

## SPECIFICATIONS

**CONTACT RATING:** Dependent upon contact material See page 11.

**MECHANICAL LIFE:** 40,000 make-and-break cycles.

**CONTACT RESISTANCE:** 10mΩ max. initial @ 2-4VDC  
100mA for both silver and gold plated contacts.

**INSULATION RESISTANCE:** 1,000 MΩ min.

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

**OPERATING TEMPERATURE:** -40°C to 85°C.

## MATERIALS

**CASE:** Diallyl phthalate (DAP) (UL94v-0).

**ACTUATOR:** Brass, chrome plated.

**BUSHING:** Brass, nickel plated.

**HOUSING:** Stainless steel.

**SWITCH SUPPORT:** Brass, tin plated.

**CONTACT / TERMINALS:** Copper alloy, Silver or gold plated.

(See Page 11)



1M  
Toggle Switches

## HOW TO ORDER

MODEL NO.	ACTUATOR	BUSHING	TERMINATIONS	TERMINAL PLATING	SEAL	RoHS SOLDERING
<div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> <p>Model NO.</p> <p><b>1MS1</b> SP On-None-On</p> <p><b>1MS2</b> SP On-None-Mom</p> <p><b>1MS3</b> SP On-Off-On</p> <p><b>1MS4</b> SP Mom-Off-Mom</p> <p><b>1MS5</b> SP On-Off-Mom</p> <p><b>1MD1</b> DP On-None-On</p> <p><b>1MD2</b> DP On-None-Mom</p> <p><b>1MD3</b> DP On-Off -On</p> <p><b>1MD4</b> DP Mom-Off-Mom</p> <p><b>1MD5</b> DP On-Off-Mom</p> <p><b>1MD6</b> DP On-On-On</p> <p><b>1MD7</b> DP Mom-On-Mom</p> <p><b>1MD8</b> DP On-On-Mom</p> <p><b>1M31</b> 3P On-None-On</p> <p><b>1M32</b> 3P On-None-Mom</p> <p><b>1M33</b> 3P On-Off-On</p> <p><b>1M34</b> 3P Mom-Off-Mom.</p> <p><b>1M35</b> 3P On-Off-Mom</p> <p><b>1M41</b> 4P On-None-On</p> <p><b>1M42</b> 4P On-None-Mom</p> <p><b>1M43</b> 4P On-Off-On</p> <p><b>1M44</b> 4P Mom-Off-Mom</p> <p><b>1M45</b> 4P On-Off-Mom</p> <p><b>1M46</b> 4P On-On-On</p> <p><b>1M47</b> 4P Mom-On-Mom</p> <p><b>1M48</b> 4P On-On-Mom</p> </div> <div style="width: 15%;"> <p>Actuator</p> <p><b>T1</b> 10.41 high</p> <p><b>T2</b> 5.08 high</p> <p><b>T3</b> 13.97 high</p> <p><b>T4</b> 16.26 high</p> <p><b>T5</b> 21.34 high</p> <p><b>T6</b> Flatted, anti-rotation 12.30 high</p> <p><b>T61</b> Flatted, anti-rotation 21.0 high</p> <p><b>T62</b> Lever handle with cap 13.49 high</p> <p><b>T63</b> Flatted, anti-rotation 6.35 high</p> <p><b>T7</b> 12.37 high, 15/32 bushing</p> <p><b>T8</b> 17.56 high, 15/32 bushing</p> <p><b>T88</b> 17.5 high, 15/32 bushing</p> <p><b>T9</b> Plastic, 21.3 high</p> <p><b>TL1</b> Locking lever 16.00 high</p> <p><b>TL2</b> Locking lever 16.26 high</p> <p><b>TL3</b> Locking lever 17.28 high</p> </div> <div style="width: 15%;"> <p>Bushing</p> <p><b>B1</b> 8.89 high, keyway (thd std)</p> <p><b>B2</b> 8.89 high, keyway (non-thd)</p> <p><b>B3</b> 7.10 high, keyway (thd)</p> <p><b>B4</b> 7.10 high, keyway (non-thd)</p> <p><b>B5</b> 7.52 high, flat (torque)</p> <p><b>B6</b> 8.00 high, keyway (torque)</p> <p><b>B7</b> 8.89 high, flat (thd std)</p> <p><b>B8</b> 8.89 high, keyway (metric thd)</p> <p><b>B9</b> 7.52 high, flat (splash proof)</p> <p><b>B11</b> 7.55 high, keyway (thd std)</p> <p><b>B12</b> 7.55 high, keyway (non-thd)</p> <p><b>B13</b> 11.38 high, keyway (15/32 bushing)</p> <p><b>B14</b> 11.90 high, flat (splash proof)</p> <p><b>B15</b> 7.55 high, flat (thd std)</p> <p><b>B16</b> 7.55 high, flat (non-thd)</p> <p><b>B17</b> 3.50 high, keyway</p> <p><b>B18</b> 11.38 high, keyway (15/32 bushing)</p> <p><b>B20</b> 11.38 high, keyway (15/32 bushing)</p> <p><b>B25</b> 8.00 high, keyway, locking lever (thd)</p> <p><b>B26</b> 8.00 high, keyway, locking lever (non-thd)</p> <p><b>B52</b> 11.70 high, flat (15/32 bushing)</p> </div> <div style="width: 15%;"> <p>Terminations</p> <p><b>M1</b> Solder lug</p> <p><b>M2</b> PC thru-hole</p> <p><b>M3</b> Quick connect</p> <p><b>M51</b> 18.70 high, wire wrap</p> <p><b>M52</b> 24.20 high, wire wrap</p> <p><b>M53</b> 10.55 high, wire wrap</p> <p><b>M54</b> 26.97 high, wire wrap</p> <p><b>M6</b> Right angle, PC thru-hole</p> <p><b>M6N</b> Right angle, Snap-in, PC thru-hole</p> <p><b>M7</b> Vertical right angle, PC thru-hole</p> <p><b>VS2</b> 11.68 high, V-bracket</p> <p><b>V2N</b> 11.68 high, Snap-in. V-bracket</p> <p><b>VS3</b> 16.00 high, V-bracket</p> <p><b>VS4</b> 11.68 high, V-bracket</p> <p><b>VS5</b> 16.00 high, V-bracket</p> </div> <div style="width: 15%;"> <p>Terminal plating</p> <p><b>Q</b> Silver</p> <p><b>R</b> Gold</p> <p><b>C</b> Gold over silver</p> </div> <div style="width: 15%;"> <p>Seal</p> <p><b>E</b> EPOXY (std)</p> <p><b>N</b> NO EPOXY</p> </div> <div style="width: 15%;"> <p>RoHS soldering</p> <p><input type="checkbox"/> RoHS Compliant</p> <p><input type="checkbox"/> RoHS &amp; Lead Free</p> </div> </div>						

