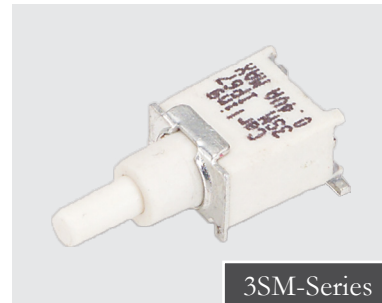
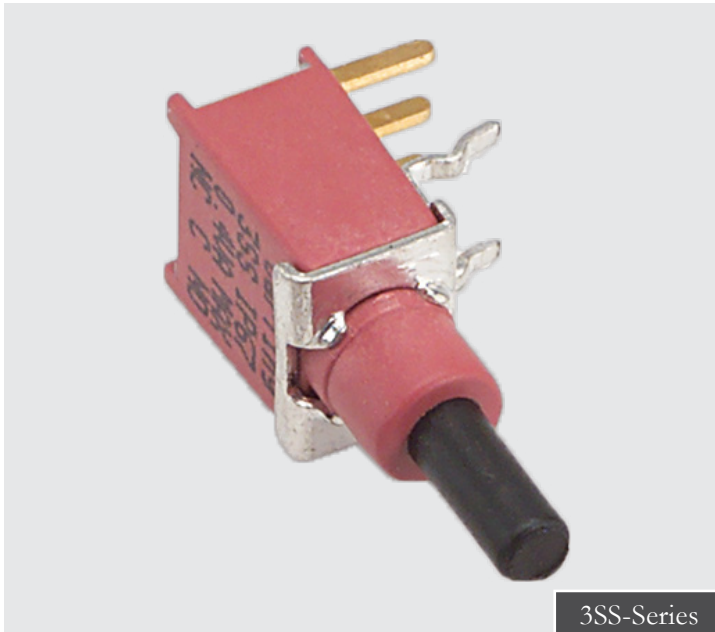


# 3SS/3S1/3SM

## 3S-Series

### SUB-MINIATURE PUSHBUTTONS

The 3S family of sub-miniature pushbutton switches is composed of three switch series; the **3S1-Series** sub-miniature pushbutton switch, the **3SS-Series** sealed sub-miniature pushbutton switch, and the **3SM-Series** surface mount sealed sub-miniature pushbutton switch. All switches are available with a variety of rating, termination and actuator choices, and will withstand temperatures from -30°C to +85°C.



#### Product Highlights:

- IP67 Sealing
- AC or Low Voltage DC Rated
- Snap-in, PC or Surface Mounting
- Bulk Packed or Tape Reel

#### Typical Applications:

- Telecommunications
- Performance Audio
- Networking
- Computers
- Instrumentation
- Low Power On/Off Designs

#### Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

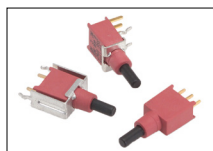


**Carling Technologies®**

Innovative Designs. Powerful Solutions.

**Carling Technologies, Inc.**  
60 Johnson Avenue, Plainville, CT 06062  
Email: [sales@carlingtech.com](mailto:sales@carlingtech.com)  
Application Support: [team2@carlingtech.com](mailto:team2@carlingtech.com)  
Phone: 860.793.9281 Fax: 860.793.9231

[www.carlingtech.com](http://www.carlingtech.com)



**3SS-Series**  
Sealed  
Sub-Miniature  
Pushbutton Switch



**3S1-Series**  
Sub-Miniature  
Pushbutton  
Switch



**3SM-Series**  
Sealed Surface Mount  
Sub-Miniature  
Pushbutton Switch

### Electrical

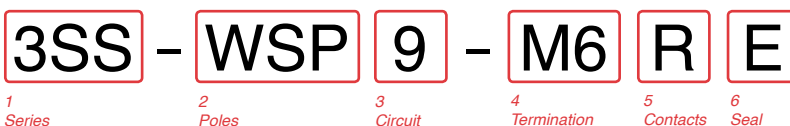
Contact Rating	refer to ordering scheme
Electrical Life	50,000 make & break cycles @ full load
Contact Resistance	20 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts
Insulation Resistance	1000 MΩ min.
Dielectric Strength	1500 Volts RMS @ sea level

