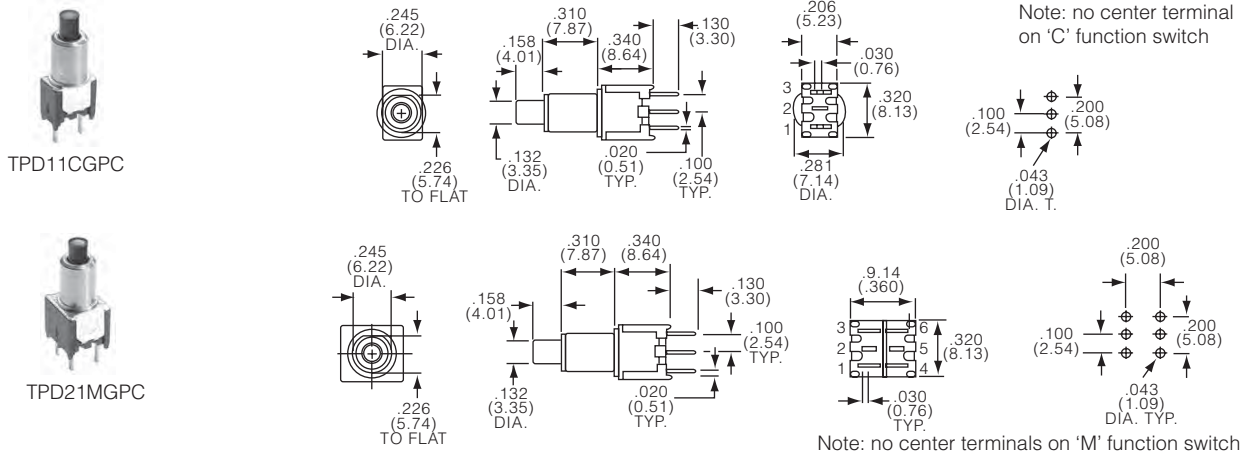
**TP Series, Tiny (Continued)**

**right angle, flush actuator**

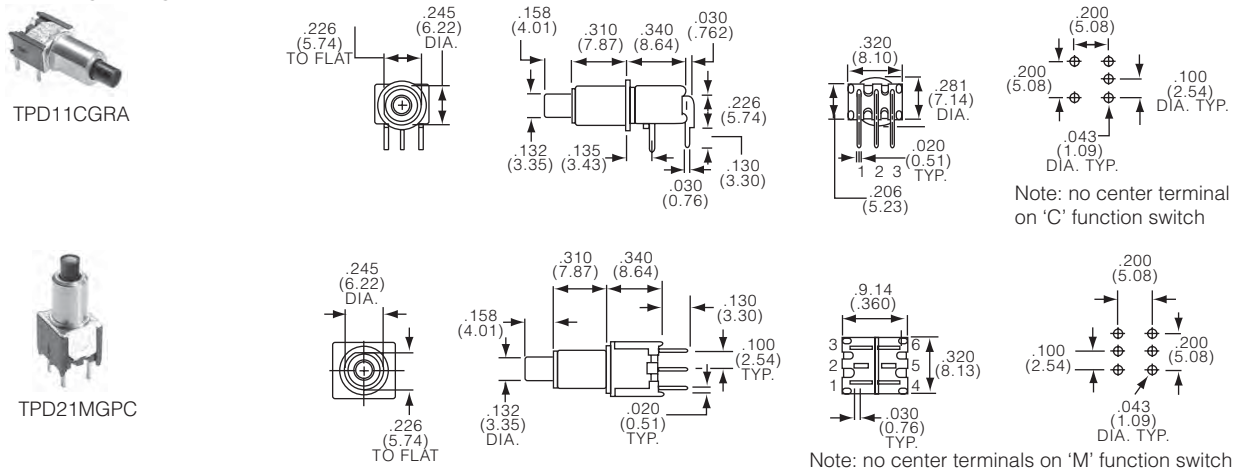


**D, .250" (6.35) dia. bushing, not threaded**

**printed circuit board**



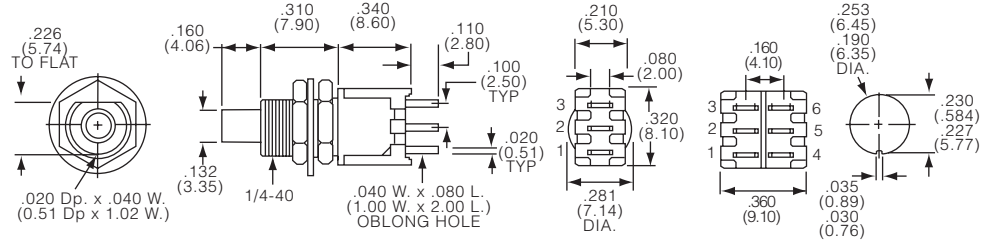
**right angle**



**TP Series, Tiny (Continued)**

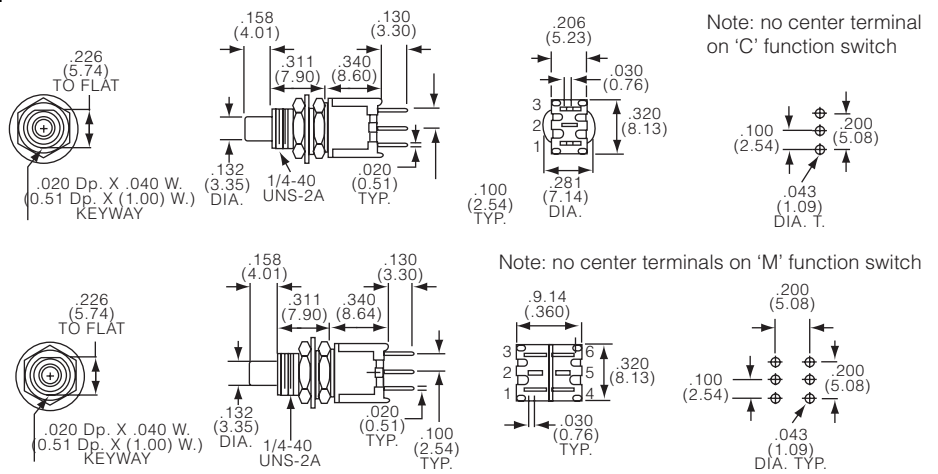
**F, Round 1/4-40 UNS 2B thread**

**wire lug**



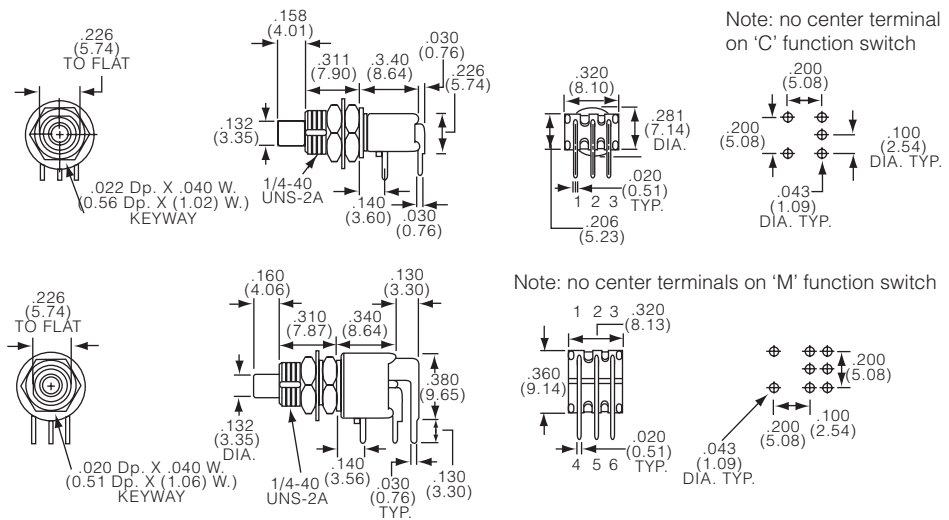
Note: no center terminal on 'C' and 'M' function switch

**printed circuit board**





Pushbutton Switches

**right angle**



**TP Series, Tiny (Continued)**

Product key	Bushing	Act.	Poles	Rating	Function			Plating	Terminals	Btn.	Material	Part Number
TP11CGPC004	square	n/a	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS	1825095-1
TP11CGPC204	no bushing									red	compliant	1825095-2
TP11CGRA004									right angle	black		1825095-3
TP11CGRA204										red		1825095-4
TP11CGRA604										blue		1825095-5
TP11FGPC004					On-(On)	1-2	2-3		pcb	black		1825095-6
TP11FGPC204										red		1825095-7
TP11FGRA004									right angle	black		1825095-8
TP11FGRA204										red		1825095-9
TP11FGRA604										blue		1-1825095-0
TP21CCGRA004			2 (1+1)		Off-(On)	Off	1-3			black		1-1825095-1
TP21CCGRA204										red		1-1825095-2
TP21FFGRA004					On-(On)	1-2	2-3			black		1-1825095-3
<b>TPA11CGPC004</b>	round		1		Off-(On)	Off	1-3		pcb			<b>1825096-1</b>
TPA11CGPC204	no bushing									red		1825096-2
TPA11CGPC604										blue		1825096-3
<b>TPA11CGRA004</b>									right angle	black		<b>1825096-4</b>
TPA11CGRA204										red		1825096-5
TPA11CGRA604										blue		1825096-6
<b>TPA11FGPC004</b>					On-(On)	1-2	2-3		pcb	black		<b>1825096-7</b>
TPA11FGPC204										red		1825096-8
TPA11FGPC604										blue		1825096-9
<b>TPA11FGRA004</b>									right angle	black		<b>1-1825096-0</b>
TPA11FGRA204										red		1-1825096-1
TPA11FGRA604										blue		1-1825096-2
TPA21CCGPC004			2 (1+1)		Off-(On)	Off	1-3, 4-6		pcb	black		1-1825096-3
TPA21CCGRA004									right angle			1-1825096-4
TPA21FFGRA204					On-(On)	1-2, 4-5	2-3, 5-6			red		1-1825096-5
TPA21MGRA004			2		Off-(On)	Off	1-3, 4-6			black		1-1825096-6
<b>TPB11CGPC004</b>	round	std	1				1-3		pcb			<b>1825097-1</b>
TPB11CGPC204	.188 (4.78)									red		1825097-2
<b>TPB11CGRA004</b>	dia								right angle	black		<b>1825097-6</b>
TPB11CGRA204	bushing,									red		1825097-4
TPB11CGVRA004	not								vertical r.a.	black		1825097-8
<b>TPB11FGPC004</b>	threaded				On-(On)	1-2	2-3		pcb			<b>1825097-9</b>
<b>TPB11FGRA004</b>									right angle			<b>1-1825097-1</b>
TPB11FGRA204										red		1-1825097-2
TPB11FGRA604										blue		1-1825097-3
TPB11FGVRA004									vertical r.a.	black		1-1825097-6
<b>TPB21MGPC004</b>			2		Off-(On)	Off	1-3, 4-6		pcb			<b>1-1825097-7</b>
TPB21MGPC204										red		1-1825097-8
TPB21MGRA004									right angle	black		2-1825097-8
TPB21RGRA004					On-(On)	1-2, 4-5	2-3, 5-6					1-1825097-9
TPB21RGRA0EDC04												1825112-1
TPBF11CGRA004		flush	1		Off-(On)	Off	1-3					2-1825097-1
TPBF11FGRA004					On-(On)	1-2	2-3					2-1825097-4
TPBF11FGRA204										red		2-1825097-5