# 1M Series

Miniature Toggle Switches

## SWITCH FUNCTION



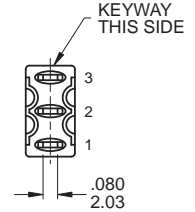
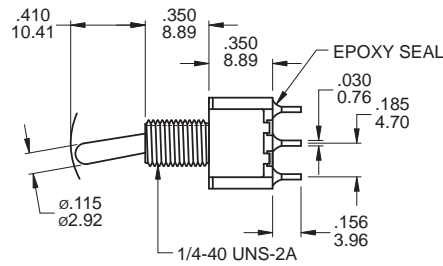
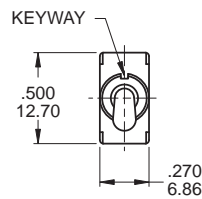
1M  
Toggle Switches

NO. POLES	UL/CSA MODEL NO.	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS / SCHEMATIC		
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3
SP	Q1111	1MS1	ON	NONE	ON	2-3 	N/A	2-1 
	Q1112	1MS2	ON	NONE	MOM			
	Q1113	1MS3	ON	OFF	ON			
	Q1114	1MS4	MOM	OFF	MOM			
	Q1115	1MS5	ON	OFF	MOM			
DP	Q1121	1MD1	ON	NONE	ON	2-3,5-6 	N/A	2-1,5-4 
	Q1122	1MD2	ON	NONE	MOM			
	Q1123	1MD3	ON	OFF	ON			
	Q1124	1MD4	MOM	OFF	MOM			
	Q1125	1MD5	ON	OFF	MOM			
	Q1126	1MD6	ON	ON	ON			
	▲ Q1127	1MD7	MOM	ON	MOM			
	▲ Q1128	1MD8	ON	ON	MOM			
3P	Q1131	1M31	ON	NONE	ON	2-3,5-6,8-9 	N/A	2-1,5-4,8-7 
	Q1132	1M32	ON	NONE	MOM			
	Q1133	1M33	ON	OFF	ON			
	Q1134	1M34	MOM	OFF	MOM			
	Q1135	1M35	ON	OFF	MOM			
4P	Q1141	1M41	ON	NONE	ON	2-3,5-6,8-9,11-12 	N/A	2-1,5-4,8-7,11-10 
	Q1142	1M42	ON	NONE	MOM			
	Q1143	1M43	ON	OFF	ON			
	Q1144	1M44	MOM	OFF	MOM			
	Q1145	1M45	ON	OFF	MOM			
	Q1146	1M46	ON	ON	ON			
	▲ Q1147	1M47	MOM	ON	MOM			
	▲ Q1148	1M48	ON	ON	MOM			

MOM= MOMENTARY

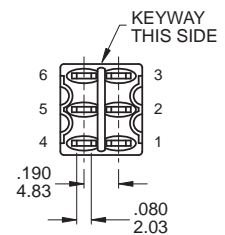
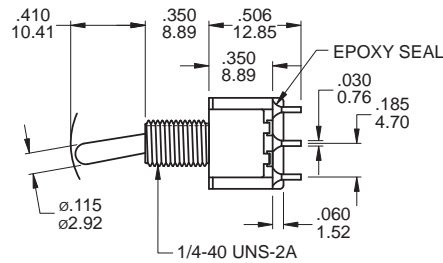
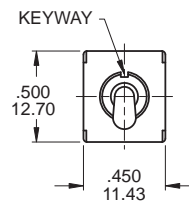
▲ Please check the availability in advance before order

## POLE OPTIONS



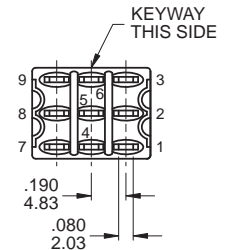
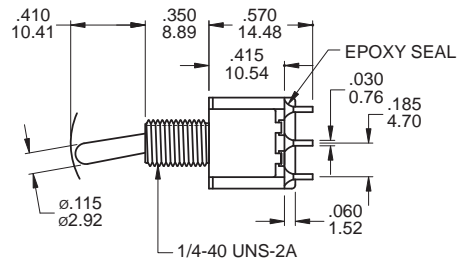
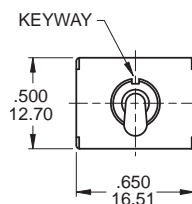
### SPDT

Part No. Shown : 1MS1T1B1M1QE



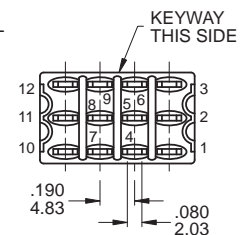
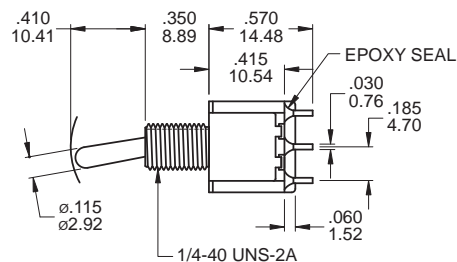
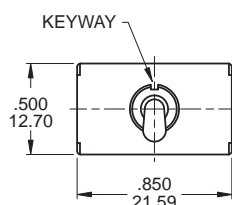
### DPDT