### Physical

Operating Temperature	-30°C to +85°C
Index of Protection	<b>3SS &amp; 3SM-Series:</b> IP67
Solder Heat Resistance	MIL-STD-202, Method 210

### Material

Case	all UL94 V-0 <b>3S1-Series:</b> Diallyl phthalate (DAP) <b>3SS-Series:</b> Glass filled nylon 6/6, flame retardant, heat stabilized <b>3SM-Series:</b> Glass filled nylon 4/6, flame retardant, heat stabilized
Plunger	<b>3S1-Series:</b> Thermoplastic polyester, black <b>3SS-Series:</b> Thermoplastic polyester (UL 94V-0), with internal o-ring <b>3SM-Series:</b> Glass filled nylon 4/6, flame retardant, heat stabilized
Bushing	<b>3S1-Series:</b> Brass, nickel plated <b>3SS-Series:</b> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <b>3SM-Series:</b> Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)
Housing	Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Epoxy



**1 SERIES**  
**3SS** Sealed Sub-Miniature Pushbutton Switch

**2 POLES**  
**WSP** Single pole - uses terminals 1, 2 & 3  
**WDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**  
( ) - momentary  
**Switching Position:**

<b>1</b>	<b>2</b>
2-3, 5-6	2-1, 5-4
<b>8</b> ON	(ON)
<b>9</b> OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 ACTUATOR STYLE <sup>4</sup>**

<b>M2</b>	PCB
<b>M6</b>	PC Mount, 90° horizontal
<b>M61</b>	Snap-In, 90° horizontal
<b>M7</b>	PC Mount, 90° vertical
<b>M71</b>	Snap-In, 90° vertical
<b>VS2</b>	PC Mount, U bracket
<b>VS21</b>	Snap-In, U bracket

**5 CONTACTS / TERMINALS**

Contact	Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	1A 125VAC or 28VDC	IP67
<b>K</b>	gold <sup>2</sup>	tin <sup>3,4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1</sup>	tin <sup>3,4</sup>	1A 125VAC or 28VDC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>2</sup>	0.4VA max 20V max (AC/DC)	IP67

**6 EPOXY SEAL**

<b>E</b> Epoxy Seal	<b>0</b> without Epoxy Seal
---------------------	-----------------------------

- Notes:
- Movable contact & terminal platings: silver over copper alloy
  - Movable contact & terminal platings: gold over nickel over copper alloy
  - Terminal platings: tin over nickel over copper alloy
  - Tin option available with PC terminations only.

\*Manufacturer reserves the right to change product specification without prior notice.

**3S1 - SP 9 - B6 - M7 - R E**

1 Series      2 Poles      3 Circuit      4 Bushing      5 Termination      6 Contacts      7 Seal

**1 SERIES**  
**3S1** Sub-Miniature Pushbutton Switch

**2 POLES**  
**SP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Switching Position:**

	<b>1</b>	<b>2</b>
	2-3, 5-6	2-1, 5-4
<b>8</b>	ON	(ON)
<b>9</b>	OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 BUSHING**

<b>B5</b> <sup>1</sup>	10-48 Threaded	<b>B9</b>	Flush Bushing
<b>B6</b>	Unthreaded "D"	<b>B0</b>	1/4" Unthreaded "D"
<b>B7</b>	Unthreaded	<b>OP1</b>	Snap-In with bezel
<b>B8</b> <sup>2</sup>	1/4-40 Threaded "D"	<b>P0</b>	Flush Plunger

**5 TERMINATION**

<b>M1</b>	Solder Lug	<b>M7</b>	PC Mount, 90° vertical
<b>M2</b>	PCB	<b>M71</b>	Snap-In, 90° vertical
<b>M6</b>	PC Mount, 90° horizontal	<b>VS2</b>	PC Mount, U bracket
<b>M61</b>	Snap-In, 90° horizontal	<b>VS21</b>	Snap-In, U bracket

See page 50-51 for dimensional specifications.