Preferred parts in bold print

**TP Series, Tiny (Continued)**

Pushbutton Switches

Product key	Bushing	Act.	Poles	Rating	Function			Plating	Terminals	Btn.	Material	Part Number
TPC11CGPC004	round	std	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS compliant	1825098-1
TPC11CGRA004	10/48								right angle			1825098-2
TPC11CGRA204	UNS 2B									red		1825098-3
TPC11CGVRA004	thread								vertical r.a.	black		1825098-4
TPC11FGPC004					On-(On)	1-2	2-3		pcb			1825098-5
TPC11FGRA004									right angle			1825098-6
TPC11FGVRA004									vertical r.a.			1825098-7
TPC11FGVRA204										red		1825098-8
TPC13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug	black		1825098-9
TPC13C204										red		1-1825098-0
TPC13CPC004									pcb	black		1-1825098-1
TPC13F004					On-(On)	1-2	2-3		wire lug			1-1825098-2
TPC21MGRA204			2	0.4VA	Off-(On)	Off	1-3, 4-6	Gold	right angle	red		1-1825098-3
TPC21RGPC004					On-(On)	1-2, 4-5	2-3, 5-6		pcb	black		1-1825098-4
TPC23M004				1.0 A	Off-(On)	Off	1-3, 4-6	Silver	wire lug			1-1825098-5
TPC23R204					On-(On)	1-2, 4-5	2-3, 5-6			red		1-1825098-6
TPCF11CGPC004		flush	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black		1-1825098-7
TPCF11CGRA004									right angle			1-1825098-8
TPCF11FGRA004					On-(On)	1-2	2-3					1-1825098-9
TPCF13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug			2-1825098-0
TPCF13F004					On-(On)	1-2	2-3					2-1825098-1
TPD11CGPC004	.259 (6.35)	n/a		0.4VA	Off-(On)	Off	1-3	Gold	pcb			1825099-1
TPD11CGPC204	dia									red		1825099-2
TPD11CGRA004	bushing,								right angle	black		1825099-3
TPD11CGRA204	not									red		1825099-4
TPD11CGRA604	threaded									blue		1825099-5
TPD11FGPC004					On-(On)	1-2	2-3		pcb	black		1825099-6
TPD11FGRA004									right angle			1825099-7
TPD11FGRA204										red		1825099-8
TPD21MGRA004			2		Off-(On)	Off	1-3, 4-6			black		1825099-9
TPD21RGPC004					On-(On)	1-2, 4-5	2-3, 5-6		pcb			1-1825099-0
TPF11CGPC004	round		1		Off-(On)	Off	1-3					1825100-1
TPF11CGPC204	1/4-40									red		1825100-2
TPF11CGRA004	UNS 2B								right angle	black		1825100-4
TPF11CGRA204	thread									red		1825100-5
TPF11CGRA604										blue		1825100-6
TPF11FGPC004					On-(On)	1-2	2-3		pcb	black		1825100-7
TPF11FGPC204										red		1825100-8
TPF11FGPC604										blue		1825100-9
TPF11FGRA004									right angle	black		1-1825100-1
TPF13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug			1-1825100-2
TPF13C204										red		1-1825100-3
TPF13F204					On-(On)	1-2	2-3					1-1825100-4
TPF13F604										blue		1-1825100-5
TPF21MGPC004			2	0.4VA	Off-(On)	Off	1-3, 4-6	Gold	pcb	black		1-1825100-6
TPF21RGRA004					On-(On)	1-2, 4-5	2-3, 5-6		right angle			1-1825100-7
TPF23M004				1.0 A	Off-(On)	Off	1-3, 4-6	Silver	wire lug			1-1825100-8

**TP\_ES Series, Tiny, Process Sealed**

**Features**

- Process and non-process sealed
- Compact design
- Vertical or right angle versions



**Typical performance characteristics**

Contact configuration . . . . . SPST, SPDT, DPDT  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . gold: 0.4VA @20VDC or peak AC  
 . . . . . silver: 1A @ 125VAC or 28 VDC resistive  
 Electrical life . . . . . 1 pole2 . . .2 pole  
 . . . . . gold . . . . . 100,000 . . .80,000 cycles  
 . . . . . silver . . . . . 60,000 . . .50,000 cycles  
 Contact resistance, initial. . . . . max.20 mOhms'  
 Insulation resistance . . . . . 1,000 MOhms @ 500VDC  
 Dielectric strength . . . . . 1,000 Volts rms @ sea level  
 Actuation force . . . . . 0.5 to 4N (50-400gf)  
 Actuator travel . . . . . momentary .030" (.762)

**Environmental specification**

Operating temperature . . . . . -30°C to +65°C  
 Storage temperature . . . . . -30°C to +65°C  
 Solder heat resistance . . . . . wave solder capable to 265° C  
 Seal . . . . . versions with process seal, with disposable cap

**Material specifications**

Contacts . . . . . copper or brass, gold over nickel finish or silver  
 . . . . . clad with silver over nickel finish  
 Actuator . . . . . thermoplastic  
 Terminals . . . . . brass with gold over nickel or silver over nickel  
 Case . . . . . thermoplastic  
 Frame and support bracket. . . . . steel with tin over copper finish  
 RoHS Directive 2002/95/EC . . . . . compliant

<b>Product key</b>	Typical product key											
	<b>TP</b>	<b>B</b>		<b>1</b>	<b>1</b>	<b>C</b>	<b>G</b>	<b>RA</b>	<b>ES</b>	<b>0</b>	<b>04</b>	
<b>Type</b>	Tiny pushbutton series											
<b>Bushing</b>												
<b>B</b>	round .188 (4.78) dia. bushing not threaded											
<b>F</b>	round 1/4-40 UNS 2B thread											
<b>Actuator</b>												
<b>blank</b>	standard											
<b>F</b>	flush (available with B bushings only)											
<b>Number of Poles</b>												
<b>1</b>	single pole											
<b>Contact rating</b>												
<b>1</b>	0.4VA Gold											
<b>Function</b>												
<b>C</b>	single throw, momentary											
<b>F</b>	double throw, momentary											
<b>Plating</b>												
<b>G</b>	Gold											
<b>Terminals</b>												
<b>PC</b>	printed circuit board						<b>RA</b> right angle (right angle, ES available with B and C bushing only)					
<b>Process Seal</b>												
<b>ES</b>	process sealed with disposable boot, epoxied double case											
<b>Button Color</b>												
<b>0</b>	black				<b>2</b> red				<b>6</b> blue			
<b>Material</b>												
<b>04</b>	RoHS compliant											

**TP\_ES Series, Tiny, Process Sealed (Continued)**

**Bushing**

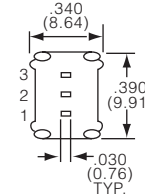
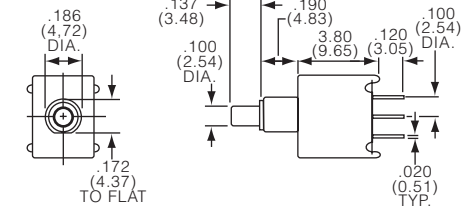


**B, Round .188 (4.78) dia. bushing not threaded**

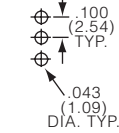
printed circuit board



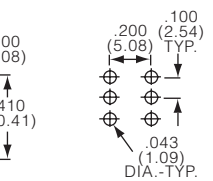
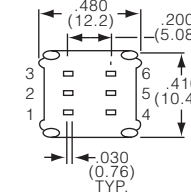
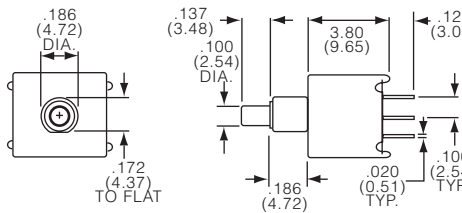
TPB11CGPCES



Note: no center terminal on 'C' function switch



TPB21RGPCES

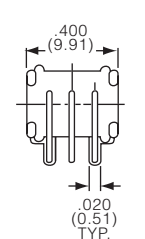
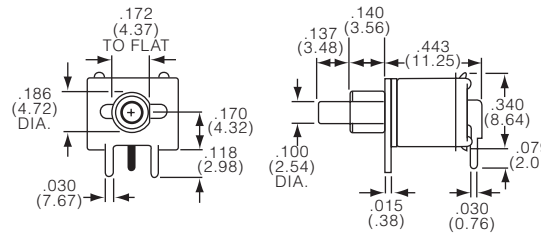