Part No. Shown : 1MD1T1B1M1QE



### 3PDT

Part No. Shown : 1M31T1B1M1QE



### 4PDT

Part No. Shown : 1M41T1B1M1QE



1M  
Toggle Switches

# 1M Series

Miniature Toggle Switches

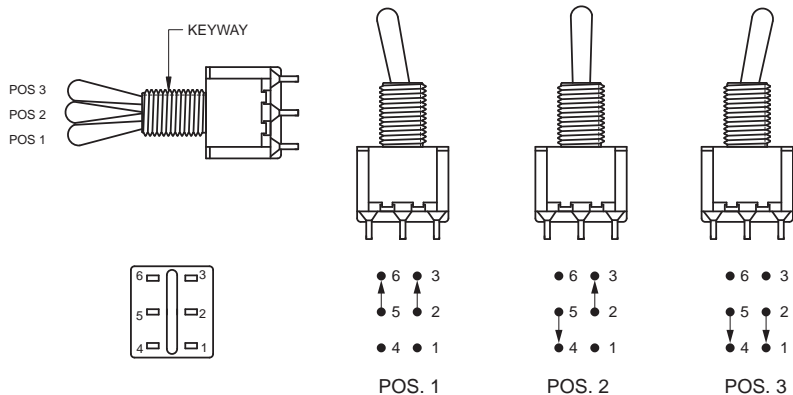
## 3-WAY SWITCH

## 3-Way Wiring Diagram Schematics

1M Toggle Switches

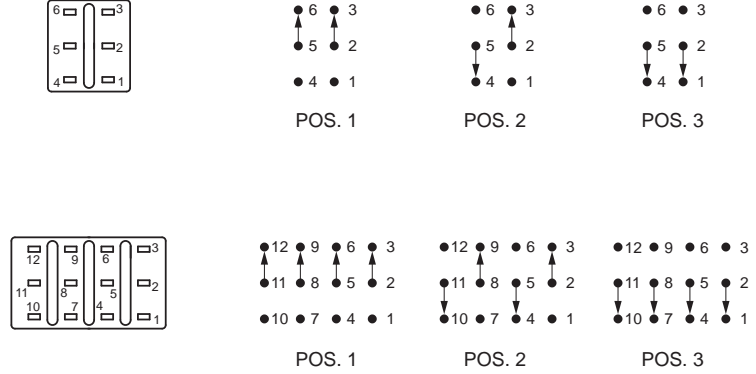
### SINGLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
1MD6	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4



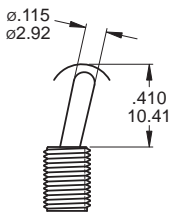
### DOUBLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
1M46	ON	ON	ON
Term. Comm.	2-3,5-6 8-9,11-12	2-3,5-4 8-9,11-10	2-1,5-4 8-7,11-10

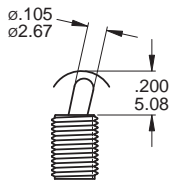


## ACTUATOR OPTIONS

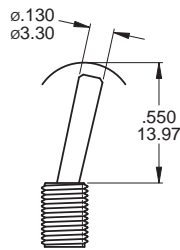
### T1 STD



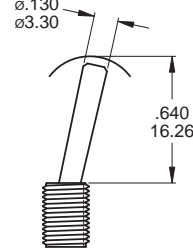
### T2



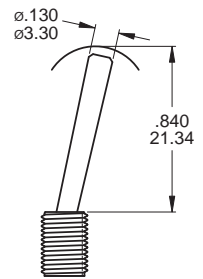
### T3



### T4



### T5



**NOTE** T1 ~ T5 Actuator shown with standard B1 Bushing :

Add .070 (1.78) for B3 Bushing ;

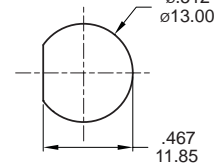
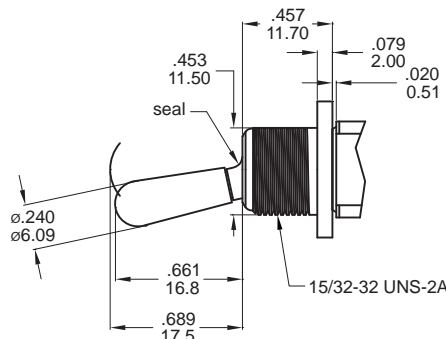
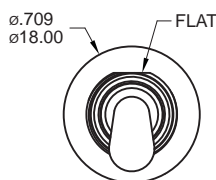
Subtract .020 (0.51) for B6 Bushing ;

Std for M1 , M2 Terminal sub .016 (0.40) for M6 , M7 , VSX

### T88B52

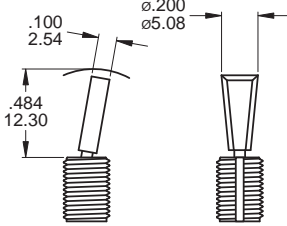
### SPLASH PROOF

Std SPDT for M1.M2 Terminal

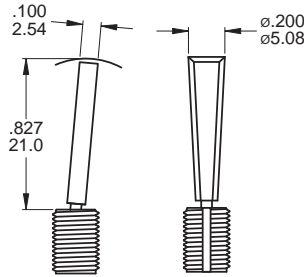


PANEL MOUNTING  
Without locking ring (Flat)

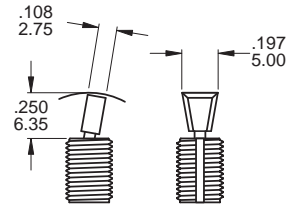
**T6** FLATTED WITH ANTIROTATION



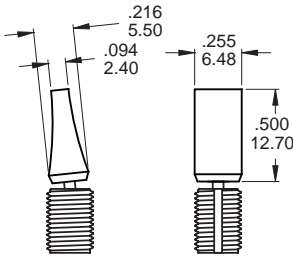
**T61**



**T63**



**T62**



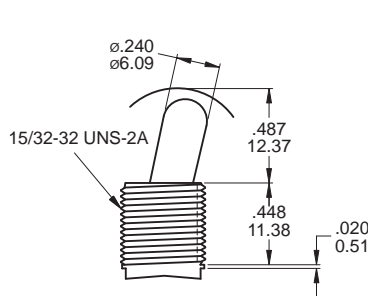
**Plastic No.Color :**

ITEM NO	COLOR
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

**NOTE:** T6,T61,T62 ,T63 use with B11, B12, B15, B16 bushing only.

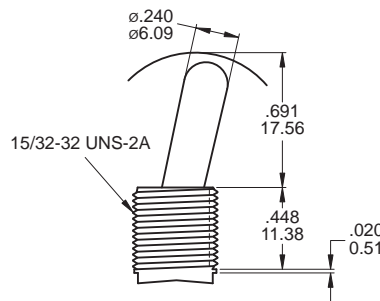
\* Besides standard color, other colors need to check stocks available.