**6 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating
<b>G</b>	silver <sup>3</sup>	gold over silver	1A@125VAC or 28VDC
<b>K</b>	gold <sup>4,7</sup>	tin <sup>6</sup>	0.4VA max @ 20V max (AC/DC)
<b>P</b>	silver <sup>3,8</sup>	tin <sup>6</sup>	1A@125VAC or 28VDC
<b>Q</b>	silver <sup>3</sup>	silver <sup>3</sup>	1A@125VAC or 28VDC
<b>R</b>	gold <sup>4</sup>	gold <sup>5</sup>	0.4VA max @ 20V max (AC/DC)

**7 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:  
 1 Hardware includes (2) 2M1-HDW21 nuts, and (1) 2M1-HDW22 washer  
 2 Hardware includes (2) 2M1-HDW21 nuts, (1) 2M1-HDW22 washer, (1) 2M1-HDW11 washer, and (1) 2M1-HDW16 locking ring  
 3 Movable contact and terminal platings: silver over copper alloy  
 4 Movable contact and terminal platings: gold over nickel over copper alloy  
 5 Terminal platings: gold over nickel over copper alloy  
 6 Terminal platings: tin over copper alloy  
 7 Terminal contact platings: Gold over nickel alloy  
 8 Terminal contact platings: silver over nickel alloy

**3SM - SP 9 - M6 - R E**

1 Series      2 Poles      3 Circuit      4 Termination      5 Contacts      6 Seal      7 Packaging

**1 SERIES**  
**3SM** Sealed Surface Mount Sub-Miniature Pushbutton Switch

**2 POLES**  
**SP** Single pole - uses terminals 1, 2 & 3

**3 CIRCUIT**  
 ( ) - momentary  
**Switching Position:**

	<b>1</b>	<b>2</b>
	2-3	2-1
<b>8</b>	ON	(ON)
<b>9</b>	OFF	(ON)

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

**4 TERMINATION**

<b>K6</b>	Surface Mount, horizontal .433 [11.00 mm]
<b>M6</b>	Surface Mount, 90° flat .286 [7.26 mm]
<b>M7</b>	Surface Mount, 90° right angle
<b>S6</b>	Surface Mount, 90° horizontal .353 [8.97 mm]

**5 CONTACTS / TERMINALS**

	Contact Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	1A 125VAC or 28VDC	IP67
<b>K</b>	gold <sup>2,5</sup>	tin <sup>4</sup>	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver <sup>1,6</sup>	tin <sup>4</sup>	1A 125VAC or 28VDC	IP67
<b>Q</b>	silver <sup>1</sup>	silver <sup>1</sup>	1A 125VAC or 28VDC	IP67
<b>R</b>	gold <sup>2</sup>	gold <sup>3</sup>	0.4VA max 20V max (AC/DC)	IP67

**6 EPOXY SEAL**  
**E** Epoxy Seal      **0** without Epoxy Seal

**7 PACKAGING**  
**T/R** tape reel - 500 pieces per reel  
 Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:  
 1 Movable contact and terminals platings: silver over copper alloy  
 2 Movable contact platings: gold over nickel over copper alloy  
 3 Terminal platings: gold over nickel over copper alloy  
 4 Terminals platings: tin over copper alloy  
 5 Terminal contact platings: gold over nickel alloy  
 6 Terminal contact platings: silver over nickel alloy

**3S-Series Accessories**

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled".  
 Ex: 3S1-SP9-B6-M7-RE-C23 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 3S1-C13.

**Optional Cap**

**3S1 - C1 3**

1 Series      2 Toggle Cap Size      3 Color

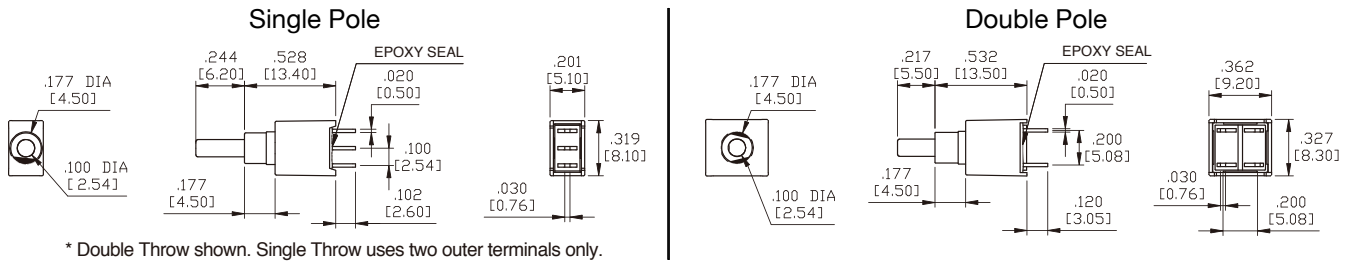
**1 SERIES**  
**3S1** Fits 3SS, 3S1 or 3MS