Note: no center terminals on 'M' function switch

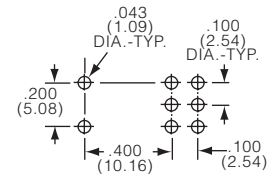
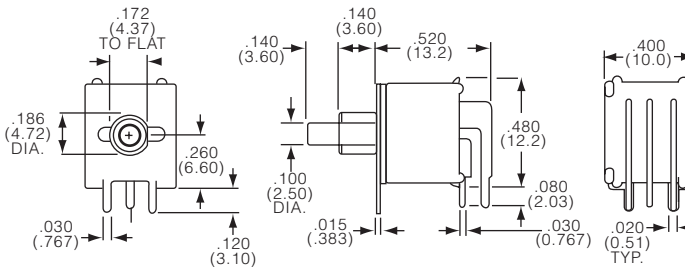
right angle



TPB11CGRAES



Note: no center terminal on 'C' function switch

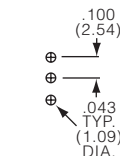
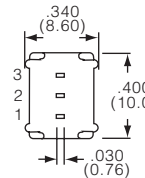
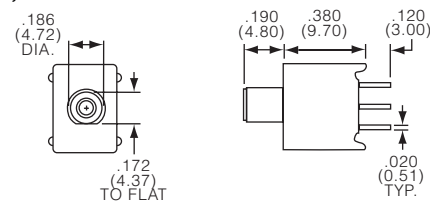


Note: no center terminals on 'M' function switch

printed circuit board, flush actuator



TPBF11CGPCES

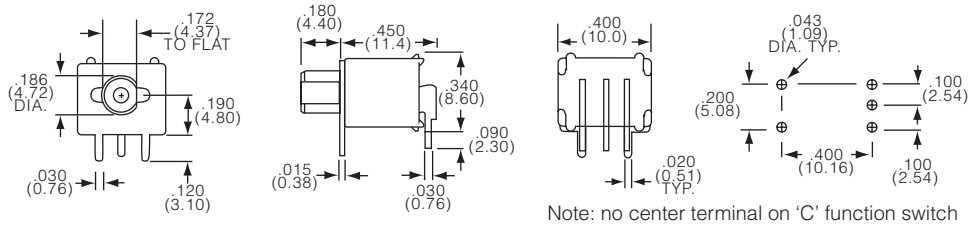


Note: no center terminal on 'C' function switch



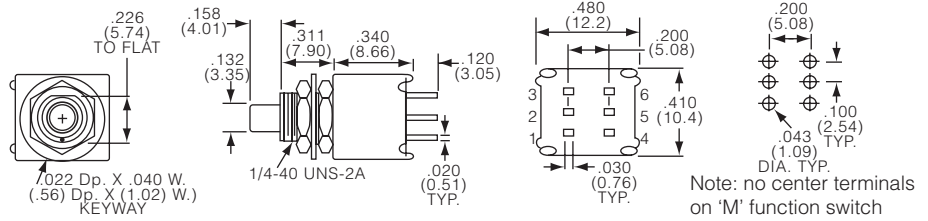
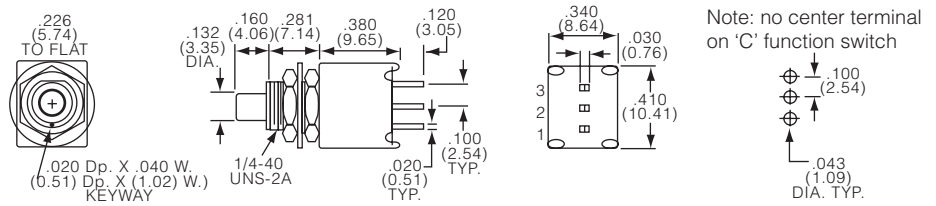
**TP\_ES Series, Tiny, Process Sealed (Continued)**

**right angle, flush actuator**



**F, Round 1/4-40 UNS 2B thread**

**printed circuit board**



Product key	Bushing	Act.	Poles	Rating	Function	Off	On	Plating	Terminals	Btn.	Material	Part Number
TPB11CGPCES004	round	std	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS compliant	1825097-3
TPB11CGRAES004	.188 (4.78)								right angle			1825097-5
TPB11CGRAES204	dia									red		1825097-7
TPB11FGPCES204	bushing, not				On-(On)	1-2	2-3		pcb			1-1825097-0
TPB11FGRAES004	threaded								right angle	black		1-1825097-4
TPB11FGRAES604										blue		1-1825097-5
TPBF11CGPCES004		flush			Off-(On)	Off	1-3		pcb	black		2-1825097-0
TPBF11CGRAES004									right angle			2-1825097-2
TPBF11FGPCES004					On-(On)	1-2	2-3		pcb			2-1825097-3
TPBF11FGRAES004									right angle			2-1825097-6
TPF11CGPCES004	1/4-40	std			Off-(On)	Off	1-3		pcb			1825100-3
TPF11FGPCES004	UNS 2B				On-(On)	1-2	2-3					1-1825100-0

**MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed**

**Features**

- Glass to metal hermetic seal
- Magnetic return (no springs)
- Wire lug or pc terminals
- Actuator cap and mounting hardware supplied



Pushbutton Switches

**Typical performance characteristics**

Contact configuration . . . . . SPST  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . 1.0 VA (100 mA max. 100 VDC max.)  
 Electrical life . . . . . at 0.1 VA: 5,000,000 cycles  
 . . . . . at 5 VA: 50,000 cycles  
 Contact resistance, initial. . . . . max. 100 mOhms'  
 Insulation resistance . . . . . 1,000 MOhms min.  
 Dielectric strength . . . . . 1,000 Volts rms @ sea level  
 Actuation force . . . . . tactile "keyboard feel" 1.15 to 2 N (115 to 200 gf.)  
 . . . . . "breakaway reducing immediately  
 . . . . . to 0.43 N (43gf.) "follow-through"  
 Actuator travel. . . . . .078" (2.0 mm)

**Environmental specification**

Operating temperature . . . . . -10°C to +80°C  
 Storage temperature . . . . . -10°C to +80°C  
 Solder heat resistance . . . . . hand solder  
 Seal . . . . . glass to metal

**Material specifications**

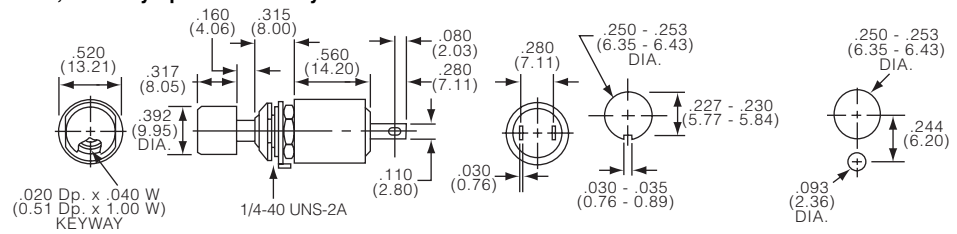
Contacts . . . . . copper alloy gold plated over nickel  
 Actuator . . . . . polyamide  
 Terminals . . . . . copper alloy gold plated over nickel  
 Case . . . . . steel  
 RoHS Directive 2002/95/EC . . . . . compliant

<b>Product key</b>	Typical product key		<b>MSPM</b>	<b>101</b>	<b>B</b>	<b>1</b>	<b>04</b>
<b>Type</b>	<b>MSPM</b> Pushbutton, magnetic reed, long life, hermetically sealed						
<b>Version</b>	<b>101</b> standard version						
<b>Action</b>	<b>B</b> normally closed, black button <b>C</b> normally open, red cap						
<b>Button</b>	<b>blank</b> with button soft detent <b>S</b> without button audible detent						
<b>Terminals</b>	<b>blank</b> pin	<b>2</b>	pin				
	<b>0</b> pin	<b>1</b>	wire lug				
<b>Material</b>	<b>04</b> RoHS compliant						

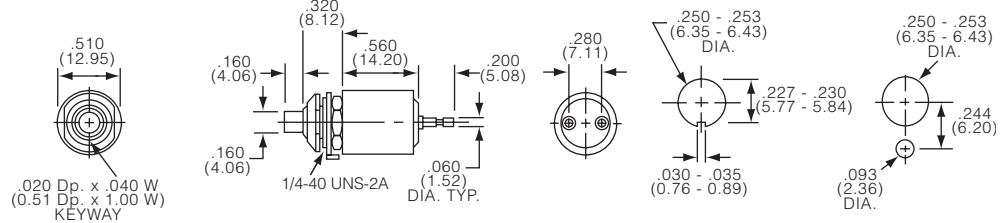
**MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed (Continued)**

Button

**blank with button, soft detent, normally open or normally closed**



**S without button, audible detent, normally open or normally closed**



Product key	Action	Button	Terminals	Material	Part Number
MSPM101B004	normally closed	with button	pin	RoHS	1825538-1
MSPM101B104	black button	soft detent	wire lug	compliant	1825538-2
MSPM101C104	normally open				1825538-3
MSPM101C204	red button		pin		1825538-4
MSPM101BS04	normally closed	without button			1825539-1
MSPM101BS104	black button	audible detent	wire lug		1825539-2
MSPM101CS04	normally open		pin		1825539-3
MSPM101CS104	red button		wire lug		1825539-4

**MSPF Series, Front or Rear Mount, 15/32 Bushing**

**Features**

- Versatile front or rear entry mounting
- Relative small depth for 15/32-32 size threaded switch
- Decroitive mounting hardware supplied, others available
- Various button (actuator) colors



Pushbutton Switches

**Typical performance characteristics**

Contact configuration . . . . . SPST and 2 circuit  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . 0.5 A @ 125 VAC  
 Electrical life . . . . . 10,000 cycles  
 Contact resistance, initial . . . . . max.100 mOhms  
 Insulation resistance . . . . . 1,000 MOhms min.  
 Dielectric strength . . . . . 1,000 Volts rms @ sea level  
 Actuation force . . . . . 4.5 N (450 gf.)  
 Actuator travel . . . . . .098" (2.5 mm)