**T7**



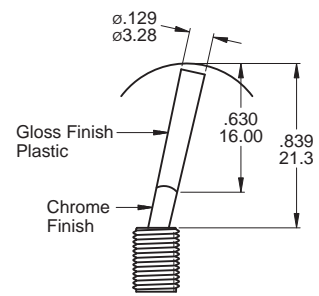
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 13.00mm

**T8**



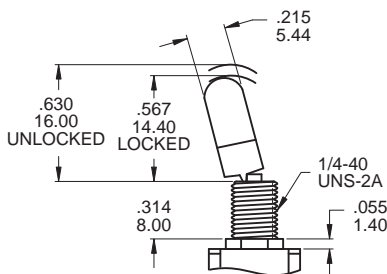
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 18.00mm

**T9**

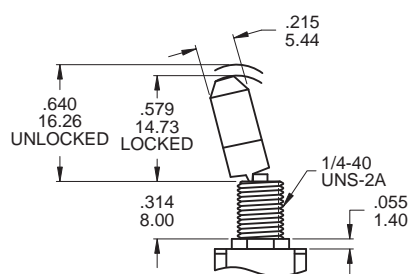


B1 / B2 bushing std with black(T92) and red(T93) color only(std.)

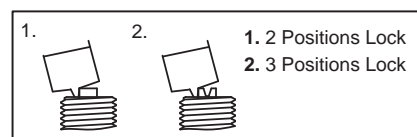
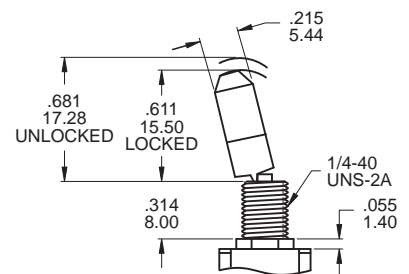
**TL1B25 THD STD**  
**B26 NON-THD**



**TL2B25 THD STD**  
**B26 NON-THD**



**TL3B25 THD STD**  
**B26 NON-THD**

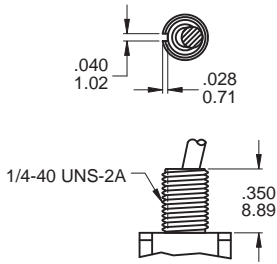


# 1M Series

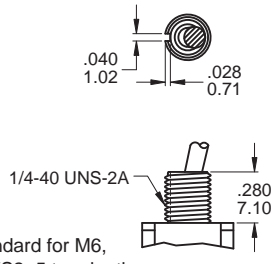
Miniature Toggle Switches

## BUSHING OPTIONS

**B1 THD STD**  
**B2 NON-THD**

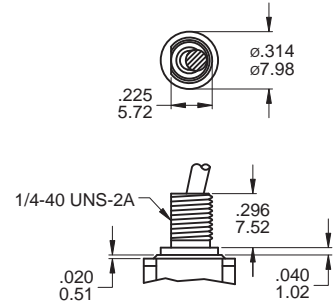


**B3 THD**  
**B4 NON-THD**

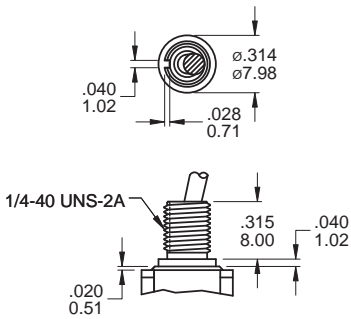


B4 is standard for M6, M7 and VS2-5 termination options.

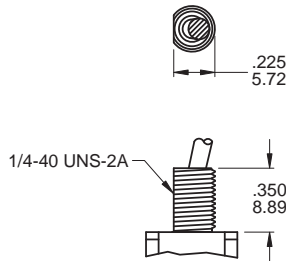
**B5 HIGH TORQUE**



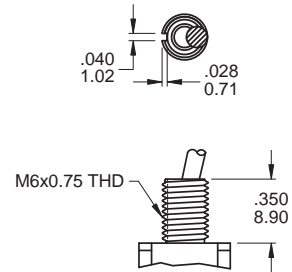
**B6 HIGH TORQUE**



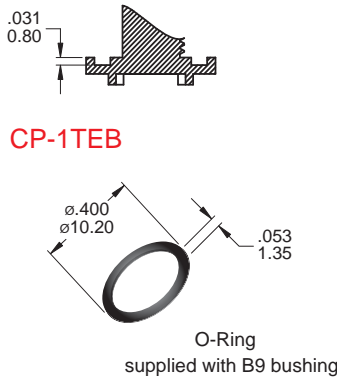
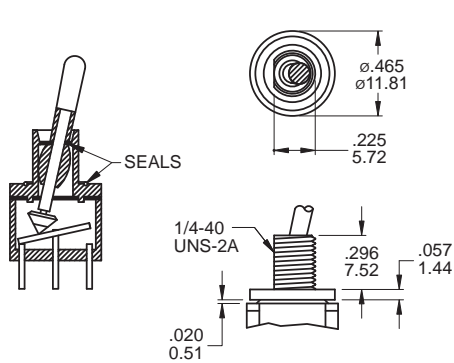
**B7 THD STD**