**2 TOGGLE CAP SIZE**  
**C1** .158" [4.01 mm] height      **C2** .138" [35.05 mm] height

**3 CAP COLOR**

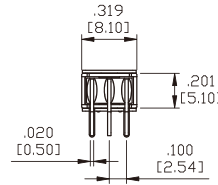
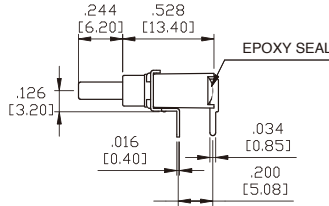
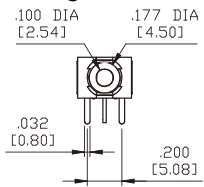
<b>1</b>	White	<b>5</b>	Yellow
<b>2</b>	Black	<b>6</b>	Green
<b>3</b>	Red	<b>7</b>	Blue
<b>4</b>	Orange		

## 3SS-Series Dimensional Specifications: in. [mm]

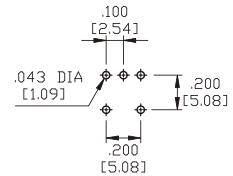


### Termination Options

#### M6 Single Pole

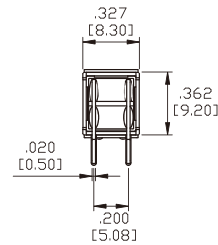
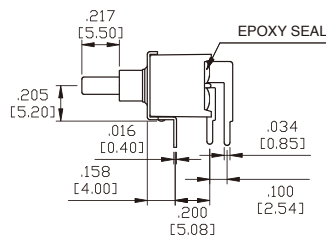
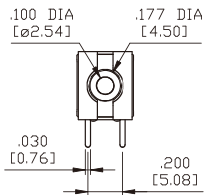


#### P.C.MOUNTING

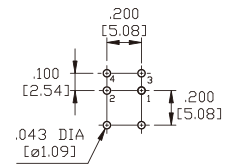


\* Double Throw shown. Single Throw uses two outer terminals only.

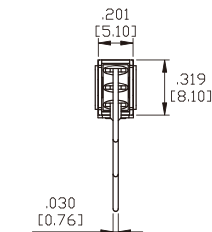
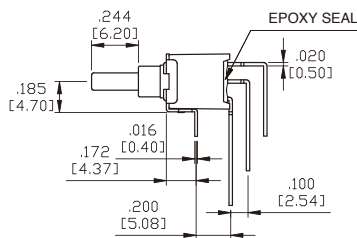
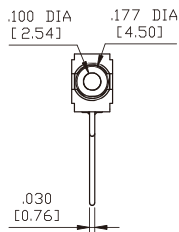
#### M6 Double Pole



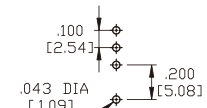
#### P.C.MOUNTING



#### M7 Single Pole

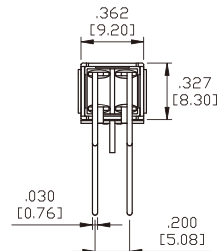
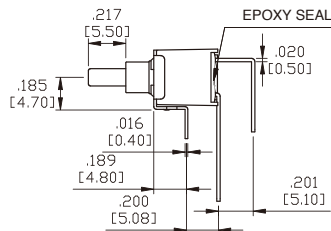
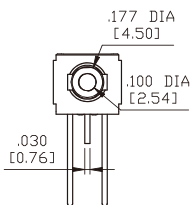


#### P.C.MOUNTING

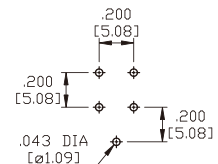


\* Double Throw shown. Single Throw uses two outer terminals only.