**Environmental specification**

Operating temperature . . . . . -20°C to +80°C  
 Storage temperature . . . . . -20°C to +80°C  
 Solder heat resistance . . . . . hand solder  
 Seal . . . . . epoxy sealed terminals

**Material specifications**

Contacts . . . . . copper alloy silver plated  
 Actuator (button) . . . . . thermoplastic  
 Terminals . . . . . copper alloy silver plated  
 Case . . . . . thermoset plastic  
 RoHS Directive 2002/95/EC . . . . . compliant

**Product key**

Typical product key

**MSPF 101 B**

**Type**

**MSPF** Pushbutton switch, front or rear mount, 15/32-32 bushing

**Version**

**101** standard version

**Action**

**B** NC, normally closed, black button  
**C** NO, normally open, red button

**BC** NO & NC, 2 circuit normally open and normally closed

**Button color (BC Action only)**

<b>0</b>	black	<b>6</b>	blue
<b>2</b>	red	<b>9</b>	white

**MSPF Series, Front or Rear Mount, 15/32 Bushing (Continued)**

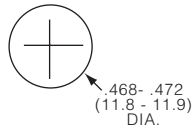
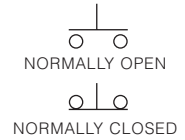
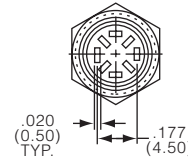
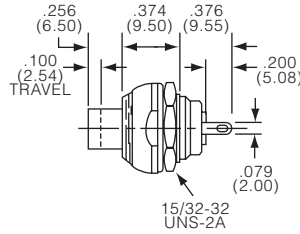
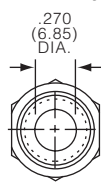
**Action**



**Codes B, C normally closed or normally open, 1 circuit**



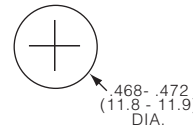
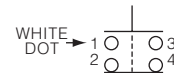
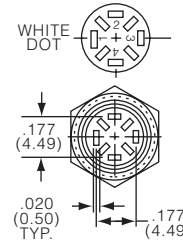
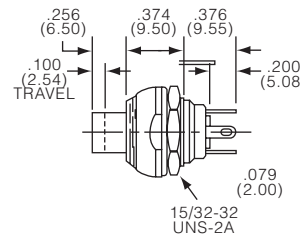
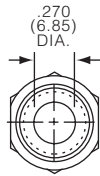
MSPF101B



**Code BC normally closed and normally open, 2 circuits**

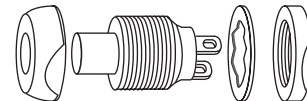


MSPF101BC



**Mounting**

Application note: Illustration shows versatile front or rear entry usage with hardware supplied



Product key	Action	Type	Button color	Terminals	Part Number
MSPF101B	normally closed	SPST	black	wire lug	8-1437567-8
MSPF101C	normally open		red		9-1437567-3
MSPF101BC0	NO/NC	2 circuit	black		8-1437567-9
MSPF101BC2			red		9-1437567-0
MSPF101BC6			bluw		9-1437567-1
MSPF101BC9			white		9-1437567-2

**MPA103 Series, Panel Mount**

**Features**

- Relatively high current carrying capacity for size of switch
- One piece bushing and shoulder designed to reduce tear off
- Decorative hardware supplied



Pushbutton Switches

**Typical performance characteristics**

Contact configuration	SPST SPDT
Contact timing	Break-Before-Make
Contact rating max.	3A @ 125VAC
Electrical life	10,000 cycles
Contact resistance, initial	20 mOhms max
Insulation resistance	1,000 MOhms min
Dielectric strength	1,000 Volts rms @ sea level
Actuator travel	.098" (2.5mm)
Actuator Force	SPST: 2.8 N (.283)
	SPDT: 4.5 N (.453kg)

**Environmental specification**

Operating temperature	-20°C to +70°C
Storage temperature	-40°C to +80°C
Solder heat resistance	hand solder 420°C max. 3 seconds max.

**Material specifications**

Contacts	copper alloy silver clad
Actuator (button)	phenol resin
Terminals	copper alloy silver plated
Case	thermoset plastic
RoHS Directive 2002/95/EC	compliant

**Product key**

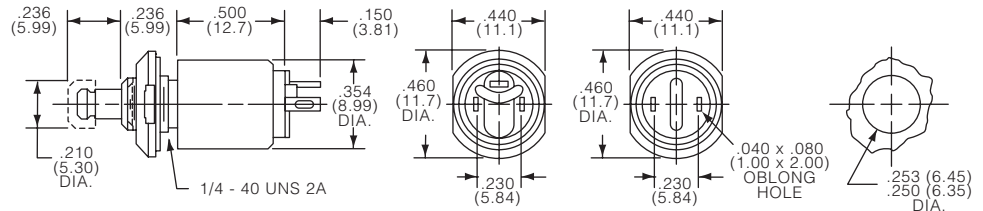
Typical product key

**MPA 103 C 04**

<b>Type</b> MPA	Sub-Miniature Pushbutton		
<b>Version</b> 103	standard		
<b>Action</b> B	Normally Closed, momentary	<b>D</b>	Push on/Push off - (tactile)
<b>C</b>	Normally Open, momentary	<b>F</b>	Momentary - (tactile)
<b>Material</b> 04	RoHS compliant		



MPA103C



Black cap supplied. Other colors available, order separately (see accessories pushbuttons).

Product key	Action	Type	Terminals	Material	Part Number
MPA103B04	N/C	SPST	Wire Lug	RoHS compliant	1825403-1
MPA103C04	N/O				1825403-2
MPA103D04	Push on/Push off	SPDT			1825404-1
MPA103F04	Momentary				1825404-2

**MSP103 Series, 2.5mm Travel, Panel Mount**

**Features**

- MSP series over-travel design (self cleaning contacts) 3A
- MSPS butt contact design 0.5 A
- One piece bushing and sholder designed to reduce tear off
- Mounting hardware supplied, decorative hardware available



**Typical performance characteristics**

Contact configuration . . . . . SPST  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . MSP: 3 A @ 125 VAC  
 . . . . . MSPS: 0.5 A @ 125 VAC  
 Electrical life . . . . . 10,000 cycles  
 Contact resistance, initial . . . . . 100 mOhms max.  
 Insulation resistance . . . . . 1,000 mega ohms min.  
 Dielectric strength . . . . . 1,000 Volts rms @ sea level  
 Actuator travel . . . . . .098" (2.5 mm)

**Environmental specification**

Operating temperature . . . . . -20°C to +80°C  
 Storage temperature . . . . . -20°C to +80°C  
 Solder heat resistance . . . . . hand solder 420°C max. 3 seconds max.

**Material specifications**

Contacts . . . . . copper alloy silver plated  
 Actuator (Button) . . . . . thermoplastic  
 Terminals . . . . . copper alloy silver plated  
 Case . . . . . MPS: phenol resin, MSPS: thermoset plastic  
 RoHS Directive 2002/95/EC . . . . . compliant

<b>Product key</b>	Typical product key	<b>MSP</b>	<b>103</b>	<b>B</b>	<b>04</b>
<b>Type</b>	Pushbutton switch, 2.5mm travel, panel mount				
<b>Contact</b>					
<b>103</b>	3 A @125 VAC				
<b>S103</b>	0.5 A @125 VAC				
<b>Action/button color</b>					
<b>B</b>	NC, normally closed, black actuator				
<b>C</b>	NO, normally open, red actuator (contact version 103 only)				
<b>C0</b>	NO, normally open, black actuator				
<b>C2</b>	NO, normally open, red actuator, long bushing				
<b>Material</b>					
<b>04</b>	RoHS compliant		<b>blank</b>	RoHS compliant	

**MSP103 Series, 2.5mm Travel, Panel Mount (Continued)**

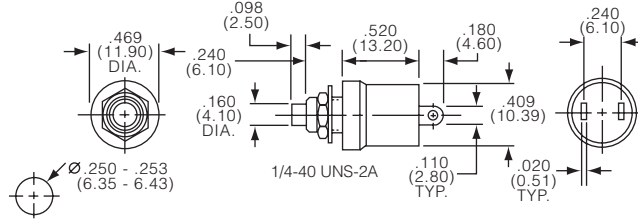
**Contact**



**103 3 A contact**



MSP103B

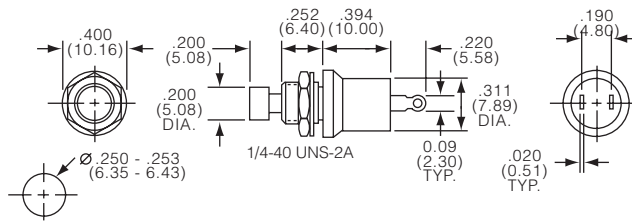


Contact	Action	Bushing len.
103	B	6.00mm (.236)
	C	6.00mm (.236)
	C0	6.00mm (.236)
	C2	9.50mm (.374)

**S103 0.5 A contact**



MSPS103B



Contact	Action	Bushing len.
S103	B	6.22mm (.245)
	C0	6.22mm (.245)
	C2	6.22mm (.245)

Pushbutton Switches

Product key	Contact	Action	Type	Button color	Terminals	Material	Part Number
MSP103B04	3 A	N/C	SPST	black	wire lug	RoHS	1825516-1
MSP103C04	@125 VAC	N/O		red		compliant	1825516-2
MSP103C004				black			1825516-3
MSP103C204				red			1825516-4
MSPS103B	0.5 A	N/C		black			1437568-5
MSPS103C0	@125 VAC	N/O					1437568-7
MSPS103C2				red			1437568-6



**MPS Series, Snap Action**

**Features**

- Wire lug or pc terminals
- Customer selected actuator cap size and color
- Entire series epoxy sealed terminals
- Actuator guards, decorative hardware, and silicone boot seals available



**Typical performance characteristics**

Contact configuration	SPDT, DPDT
Contact timing	Break-Before-Make
Contact rating max.	3 A @ 125 VAC
Electrical life	50,000 cycles
Contact resistance, initial	10 mOhms max.
Insulation resistance	1,000 MOhms min.
Dielectric strength	1,500 Volts rms @ sea level
Actuation force	200-700 gf
Actuator travel	momentary .04 (1.0mm)
	push on/off .098 (2.5mm)