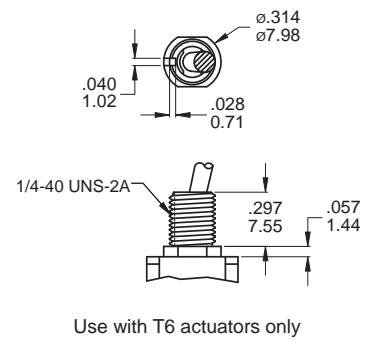
**B8 METRIC THD**



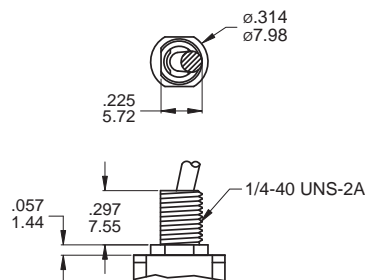
**B9 SPLASH PROOF**



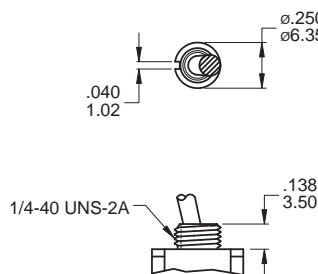
**B11 THD STD**  
**B12 NON-THD**



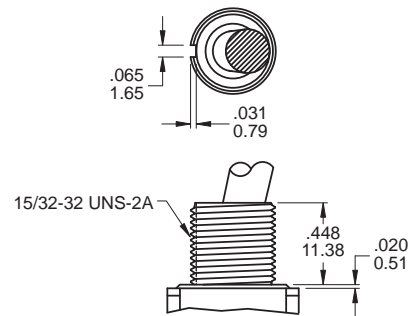
**B15 THD STD**  
**B16 NON-THD**



**B17**



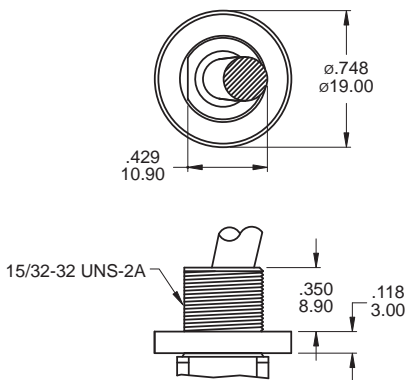
**B13**



Use with T7, T8 actuators only  
B13 Bear strength from top of actuator up to 10kg aside up to 15kg

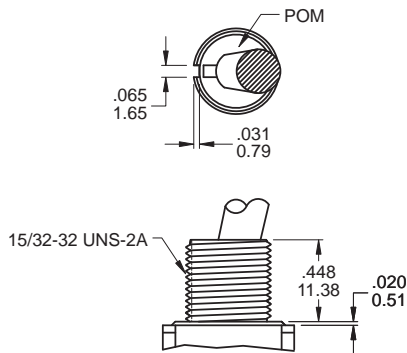
1M  
Toggle Switches

## B14 SPLASH PROOF



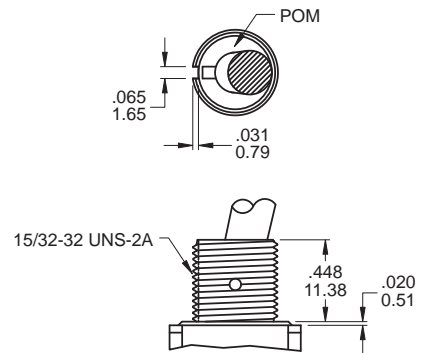
Use with T7, T8 actuators only

## B18



Use with T7, T8 and TA actuators only with Plastic (POM) Insert

## B20



Use with T7, T8 and TA actuators only with Plastic (POM) Insert

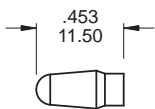
B18, B20 Bear strength from top of actuator up to 20kg aside up to 15kg



1M Toggle Switches

## OPTIONAL TOGGLE CAP

### CP-T1XX



Use with T1 actuator

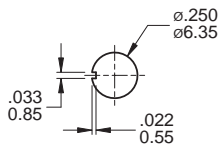
### CAP Color :

ITEM NO	COLOR
1	White
2	Black (Std)
3	Red
5	Yellow
6	Green
7	Blue
9	Gray

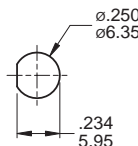
\* Besides standard color, other colors need to check stocks available.

## PANEL MOUNTING

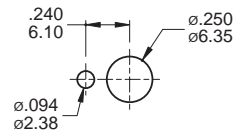
### 1/4 IN BUSHING



Without locking ring (Keyway)

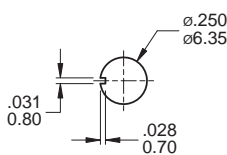


Without locking ring (Flat)

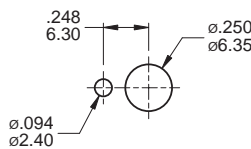


With standard locking ring.

### METRIC BUSHING

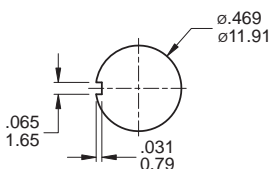


Without locking ring (Keyway)

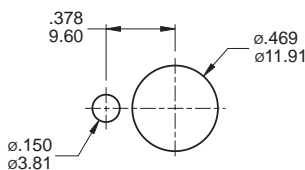


With standard locking ring.

### 15/32 IN BUSHING

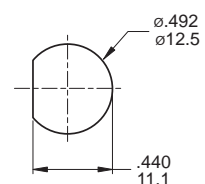


Without locking ring (Keyway)



With standard locking ring.

### SPLASH PROOF BUSHING



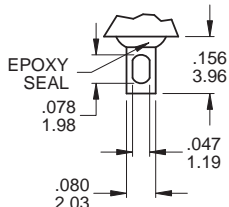
Without locking ring (Flat)

# 1M Series

Miniature Toggle Switches

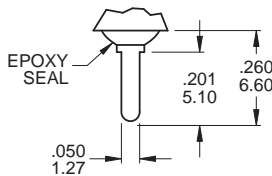
## TERMINATION OPTIONS

### M1 Solder lug



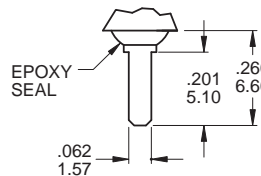
.030(0.76) THK.