#### M7 Double Pole



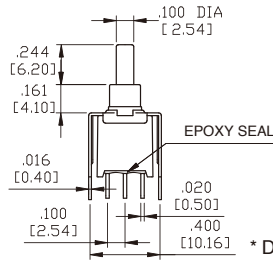
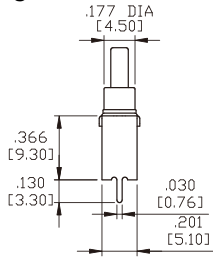
#### P.C.MOUNTING



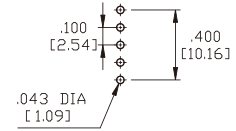
## 3SS-Series Dimensional Specifications: in. [mm]

### Termination Options

#### VS2 Single Pole

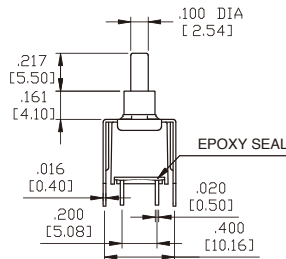
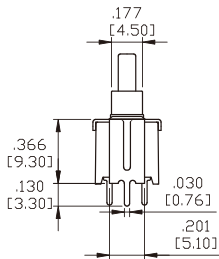


#### P.C. MOUNTING

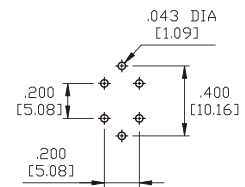


\* Double Throw shown. Single Throw uses outer terminals only.

#### VS2 Double Pole

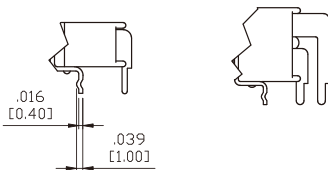


#### P.C. MOUNTING

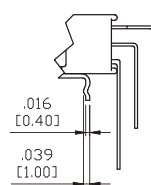


### Snap-In Termination Options

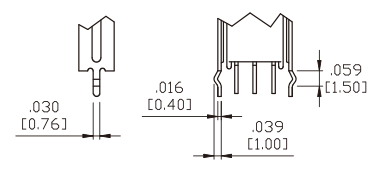
#### M61



#### M71

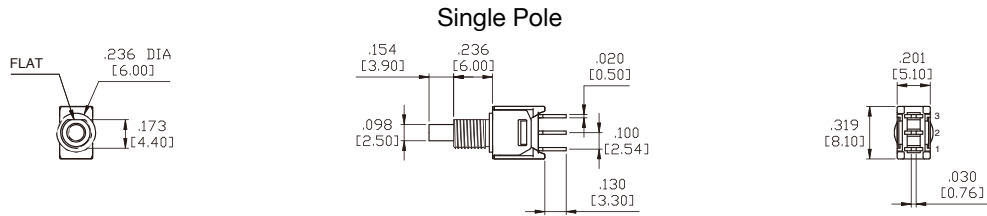


#### VS21



\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

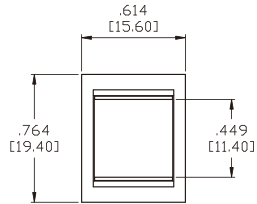
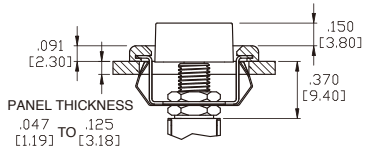
## 3S1-Series Dimensional Specifications: in. [mm]



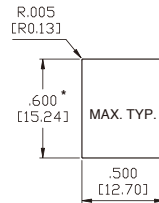
\* Double Throw shown. Single Throw uses two outer terminals only.