**Environmental specification**

Operating temperature	-15°C to +70°C
Storage temperature	-15°C to +70°C
Solder heat resistance	wave solder capable to 265°C and hand solder
Seal	epoxy sealed terminals

**Material specifications**

Contacts	phosphor bronze silver clad
Actuator	copper alloy nickel plated
Terminals	copper alloy silver plated
Case	epoxy resin
Frame	stainless steel
Support Bracket	brass tin plated
RoHS Directive 2002/95/EC	compliant

Pushbutton Switches

<b>Product key</b>	Typical product key						<b>MPS</b>	<b>1</b>	<b>03</b>	<b>F</b>	<b>PC</b>	<b>04</b>	
<b>Type</b>	<b>MPS</b> Pushbutton Switches, Snap Action, 3Amp												
<b>Poles</b>	<b>1</b>	1 pole						<b>2</b>	2 poles				
<b>Contact</b>	<b>03</b> 3 A @125 VAC												
<b>Function</b>	<b>D</b> <b>single pole</b> Push-On/Push-Off <b>F</b> momentary						<b>N</b> <b>double pole</b> Push-On/Push-Off <b>R</b> momentary						
<b>Terminals</b>	<b>blank</b> wire lug						<b>RA</b> right angle PC terminal						
	<b>PC</b> printed circuit board						<b>WW</b> wire wrap or extended PC						
	<b>PCV</b> printed circuit board, with support												
<b>Material</b>	<b>04</b> RoHS compliant												

**MPS Series, Snap Action (Continued)**

**Function**



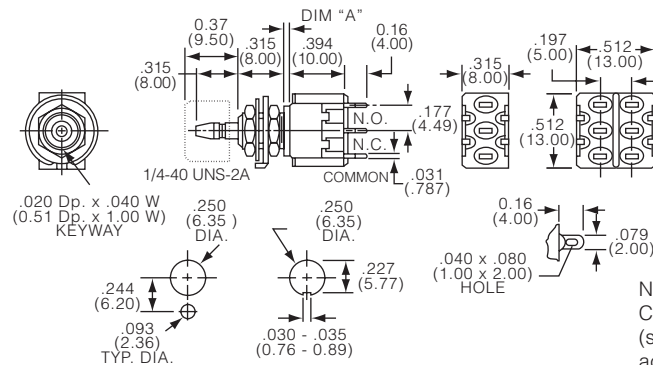
Fct.	Poles				
D	1	On	On	3-2	3-1
F	1	On	(On)	3-2	3-1
N	2	On	On	3-2, 6-5	3-1, 6-4
R	2	On	(On)	3-2, 6-5	3-1, 6-4

Off indicates a mechanical position with no electrical connection  
 (On) indicates momentary connection

**Terminals**



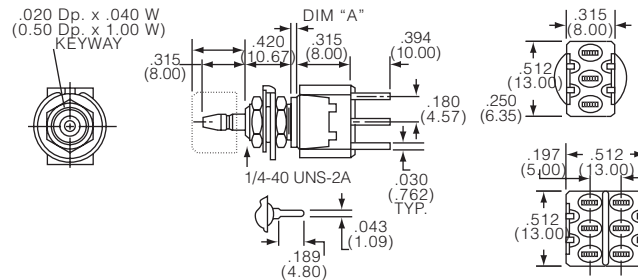
**blank wire lug**



Funct	Action	Dim A
D	1p, push-On/Off	2.54 (.100)
F	1p, momentary	1.016 (.040)
N	2p, push-On/Off	2.54 (.100)
R	2p, momentary	1.016 (.040)

Note: hardware included with switches. Caps not supplied, order separately (see cap model C22 and C23 under accessories)

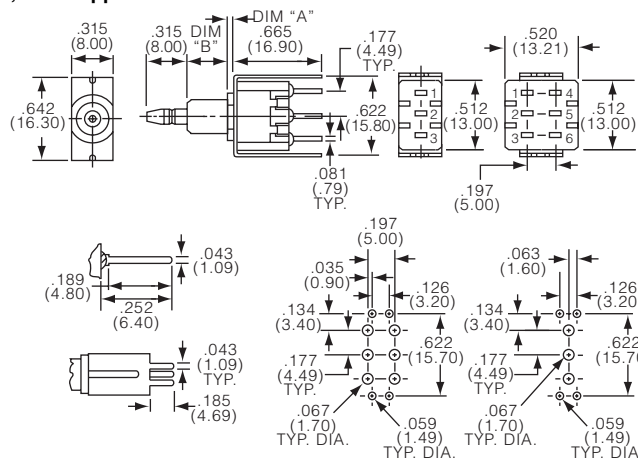
**PC printed circuit board**



Funct	Action	Dim A
D	1p, push-On/Off	2.54 (.100)
F	1p, momentary	1.016 (.040)
N	2p, push-On/Off	2.54 (.100)
R	2p, momentary	1.016 (.040)

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

**PCV printed circuit board, with support**

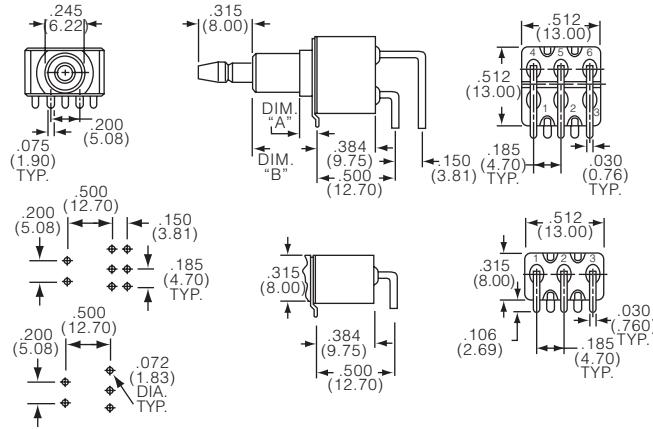
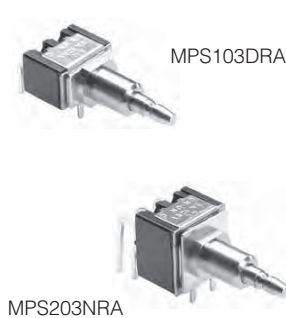


Funct	Dim A	Dim B
D	2.03 (.080)	8.00 (.315)
F	1.01 (.040)	7.49 (.295)
R	1.01 (.040)	7.49 (.295)

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

**MPS Series, Snap Action (Continued)**

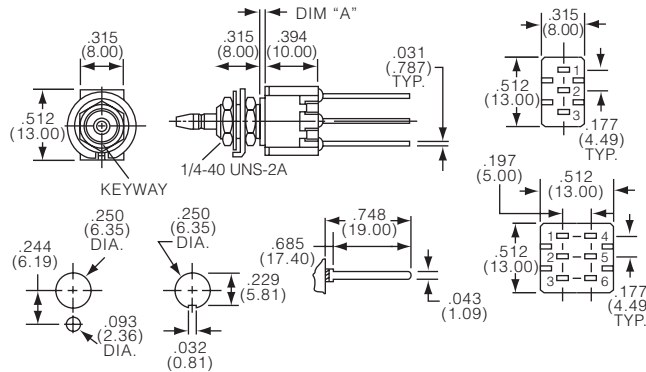
**RA right angle, printed circuit board**



Funct	Dim A	Dim B
D	2.54 (.100)	10.7 (.432)
F	1.52 (.060)	9.24 (.364)
N	2.54 (.100)	10.7 (.432)
R	1.52 (.060)	9.24 (.364)

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

**WW wire wrap, extended pcb**



Funct	Action	Dim A
F	1p, momentary	1.016 (.040)
N	2p, push-On/Off	2.54 (.100)
R	2p, momentary	1.016 (.040)

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

Product key	Poles	Contact	Function	Terminals	Material	Part Number
MPS103D04	single pole	3 A @125 VAC	Push-On/Push-Off	solder lug	RoHS	1825092-1
MPS103DPC04				printed circuit board	compliant	1825399-1
MPS103DPCV04				PCB, with support		1825401-1
MPS103DRA04				right angle PCB		1825400-1
MPS103F04	double pole		momentary	solder lug		1825092-2
MPS103FPC04				printed circuit board		1825399-2
MPS103FPCV04				PCB, with support		1825401-2
MPS103FRA04				right angle PCB		1825400-2
MPS103FWW04			wire wrap			1825402-1
MPS203N04	double pole		Push-On/Push-Off	solder lug		1825092-3
MPS203NPC04				printed circuit board		1825399-3
MPS203NPCV04				PCB, with support		1825401-3
MPS203NRA04				right angle PCB		1825400-3
MPS203R04	double pole		momentary	solder lug		1825092-4
MPS203RPC04				printed circuit board		1825399-4
MPS203RPCV04				PCB, with support		1825401-4
MPS203RRA04				right angle PCB		1825400-4
MPS203RWW04			wire wrap			1825402-2

Pushbutton Switches

**MP / A / E / G, Green Series**

**Features**

- Wire lug or pC terminals
- Customer selected actuator cap size and color on MPA series
- MPE series sealed to IP65
- Entire series with epoxy sealed terminals
- Actuator guards, decorative hardware, and silicone boot seals available



**Typical performance characteristics**

Contact configuration . . . . . SPDT, DPDT, 3PDT, 4PDT  
 Contact timing . . . . . Break-Before-Make  
 Contact rating max. . . . . 6 A @ 125 VAC, 3 A @ 250 VAC  
 Electrical life . . . . . push on/push off: 30,000 cycles  
 . . . . . momentary: . 20,000 cycles  
 Contact resistance, initial. . . . . 10 mOhms max.  
 Insulation resistance . . . . . 1,000 MOhms min.  
 Dielectric strength. . . . . 1,500Volts rms @ sea level  
 Actuation force . . . . . 4 to 20 N (400 to 2000 gf)  
 Actuator travel . . . . . 3.55 mm