### M2 PC Thru-hole



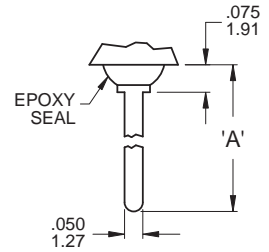
.030(0.76) THK.

### M3 Quick connect



.030(0.76) THK.

### M5 Wire Wrap



.030(0.76) THK.

## OTHER TERMINATION OPTIONS

**M6** Right angle P.C. Mount

**M7** Vertical right angle P.C. Mount

**VS2** Vertical bracket P.C. Mount

**VS3** Vertical bracket P.C. Mount

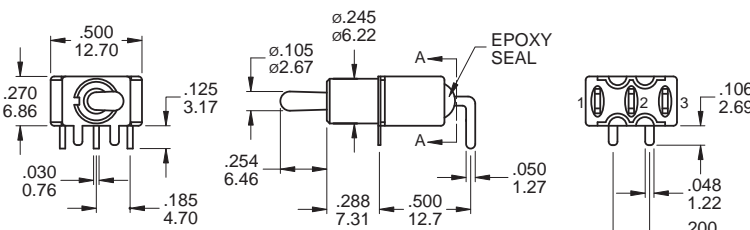
**VS5** Vertical bracket P.C. Mount

**M6N** Right angle P.C. Mount with snap-in bracket

**V2N** Vertical bracket P.C. Mount with snap-in bracket

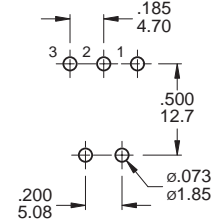
OPTION CODE	DIM. 'A'
M51	.736 (18.70)
M52	.953 (24.20)
M53	.415 (10.55)
M54	1.062 (26.97)