### Actuator Options for Snap-In Front Mount

**OP1**

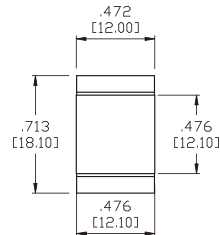
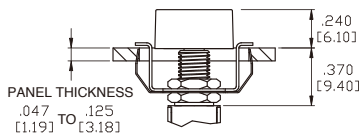


**PANEL MOUNTING**

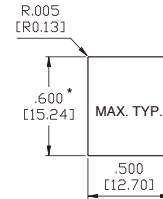


\* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

**OP1 Without Frame**



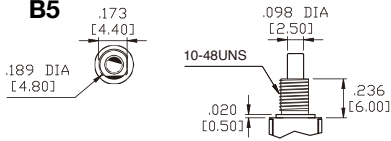
**PANEL MOUNTING**



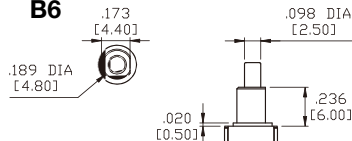
\* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

### Bushing Options

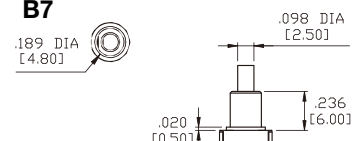
**B5**



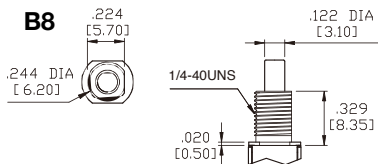
**B6**



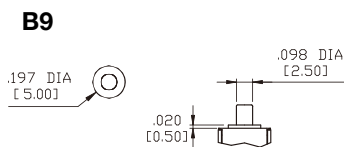
**B7**



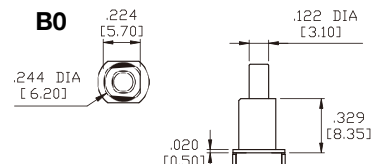
**B8**



**B9**

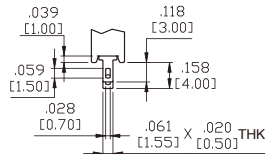


**B0**

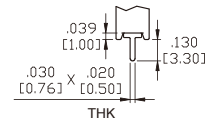


### Termination Options

**M1**



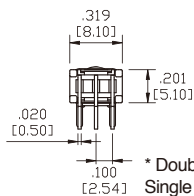
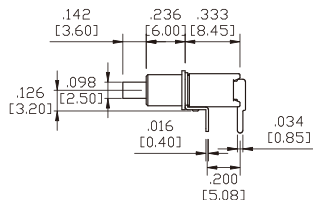
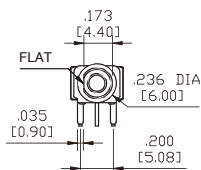
**M2**



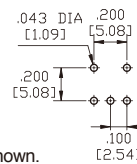
## 3S1-Series Dimensional Specifications: in. [mm]

### Termination Options

#### M6 Single Pole

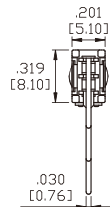
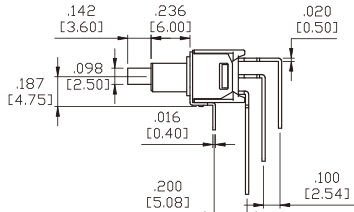
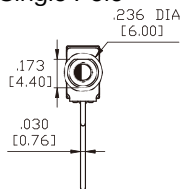


#### P.C.MOUNTING



\* Double Throw shown.  
Single Throw uses two outer terminals only.

#### M7 Single Pole

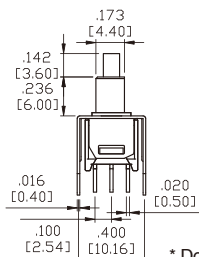
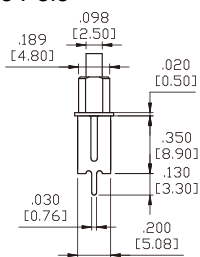


#### P.C.MOUNTING

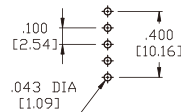


\* Double Throw shown.  
Single Throw uses two outer terminals only.

