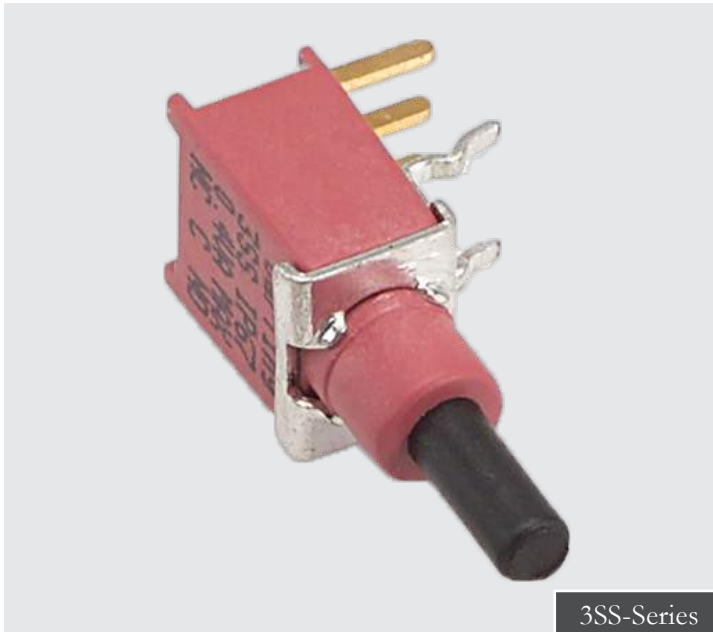


3S-Series

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:

Download 3D CAD Files

[IGS >](#) [STP >](#)



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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	3SS & 3SM-Series: IP67
Solder Heat Resistance	MIL-STD-202, Method 210

Material

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

3SS - WSP 9 - M6 R E

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

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:	1	2
8	2-3, 5-6	2-1, 5-4
9	ON	(ON)
	OFF	(ON)

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

4 ACTUATOR STYLE ⁴

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

5 CONTACTS / TERMINALS

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

6 EPOXY SEAL

E	Epoxy Seal	0	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:

1	2
2-3, 5-6	2-1, 5-4
8	(ON)
9	(ON)
ON	(ON)
OFF	(ON)

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

4 BUSHING

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

5 TERMINATION

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

See page 50-51 for dimensional specifications.

6 CONTACTS / TERMINALS

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

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

Notes:

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

1	2
2-3	2-1
8	(ON)
9	(ON)
ON	(ON)
OFF	(ON)

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

4 TERMINATION

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

5 CONTACTS / TERMINALS

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

- Movable contact and terminals platings: silver over copper alloy
- Movable contact platings: gold over nickel over copper alloy
- Terminal platings: gold over nickel over copper alloy
- Terminals platings: tin over copper alloy
- Terminal contact platings: gold over nickel alloy
- 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

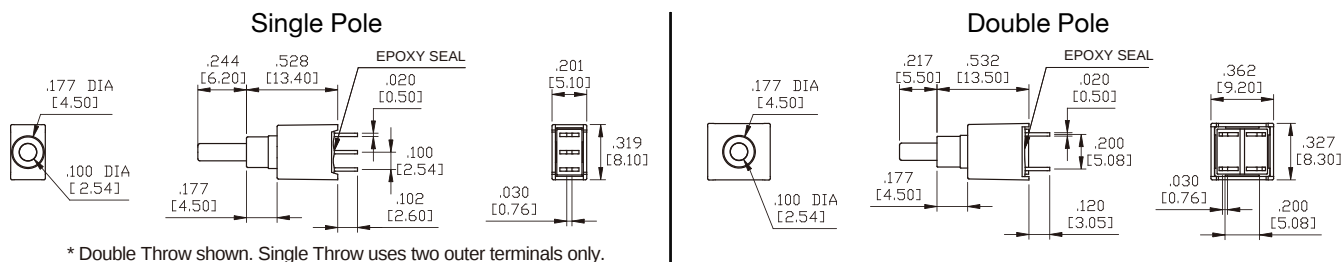
3S1 - **C1** **3**

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**

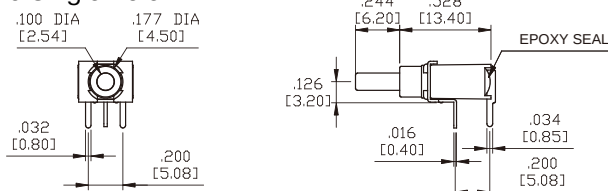
1	White	5	Yellow
2	Black	6	Green
3	Red	7	Blue
4	Orange		