**Environmental specification**

Operating temperature . . . . . -20°C to +80°C  
 Storage temperature . . . . . -40°C to +80°C  
 Solder heat resistance . . . . . wave solder capable to 265°C  
 Seal . . . . . mpe switches IP65

**Material specifications**

Contacts . . . . . copper alloy silver clad  
 Actuator . . . . . brass nickel plated  
 Terminals . . . . . copper alloy gold plated  
 Case . . . . . alkyd polyester (green)UL94 V-O  
 Frame. . . . . stainless steel  
 RoHS Directive 2002/95/EC . . . . . compliant

Pushbutton Switches

<b>Product key</b>		Typical product key					<b>MP</b>	<b>A</b>	<b>1</b>	<b>06</b>	<b>D</b>	<b>04</b>
<b>Type</b>	MP Green Series Pushbutton Switches, panel mount											
<b>Bushing style</b>	A 1/4-40 3.4mm actuator E 1/4-40 3.4mm actuator with 'O' rings G 15/32-32 large actuator											
<b>Number of poles</b>	1 single pole		3 3 poles									
	2 double pole		4 4 poles									
<b>Rating</b>	06 6 Amp											
<b>Function</b>	D 1 & 3 pole push-on/push-off momentary				N 2 & 4 pole push-on/push-off momentary							
	F momentary				R momentary							
<b>Terminals</b>	blank wire lug					PC printed circuit board						
<b>Material</b>	04 RoHS compliant											

**MP / A / E / G, Green Series (Continued)**

Bushing style A

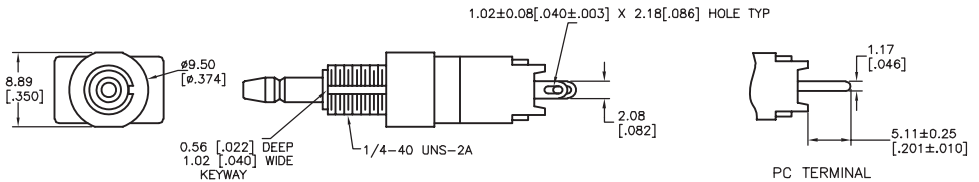
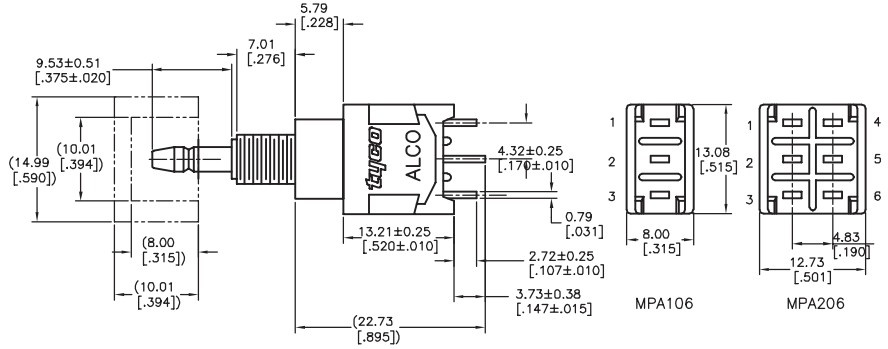
single & double pole



MPA106D



MPA206N



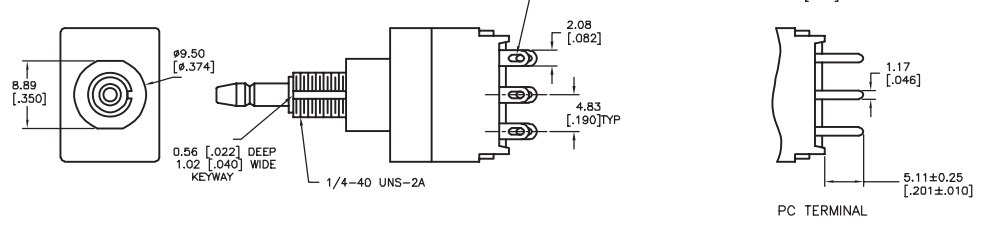
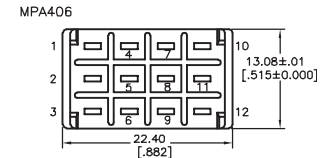
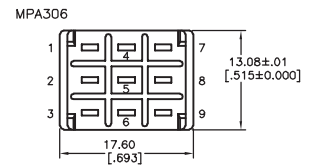
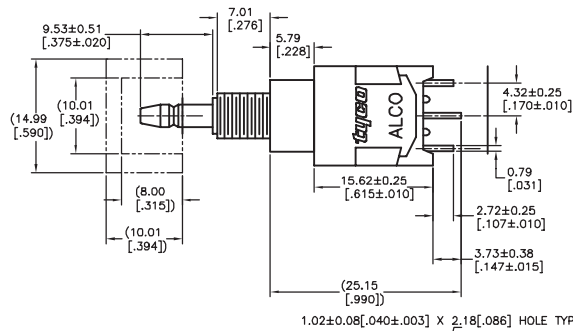
3 & 4 pole