#### VS2 Single Pole



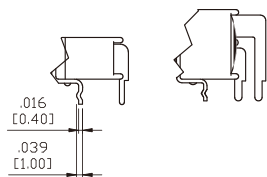
#### P.C.MOUNTING



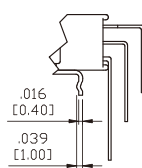
\* Double Throw shown. Single Throw uses outer terminals only.

### Snap-In Termination Options

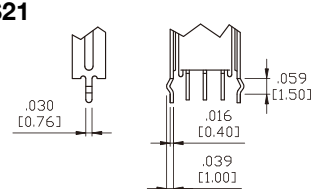
#### M61



#### M71



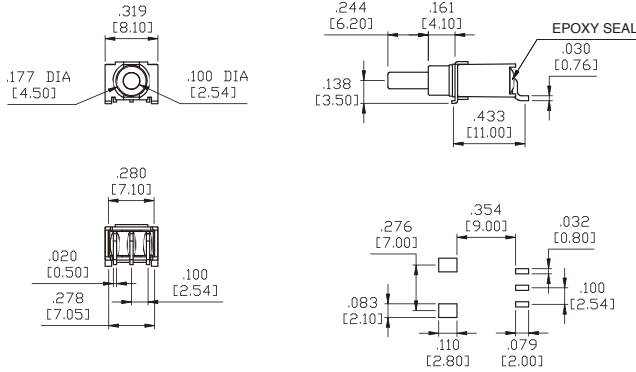
#### VS21



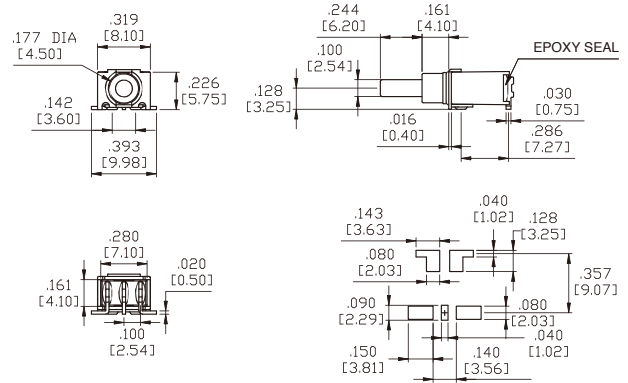
\* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

## 3SM-Series Dimensional Specifications: in. [mm]

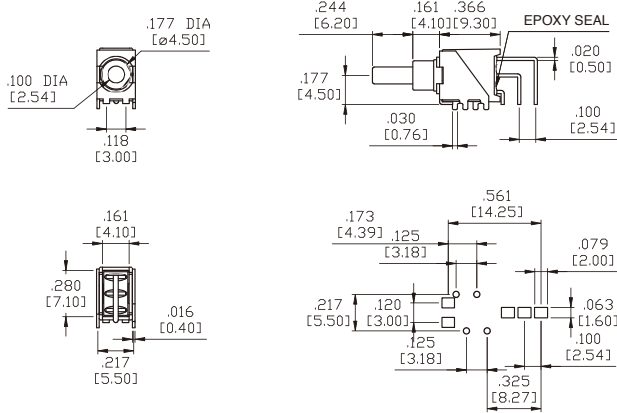
### K6 Single Pole



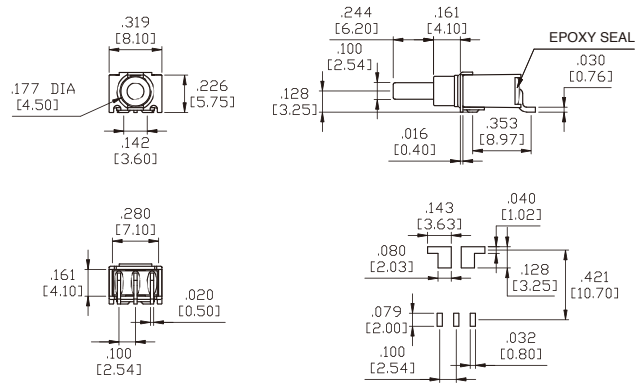
### M6 Single Pole



### M7 Single Pole



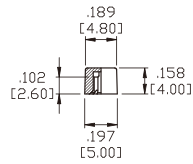
### S6 Single Pole



\* Double Throw shown. Single Throw uses two outer terminals only.