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

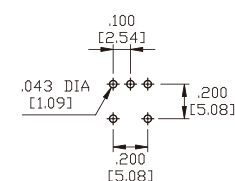


Termination Options

M6 Single Pole

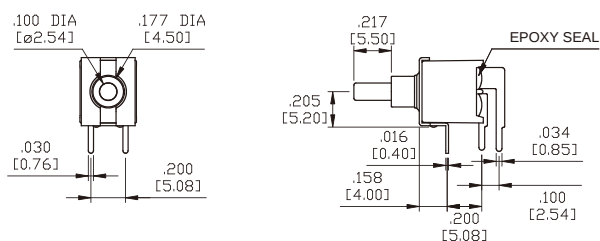


P.C.MOUNTING

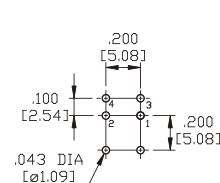


* Double Throw shown. Single Throw uses two outer terminals only.

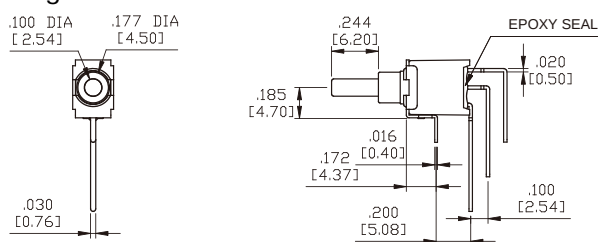
M6 Double Pole



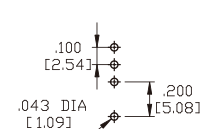
P.C.MOUNTING



M7 Single Pole

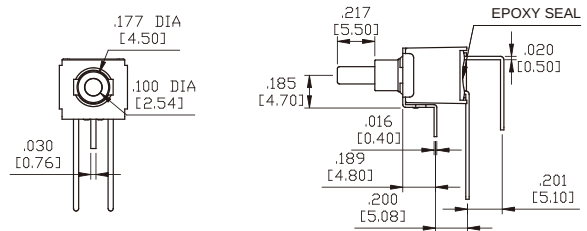


P.C.MOUNTING

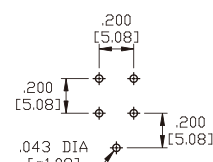


* Double Throw shown. Single Throw uses two outer terminals only.

M7 Double Pole



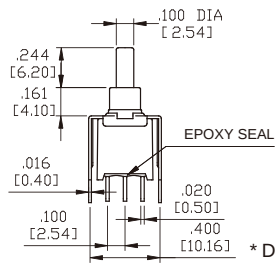
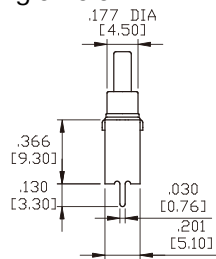
P.C.MOUNTING



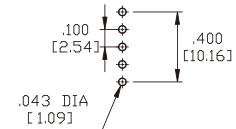
3SS-Series Dimensional Specifications: in. [mm]

Termination Options

VS2 Single Pole

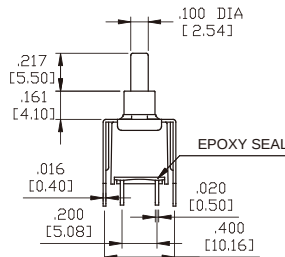
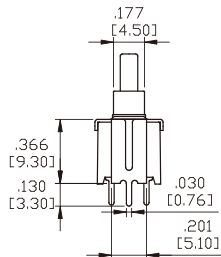


P.C.MOUNTING

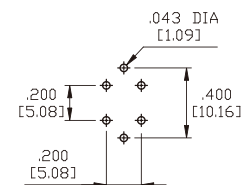


* Double Throw shown. Single Throw uses outer terminals only.

VS2 Double Pole

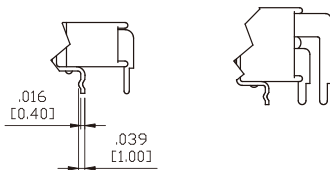


P.C.MOUNTING

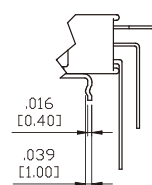


Snap-In Termination Options

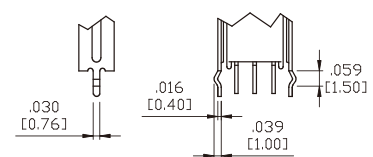
M61



M71

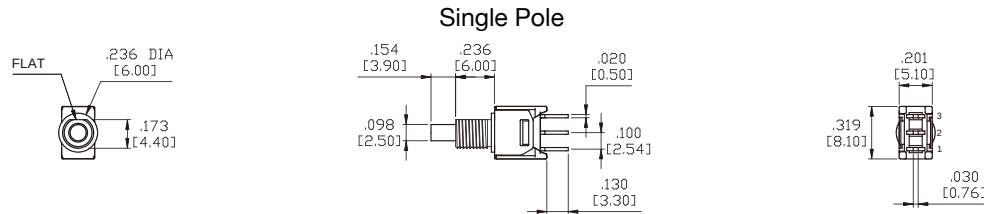


VS21



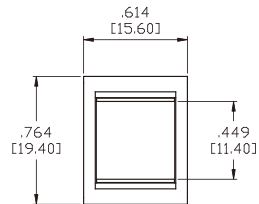
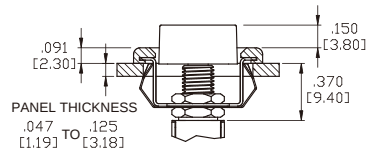
* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