### M6



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

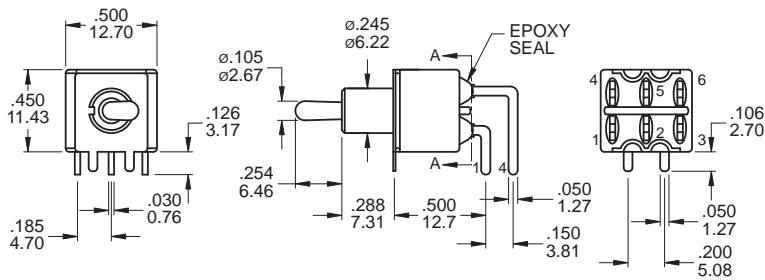
#### P.C. MOUNTING



### SPDT

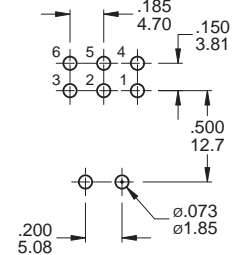
Part No. Shown : 1MS1T2B4M6QE

### M6



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

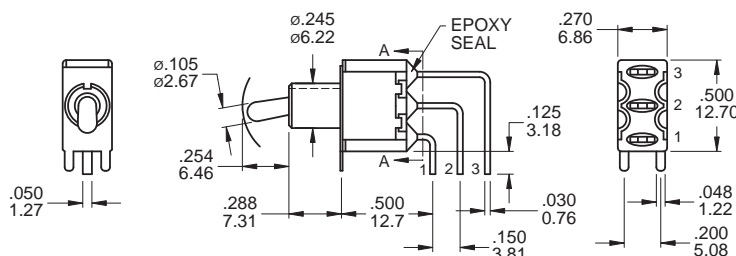
#### P.C. MOUNTING



### DPDT

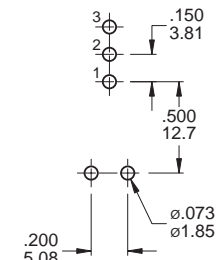
Part No. Shown : 1MD1T2B4M6RE

### M7



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

#### P.C. MOUNTING



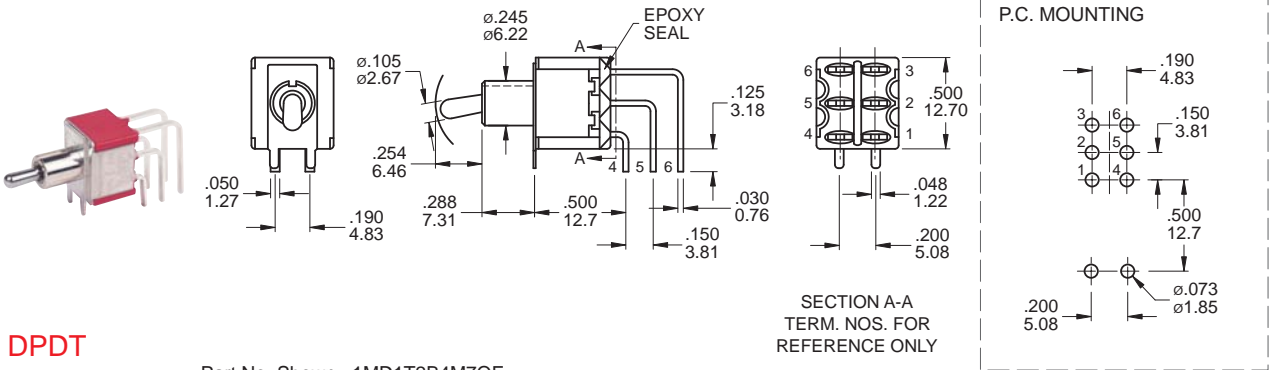
### SPDT

Part No. Shown : 1MS1T2B4M7QE

1M  
Toggle Switches

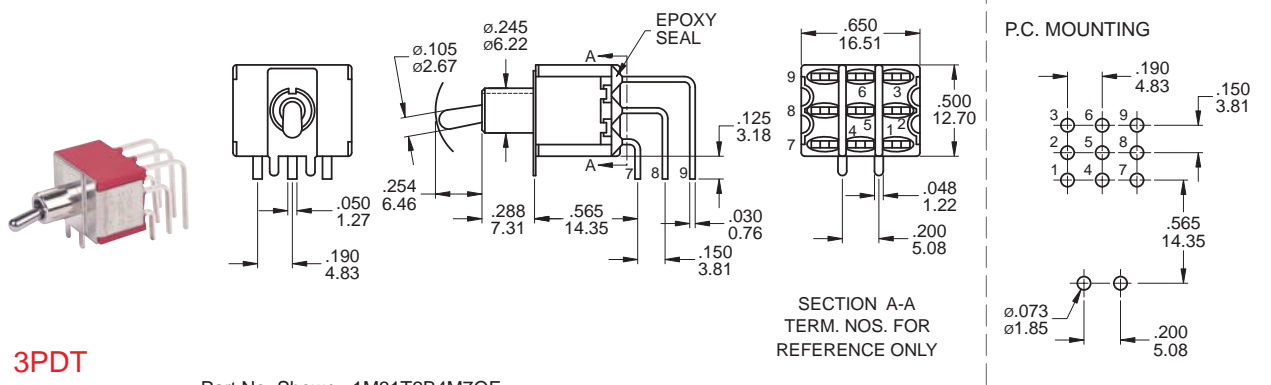


## M7



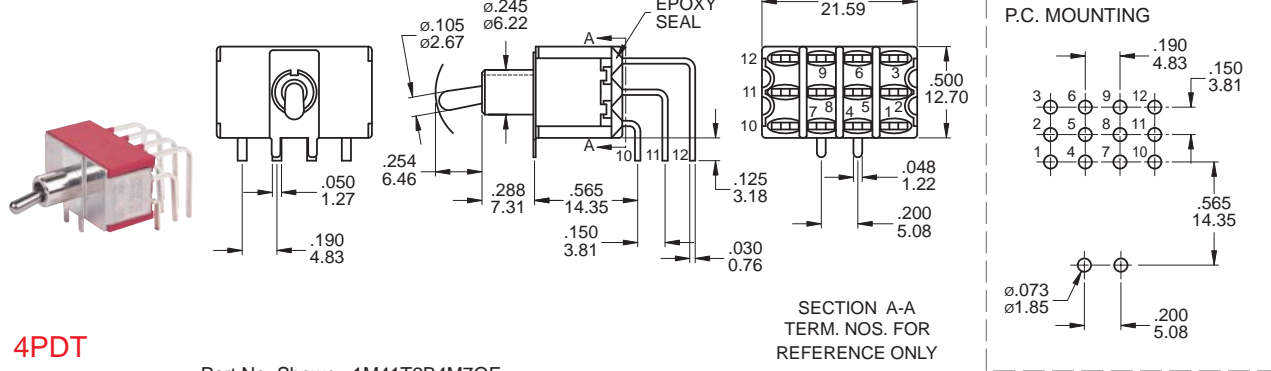
## DPDT

## M7



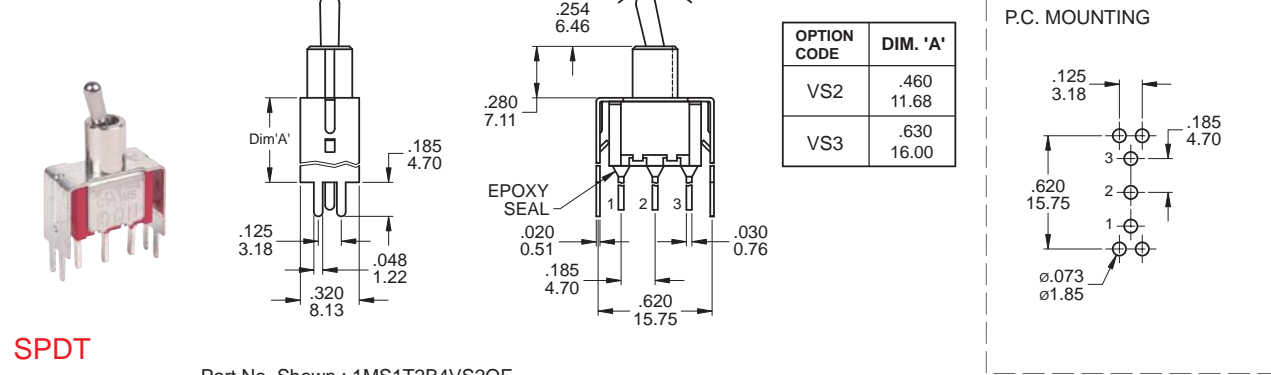
## 3PDT

## M7



## 4PDT

## VS2 - VS3



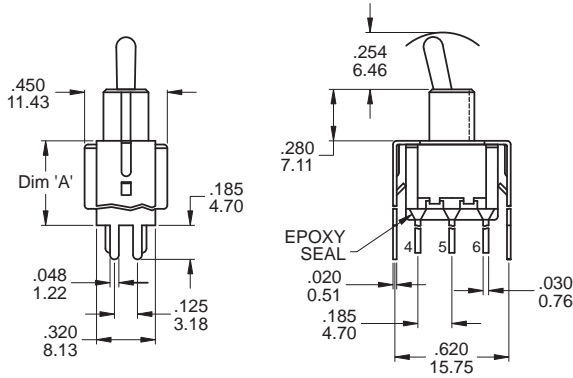
## SPDT

# 1M Series

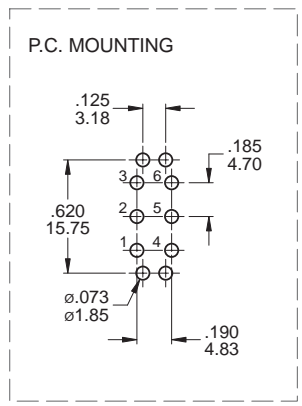
Miniature Toggle Switches

1M  
Toggle Switches

## VS2 - VS3



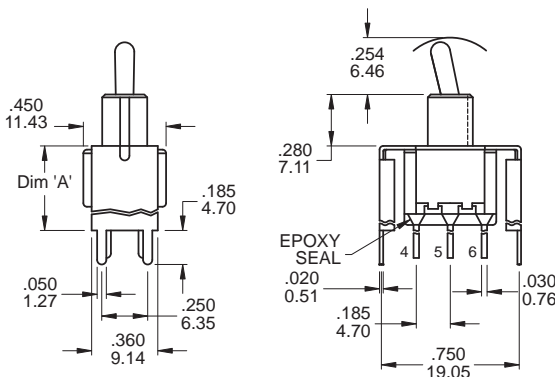
OPTION CODE	DIM. 'A'
VS2	.460 11.68
VS3	.630 16.00