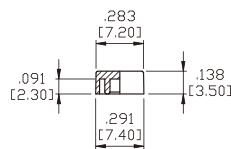
### Plunger Caps

#### C1



\* MATERIAL: ABS.

#### C2



\* MATERIAL: ABS.

CAP COLORS			
1	White	6	Green
2	Black	7	Blue
3	Red	8	Brown
4	Orange	9	Gray
5	Yellow		



## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit [www.carlingtech.com/findarep](http://www.carlingtech.com/findarep).



## About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit [www.carlingtech.com/company-profile](http://www.carlingtech.com/company-profile).

To view all of Carling's environmental, quality, health & safety certifications please visit [www.carlingtech.com/environmental-certifications](http://www.carlingtech.com/environmental-certifications)

## **Worldwide Headquarters**

Carling Technologies, Inc.  
60 Johnson Avenue, Plainville, CT 06062  
**Phone:** 860.793.9281 **Fax:** 860.793.9231  
**Email:** sales@carlingtech.com

**Northern Region Sales Office:** nrsm@carlingtech.com  
**Southeast Region Sales Office:** sersm@carlingtech.com  
**Midwest Region Sales Office:** mrrsm@carlingtech.com  
**West Region Sales Office:** wrsm@carlingtech.com  
**Latin America Sales Office:** larsm@carlingtech.com

## **Asia-Pacific Headquarters**

Carling Technologies, Asia-Pacific Ltd.,  
Suite 1607, 16/F Tower 2, The Gateway,  
Harbour City, 25 Canton Road,  
Tsimshatsui, Kowloon, Hong Kong  
**Phone:** Int + 852-2737-2277 **Fax:** Int + 852-2736-9332  
**Email:** sales@carlingtech.com.hk

**Shenzhen, China:** shenzhen@carlingtech.com  
**Shanghai, China:** shanghai@carlingtech.com  
**Pune, India:** india@carlingtech.com  
**Kaohsiung, Taiwan:** taiwan@carlingtech.com  
**Yokohama, Japan:** japan@carlingtech.com

## **Europe | Middle East | Africa Headquarters**

Carling Technologies LTD  
4 Airport Business Park, Exeter Airport,  
Clyst Honiton, Exeter, Devon, EX5 2UL, UK  
**Phone:** Int + 44 1392.364422 **Fax:** Int + 44 1392.364477  
**Email:** ltd.sales@carlingtech.com

**Germany:** gmbh@carlingtech.com  
**France:** sas@carlingtech.com



**Carling Technologies®**

Innovative Designs. Powerful Solutions.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Pushbutton Switches](#) category:*

*Click to view products by [Carling](#) manufacturer:*

Other Similar products are found below :

[LW1L-M1C10V-A](#) [LW2L-A1C20M-GD](#) [LW2L-M1C20M-A](#) [60324L](#) [M7E-HRN2](#) [67021K512](#) [67081K512X](#) [701PB580](#) [719-5504-000](#)  
[MDPSSGLFS](#) [810KSV30B](#) [FLT 2U EE 01A](#) [MML21KA3ABK](#) [MML23KA3AC05K-001](#) [MML23KW3AA01W](#) [8418K2](#) [8646AB6X718UL](#)  
[8646ABUL](#) [FSDWH](#) [9001KXRK](#) [9001T8BK](#) [9533CD4+U574+U4922](#) [1203MRA](#) [A22EM01S](#) [A595](#) [1202A6](#) [12037A2ULCSA](#) [1203A2UL](#)  
[ABD122N-B](#) [1211390004](#) [ABN111-Y](#) [ABN400-R](#) [1211500044](#) [1211580012](#) [1212MRA](#) [1232A6NF](#) [RA3CSH6A](#) [1241.1183.7047](#)  
[1241.2511](#) [1241.3428](#) [1223A2ULCSA](#) [1223MRA](#) [1232AX2119](#) [1241.1183.8000](#) [1241.1183.8029](#) [1241.2506](#) [1241.2606](#) [12MA6](#)  
[1301940184](#) [RELBARF6X10\(PLASTIC\)](#)