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

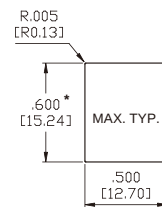


* Double Throw shown. Single Throw uses two outer terminals only.

OP1

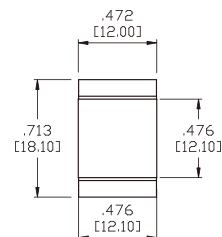
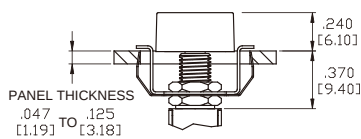


PANEL MOUNTING

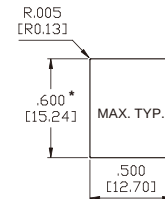


* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

OP1 Without Frame

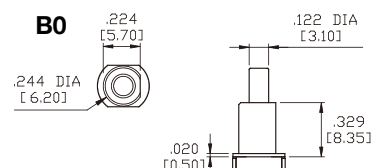
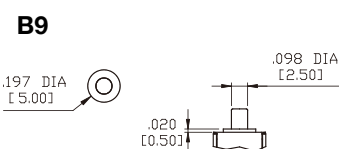
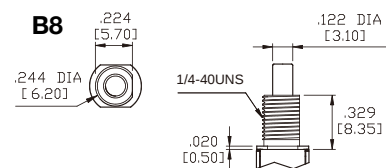
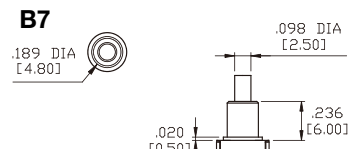
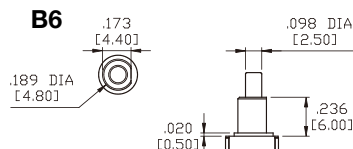
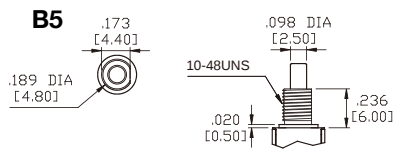


PANEL MOUNTING



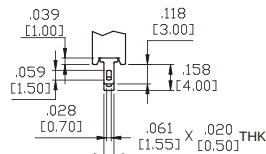
* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

Bushing Options

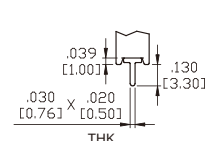


Termination Options

M1



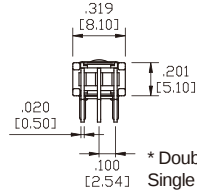
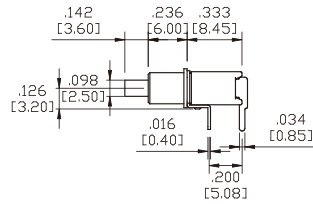
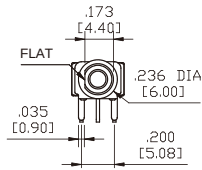
M2



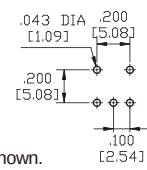
3S1-Series Dimensional Specifications: in. [mm]

Termination Options

M6 Single Pole

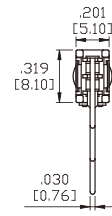
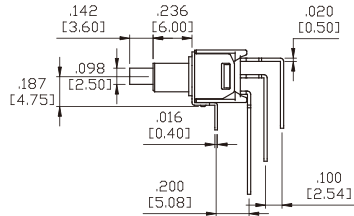
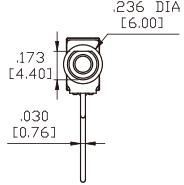


P.C.MOUNTING

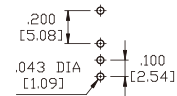


* Double Throw shown.
Single Throw uses two outer terminals only.