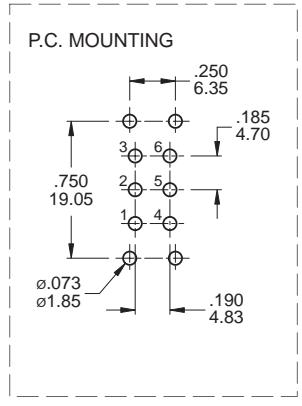
## DPDT

Part No. Shown : 1MD1T2B4VS3QE

## VS5



OPTION CODE	DIM. 'A'
VS4	.460 11.68
VS5	.630 16.00

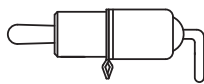
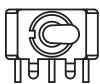


## DPDT

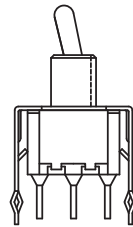
Part No. Shown : 1MD1T2B4VS5QE

## SNAP-IN TERMINATION OPTIONS

### M6N

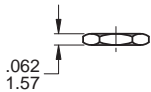
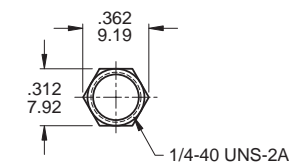


### V2N



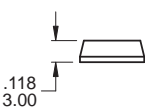
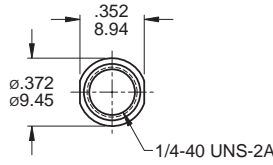
## HARDWARE

### 1/4 NUT



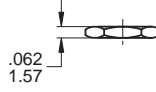
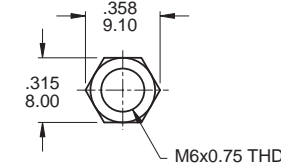
MNU-1M01A

### DRESS NUT



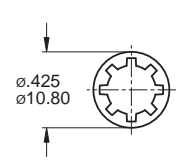
MNU-1M29

### METRIC NUT



MNU-1M04

### LOCKWASHER



.018 THK (0.46)

MNU-1M03

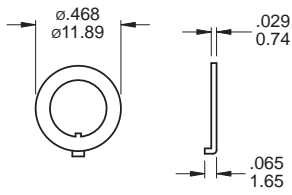
Supplied standard with B1, B3, B5, B6 and B9 options

Supplied standard with B8 metric bushing

Supplied standard with B1 / B3 bushing



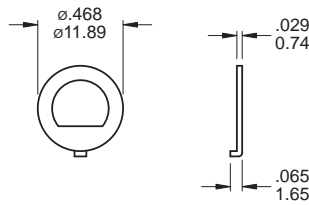
### LOCKING RING



**MNU-1M02**

Locking ring supplied standard

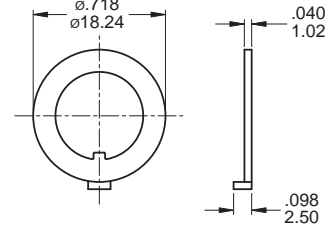
### LOCKING RING



**MNU-1M11**

Locking ring supplied with B5 bushing

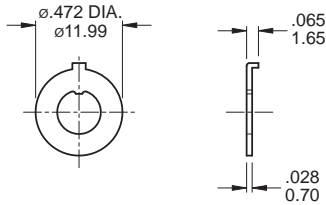
### LOCKING RING



**MNU-1M08**

Locking ring supplied with B13, B18, B20 bushing

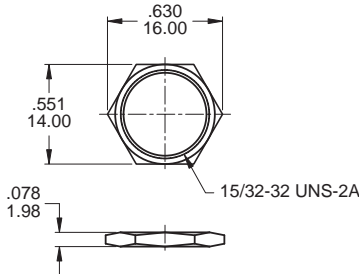
### LOCKING RING



**MNU-1M05**

Locking ring supplied with B8 bushing

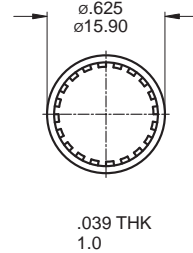
### 15/32 NUT



**MNU1M07**

Supplied standard with B13 bushing

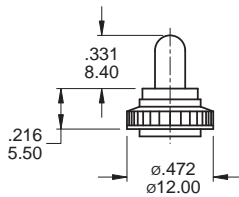
### LOCKWASHER



**MNU-1M09**

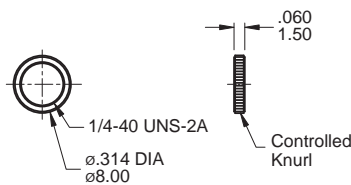
Supplied standard with B13 bushing

### OPTIONAL RUBBER HOOD SEALING



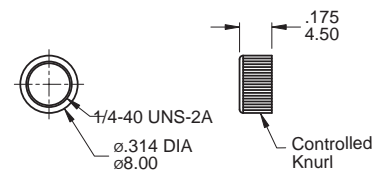
K1=Metric  
E1=Inch (Std.)  
for actuator T1, T2 and  
B1, B3, B5, B6 Bushing only

### DRESS NUT



**MNU-1M18**

### DRESS NUT



**MNU-1M24**

## CONTACT MATERIAL OPTIONS

	CONTACT PLATING	TERMINAL PLATING	RATINGS
<b>Q</b>	Silver	Q = Silver	5 Amps with resistant load @ 120VAC or 28VDC 2 Amps with resistant load @ 250VAC
<b>C</b>	Gold over Silver	C = Gold over silver	
<b>R</b>	Gold	R = Gold	0.4 Volt - Amps ( VA ) max. @ 20V max. ( AC or DC )

## SOLDERING PROCESSES

**MANUAL SOLDERING:** Use soldering iron of 30 watts, controlled at 350°C approximately 5 seconds while applying solder.

**WAVE SOLDERING:** Recommended Soldering Temperature: 270 ± 5°C  
Duration of Solder Immersion: Max 5 sec. (PCB is 1.6mm in thickness)