MPA306D

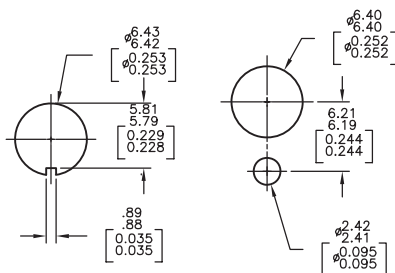


MPA406N

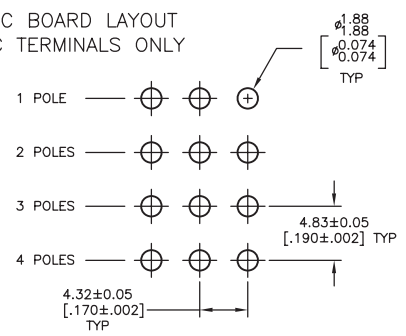


mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT PC TERMINALS ONLY



**MP / A / E / G, Green Series (Continued)**

**Bushing style E**



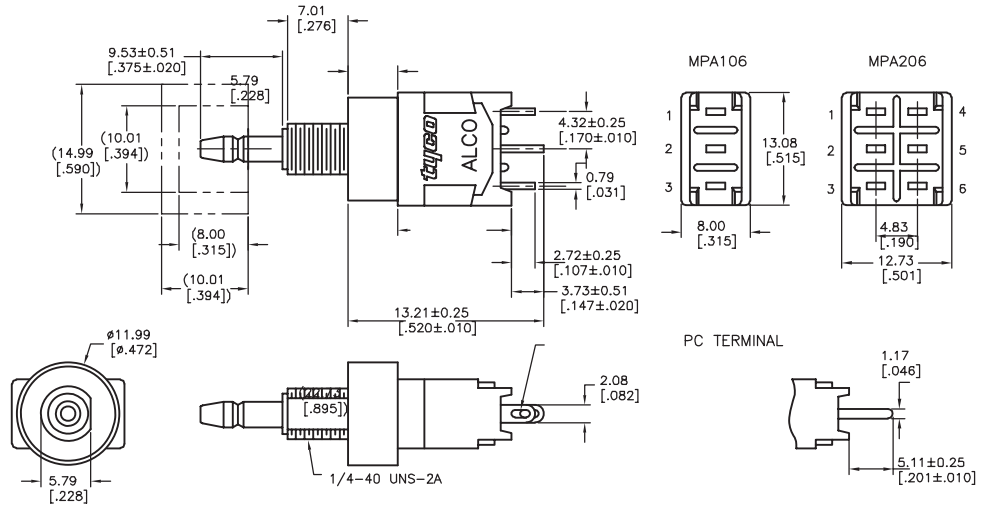
**single & double pole**



MPE106D



MPE206N



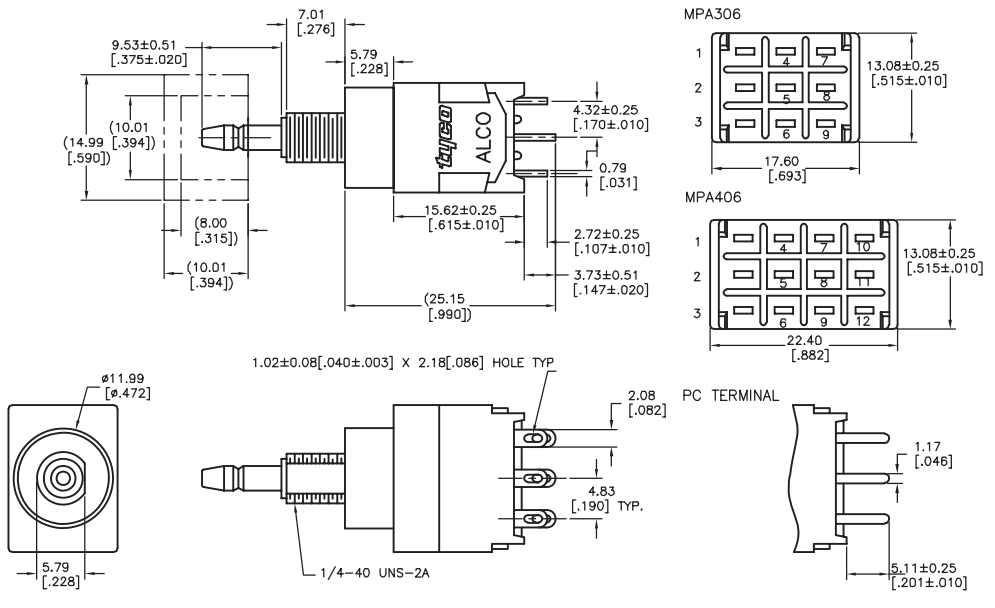
**3 & 4 pole**



MPE306F

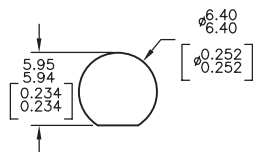


MPE406N

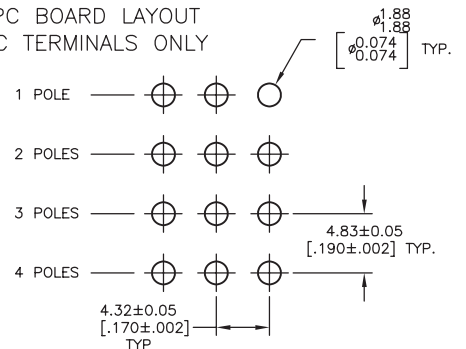


**mounting**

**RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION**



**PC BOARD LAYOUT PC TERMINALS ONLY**



**MP / A / E / G, Green Series (Continued)**

Bushing style G

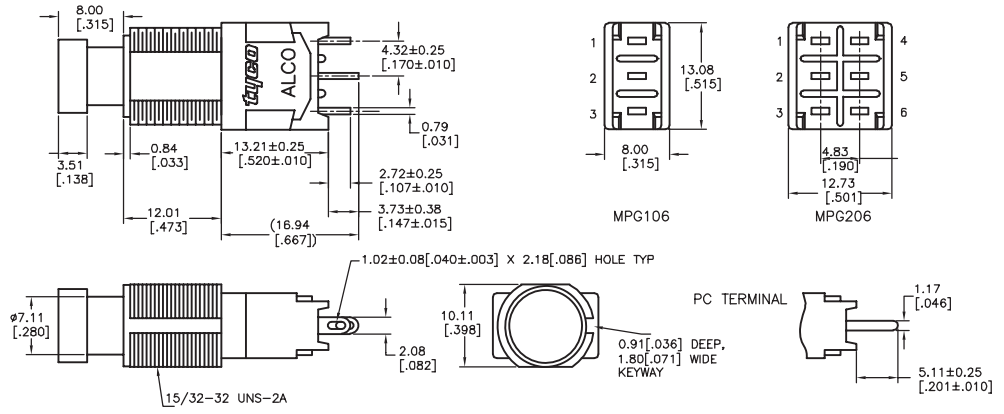
single & double pole



MPG106D



MPG206NPC



3 & 4 pole



MPG306D

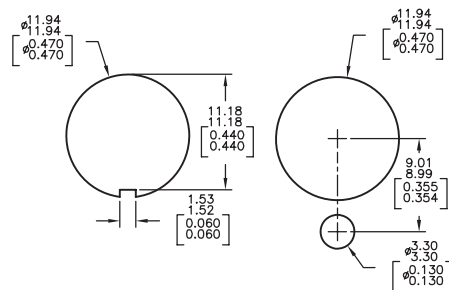


MPG406N



mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION







PC BOARD LAYOUT PC TERMINALS ONLY



**MP / A / E / G, Green Series** (Continued)

Function 

Fct.	Poles				
D	1	On	On	2-1	2-3
F	1	On	(On)	2-1	2-3
N	2	On	On	2-1, 5-4	2-3, 5-6
R	2	On	(On)	2-1, 5-4	2-3, 5-6
D	3	On	On	2-1, 5-4, 8-7	2-3, 5-6, 8-9
F	3	On	(On)	2-1, 5-4, 8-7	2-3, 5-6, 8-9
N	4	On	On	2-1,5-4,8-7,11-10	2-3,5-6,8-9,11-12
R	4	On	(On)	2-1,5-4,8-7,11-10	2-3,5-6,8-9,11-12

Off indicates a mechanical position with no electrical connection  
(On) indicates momentary connection

Pushbutton Switches

Product key	Bushing	No. of poles	Rating	Function	Terminals	Material	Part Number
<b>MPA106D04</b>	1/4-40	single pole	6 Amps	push-on/push-off	wire lug	RoHS compliant	<b>1825040-1</b>
<b>MPA106F04</b>	3.4mm			momentary			<b>1825040-2</b>
<b>MPA106DPC04</b>	actuator			push-on/push-off	pcb		<b>1825040-3</b>
<b>MPA106FPC04</b>				momentary			<b>1825040-4</b>
<b>MPA206N04</b>		double pole		push-on/push-off	wire lug		<b>1825040-5</b>
<b>MPA206NPC04</b>					pcb		<b>1825040-6</b>
<b>MPA206R04</b>				momentary	wire lug		<b>1825040-7</b>
<b>MPA206RPC04</b>					pcb		<b>1825040-8</b>
<b>MPA306D04</b>		3 poles		push-on/push-off	wire lug		<b>1825040-9</b>
<b>MPA306F04</b>				momentary			<b>1-1825040-0</b>
<b>MPA406N04</b>		4 poles		push-on/push-off			<b>1-1825040-1</b>
<b>MPA406R04</b>				momentary			<b>1-1825040-2</b>
<b>MPE106D04</b>	1/4-40	single pole		push-on/push-off			<b>1825041-1</b>
<b>MPE106F04</b>	3.4mm			momentary			<b>1825041-2</b>
<b>MPE206N04</b>	actuator	double pole		push-on/push-off			<b>1825041-3</b>
<b>MPE206R04</b>	with 'O' ring			momentary			<b>1825041-4</b>
<b>MPE306D04</b>		3 poles		push-on/push-off			<b>1825041-5</b>
<b>MPE306F04</b>				momentary			<b>1825041-6</b>
<b>MPE406N04</b>		4 poles		push-on/push-off			<b>1825041-7</b>
<b>MPE406R04</b>				momentary			<b>1825041-8</b>
<b>MPG106D04</b>	15/32-32	single pole		push-on/push-off			<b>1825042-1</b>
MPG106DPC04	large			push-on/push-off	pcb		1825042-2
<b>MPG106F04</b>	actuator			momentary	wire lug		<b>1825042-3</b>
MPG106FPC04					pcb		1825042-4
<b>MPG206N04</b>		double pole		push-on/push-off	wire lug		<b>1825042-5</b>
<b>MPG206NPC04</b>					pcb		<b>1825042-6</b>
<b>MPG206R04</b>				momentary	wire lug		<b>1825042-7</b>
<b>MPG206RPC04</b>					pcb		<b>1825042-8</b>
<b>MPG306D04</b>		3 poles		push-on/push-off	wire lug		<b>1825042-9</b>
<b>MPG306F04</b>				momentary			<b>1-1825042-0</b>
<b>MPG406N04</b>		4 poles		push-on/push-off			<b>1-1825042-1</b>
<b>MPG406R04</b>				momentary			<b>1-1825042-2</b>

Preferred parts in bold print



**A60 Series, THT**

**Features**

- Approved construction
- 2 different actuator lengths
- 2 Change-over contacts
- Versions with sealed base available



**Typical performance characteristics**

Contact configuration	DPDT
Contact timing	Break-before-Make timing
Contact rating max	0,5 A @ 60 V AC/DC
Electrical life	>10,000 cycles (200 mA @ 15 VAC)
Mechanical life	20,000 cycles
Contact resistance	max 40 mOhm
Insulation resistance	min. 10,000 MOhm
Dielectric strength	500 VAC
Actuator travel	momentary 3.3 mm

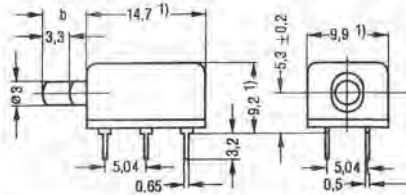
**Environmental specification**

Operating temperature	-25°C to +85°C
Storage temperature	-25°C to +85°C
Solder heat resistance	265°C/ 10s wave

**Material specifications**

Base	pc-gf
Cover	psu
Contacts	copper alloy gold finish
Terminals	copper alloy tin finish
actuator	pom
RoHS compliance	compliant

**Dimensions**



dimension b = 5.4 mm or 9.4 mm

**A60 Series, THT (Continued)**

**Function, Mounting**



Product key	Actuator	Sealed base	Material	Part Number
C42315A60A3	standard	no	RoHS	1393683-1
C42315A60A4	long	no	compliant	1393683-2
C42315A60A13	standard	yes		1393683-3
C42315A60A14	long	yes		1393683-4

**Accessories**

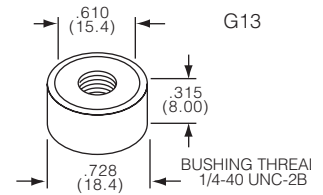


**Caps**



Product key	for	Color	Diam A	Length B	Material	Part Number	
C50	MPA3	black	4.95 (.195)	3.05 (.120)	RoHS compliant	6-1437627-2	
C52		red				6-1437627-3	
C55		green				6-1437627-5	
C59		white				6-1437627-6	
C80		black				7.87 (.310)	4.06 (.160)
C82	red	6-1437627-8					
C85	green	6-1437627-9					
C89	white	7-1437627-0					
C9004	MPG	black	9.00 (.354)	3.47 (.137)	1825070-1		
C9204		red			1825070-2		
C9604		orange			1825070-3		
C9904		yellow			1825070-4		
C22004	MPS/MSPM MPE/MPA6	black	10.2 (.402)	8.00 (.315)	1825068-1		
C22204		red			1825068-2		
C22304		orange			1825068-3		
C22404		yellow			1825068-4		
C22504		green			1825068-5		
C22604		blue			1825068-6		
C22904		white			1825068-7		
C23004		black			15.2 (.600)	10.0 (.394)	1825069-1
C23204		red					1825069-2
C23304		orange					1825069-3
C23404		yellow					1825069-4
C23504		green					1825069-5
C23604		blue					1825069-6
C23904		white					1825069-7

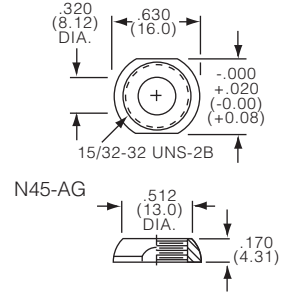
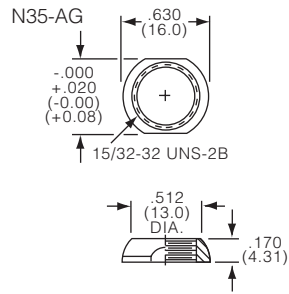
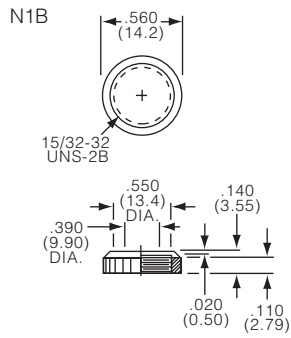
**Guards**