M7 Single Pole

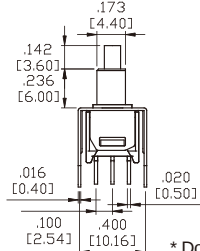
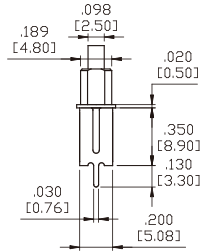


P.C.MOUNTING

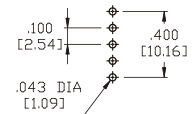


* Double Throw shown.
Single Throw uses two outer terminals only.

VS2 Single Pole



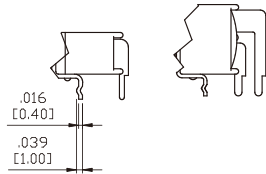
P.C.MOUNTING



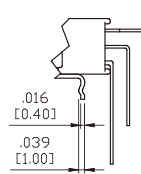
* Double Throw shown. Single Throw uses outer terminals only.

Snap-In Termination Options

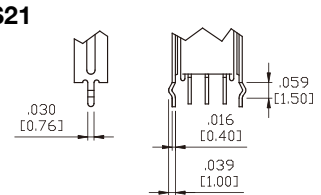
M61



M71



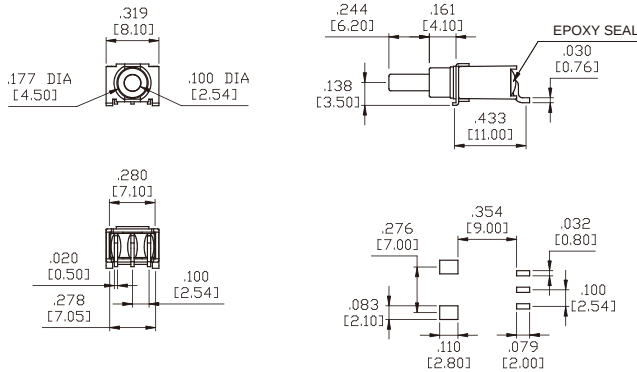
VS21



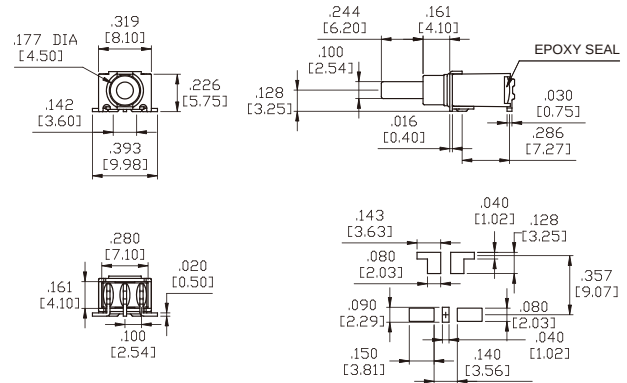
* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

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

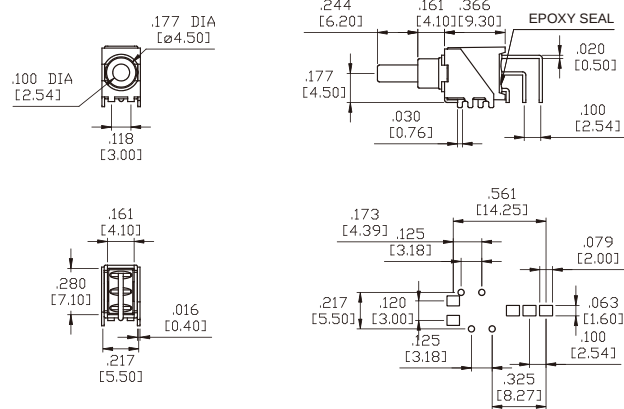
K6 Single Pole



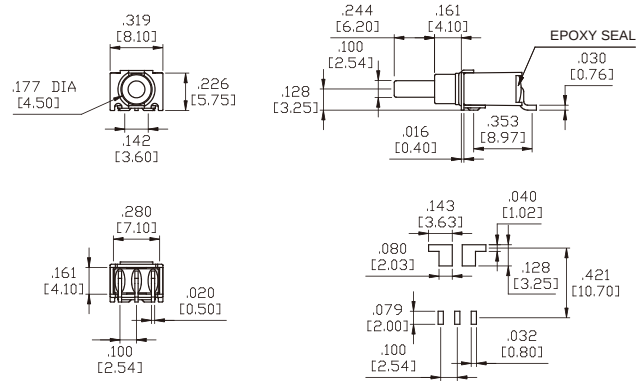
M6 Single Pole



M7 Single Pole



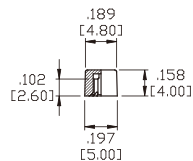
S6 Single Pole



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

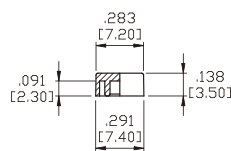
Plunger Caps

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.



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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.

To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications

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