Product key	Thread	Color	Texture	Material	Part Number
G11A	10-48	natural Aluminum	smooth	RoHS compliant	7-1437627-6
G11B		black Aluminum			7-1437627-7
G11C		chrome brass			7-1437627-8
G11KA	1/4-40	natural Aluminum	straight knurl		7-1437627-9
G11KB		black Aluminum			8-1437627-0
G12A		natural Aluminum			8-1437627-1
G12B		black Aluminum			8-1437627-2
G12C		chrome brass			8-1437627-3
G12KA		natural Aluminum			8-1437627-4
G12KB		black Aluminum			8-1437627-5
G12KC	chrome brass	8-1437627-6			
G13A		natural Aluminum	smooth		8-1437627-7
G13B		black Aluminum			8-1437627-8
G13C		chrome brass			8-1437627-9
G13KA		natural Aluminum	straight knurl		9-1437627-0
G13KB		black Aluminum			9-1437627-1
G13KC		chrome brass			9-1437627-2
G15	15/32-32		smooth		9-1437627-3

**Accessories (Continued)**

**Decorative Hardware**



Product key	Thread	Material	Part Number
N1B04	15/32-32	RoHS compliant	1825622-2
N3504	15/32-32	RoHS compliant	1825621-2
N4504	15/32-32	RoHS compliant	1825623-3

**BP Series Boot Seals**

**Features**

- One piece design, nut over molded "bonded" to silicone boot element
- Silicone rubber eliminates cure dates
- Protects against moisture, oil, dirt, dust, most solvents, and some acids



**Environmental specification**

Operating temperature ..... -65°C to 265°C

**Material specifications**

Boot material ..... silicone rubber  
 Threaded nut material, and finish..... brass nut, black oxide finish  
 RoHS Directive 2002/95/EC ..... compliant

**Product key**

Typical product key

**BP 1532 0 04**

<b>Type</b>		BP Pushbutton boot seals	
<b>Nut thread</b>		1048 10-48 UNS 2-B A1440 1/4-40 UNS 2-B 1440 1/4-40 UNS 2-B 1532 15/32-32 UNS 2-B 2010 1/4-40 UNS 2B with knurl	
<b>Color</b>		0 black                      2 red                      8 gray	
<b>Material</b>		04 RoHS compliant	

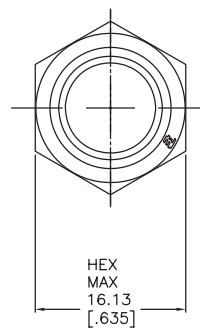
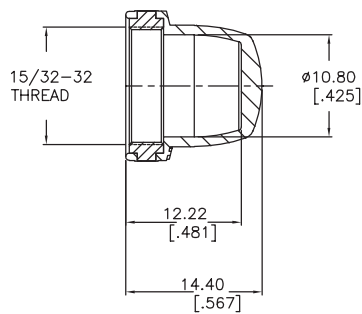
**Nut thread**



**1048 10-48 UNS 2-B, suited for MSPF and MPG series switches**



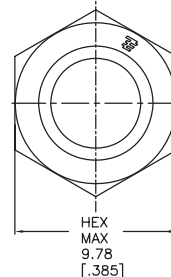
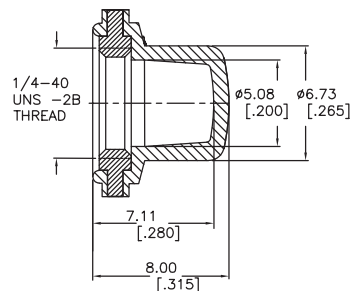
BP1048004



**A1440 1/4-40 UNS 2-B, suited for MSPMBS, MSPMCS, MSP3, MPA3, TP series switches**



BPA1440004



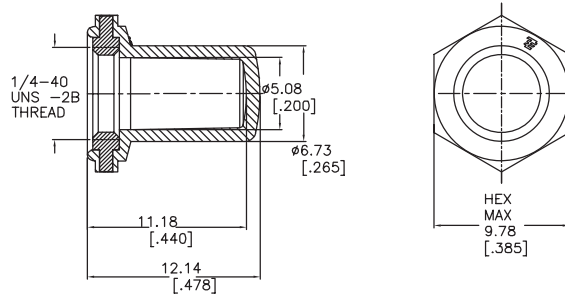
**BP Series Boot Seals (Continued)**

Pushbutton Switches

**1440 1/4-40 UNS 2-B, suited for MSPM,MPA3,MPS and TP series switches**



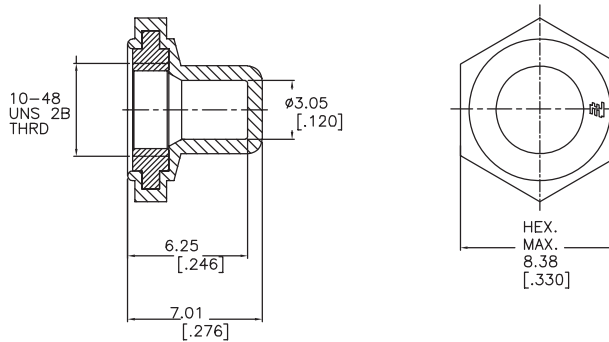
BP1440004



**1532 15/32-32 UNS 2-B, suited for TP series switches**



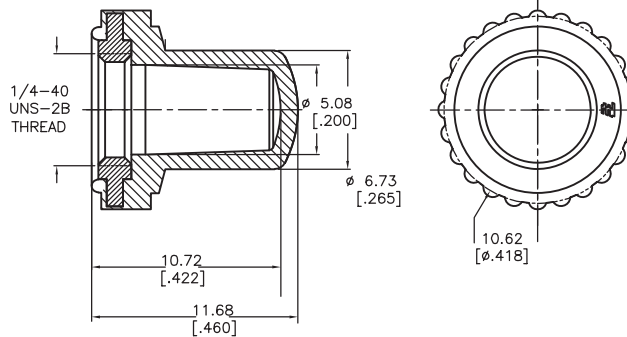
BP1532004



**2010 1/4-40 UNS 2B with knurl, suited for MSPM,MSP3,MPA3, and TP series switches**



BP201004



Product key	Used on switch type	Nut thread	Color	Material	Part Number
<b>15/32-32 Pushbutton Boot Seals</b>					
BP1532004	MSPF and MPG series	15/32-32	black	RoHS compliant	1825603-1
BP1532204			red		1825603-2
BP1532804			gray		1825603-3
<b>1/4-40 Pushbutton Boot Seals</b>					
BPA1440004	MSPMBS,MSPMCS,MSP3,MPA3,TP series	1/4-40	black	RoHS compliant	1825604-1
BPA1440204			red		1825604-2
BPA1440804			gray		1825604-3
BP1440004	MSPM,MPA3,MPS and TP series		black		1825610-1
BP1440204			red		1825610-2
BP1440804			gray		1825610-3
<b>10-48 Pushbutton Boot Seals</b>					
BP1048004	TP series	10-48	black	RoHS compliant	1825615-1
BP1048204			red		1825615-2
<b>1/4-40 Knurled Pushbutton Boot Seal</b>					
BP201004	MSPM,MSP3,MPA3, and TP series	1/4-40	black	RoHS compl.	1825617-2

**BP Series Panel Seal**

**Features**

- Unique design allows 1/4-40 threaded switch on almost any panel thickness
- Fits in a 15/32" (11.9mm) or 1/2" (12.7mm) diameter panel hole.
- Multiple cap colors available



**Material specifications**

Cap material . . . . . silicone rubber  
 Housing material . . . . . ABS thermoplastic black  
 Jam nut, spacer material & finish . . . . . brass nickel plated  
 RoHS Directive 2002/95/EC . . . . . compliant

<b>Product key</b>	Typical product key					<b>BP</b>	<b>M</b>	<b>1532</b>	<b>0</b>	<b>04</b>
<b>Type</b>	Pushbutton switch panel seal									
<b>BP</b>										
<b>Switch series</b>										
<b>M</b>	MPA Series									
<b>T</b>	TP & TP_ES Tiny Series									
<b>Nut thread</b>										
<b>1532</b>	15/32-32 UNS 2-A									
<b>Color</b>										
<b>0</b>	black	<b>2</b>	red	<b>8</b>	gray					
<b>Material</b>										
<b>04</b>	RoHS compliant									

**BP Series Panel Seal (Continued)**

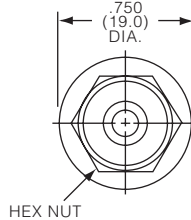
Switch series



**BPM** BPM Series panel seal, suited for MPA series switches



BPM1532004

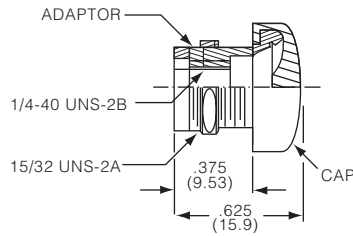
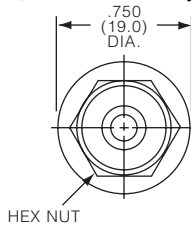


For use with Miniature Pushbutton  
The BPM seal adaptor accommodates all Tyco MPA Series of pushbutton switches utilizing the 1/4-40 threaded bushing.

**BPT** BPT Series panel seal, suited for TP Tiny series switches



BPT1532804



For use with Tiny Series TPF Pushbutton  
The BPT seal adaptor accommodates all Tyco TPF Series Tiny Pushbutton switches utilizing the 1/4-40 threading bushing.

Pushbutton Switches

Product key	Used on switch type	Color	Material	Part Number
BPM1532004	MPA series	black	RoHS	1825618-1
BPM1532204		red	compliant	1825618-2
BPM1532804	TP Tiny series	gray		1825618-3
BPT1532004		black		1825599-3
BPT1532204		red		1825599-1
BPT1532804		gray		1825599-2