



#### 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)



### HOW TO ORDER

MODEL NO.	ACTUATOR	BUSHING	TERMINATIONS	TERMINAL PLATING	SEAL	RoHS SOLDERING
Model NO.	Actuator		Terminations	Terminal plating	Seal	RoHS soldering
<b>BTMS1</b> SP On-None-On	<b>T1</b> 10.41 high		<b>M1</b> Solder lug	<b>Q</b> Silver	<b>E</b> EPOXY (std)	<input type="checkbox"/> RoHS Compliant
<b>BTMS2</b> SP On-None-Mom	<b>T2</b> 5.08 high		<b>M2</b> PC thru-hole	<b>R</b> Gold	<b>N</b> NO EPOXY	<input type="checkbox"/> RoHS & Lead Free
<b>BTMS3</b> SP On-Off-On	<b>T3</b> 13.97 high		<b>M3</b> Quick connect	<b>C</b> Gold over silver		
<b>BTMS4</b> SP Mom-Off-Mom	<b>T4</b> 16.26 high		<b>M51</b> 18.70 high, wire wrap			
<b>BTMS5</b> SP On-Off-Mom	<b>T5</b> 21.34 high		<b>M52</b> 24.20 high, wire wrap			
<b>BTMD1</b> DP On-None-On	<b>T6</b> Flatted, anti-rotation		<b>M53</b> 10.55 high, wire wrap			
<b>BTMD2</b> DP On-None-Mom	<b>T61</b> Flatted, anti-rotation		<b>M54</b> 26.97 high, wire wrap			
<b>BTMD3</b> DP On-Off-On	<b>T62</b> Lever handle with cap		<b>M6</b> Right angle, PC thru-hole			
<b>BTMD4</b> DP Mom-Off-Mom	<b>T63</b> Flatted, anti-rotation		<b>M6N</b> Right angle, Snap-in, PC thru-hole			
<b>BTMD5</b> DP On-Off-Mom	<b>T7</b> 12.37 high, 15/32 bushing		<b>M7</b> Vertical right angle, PC thru-hole			
<b>BTMD6</b> DP On-On-On	<b>T8</b> 17.56 high, 15/32 bushing		<b>VS2</b> 11.68 high, V-bracket			
<b>BTMD7</b> DP Mom-On-Mom	<b>T88</b> 17.5 high, 15/32 bushing		<b>V2N</b> 11.68 high, Snap-in, V-bracket			
<b>BTMD8</b> DP On-On-Mom	<b>T9</b> Plastic, 21.3 high		<b>VS3</b> 16.00 high, V-bracket			
<b>BTM31</b> 3P On-None-On	<b>TL1</b> Locking lever 16.00 high		<b>VS4</b> 11.68 high, V-bracket			
<b>BTM32</b> 3P On-None-Mom	<b>TL2</b> Locking lever 16.26 high		<b>VS5</b> 16.00 high, V-bracket			
<b>BTM33</b> 3P On-Off-On	<b>TL3</b> Locking lever 17.28 high					
<b>BTM34</b> 3P Mom-Off-Mom.		<b>B1</b> 8.89 high, keyway (thd std)				
<b>BTM35</b> 3P On-Off-Mom		<b>B2</b> 8.89 high, keyway (non-thd)				
<b>BTM41</b> 4P On-None-On		<b>B3</b> 7.10 high, keyway (thd)				
<b>BTM42</b> 4P On-None-Mom		<b>B4</b> 7.10 high, keyway (non-thd)				
<b>BTM43</b> 4P On-Off-On		<b>B5</b> 7.52 high, flat (torque)				
<b>BTM44</b> 4P Mom-Off-Mom		<b>B6</b> 8.00 high, keyway (torque)				
<b>BTM45</b> 4P On-Off-Mom		<b>B7</b> 8.89 high, flat (thd std)				
<b>BTM46</b> 4P On-On-On		<b>B8</b> 8.89 high, keyway (metric thd)				
<b>BTM47</b> 4P Mom-On-Mom		<b>B9</b> 7.52 high, flat (splash proof)				
<b>BTM48</b> 4P On-On-Mom		<b>B11</b> 7.55 high, keyway (thd std)				
		<b>B12</b> 7.55 high, keyway (non-thd)				
		<b>B13</b> 11.38 high, keyway (15/32 bushing)				
		<b>B14</b> 11.90 high, flat (splash proof)				
		<b>B15</b> 7.55 high, flat (thd std)				
		<b>B16</b> 7.55 high, flat (non-thd)				
		<b>B17</b> 3.50 high, keyway				
		<b>B18</b> 11.38 high, keyway (15/32 bushing)				
		<b>B20</b> 11.38 high, keyway (15/32 bushing)				
		<b>B25</b> 8.00 high, keyway, locking lever (thd)				
		<b>B26</b> 8.00 high, keyway, locking lever (non-thd)				
		<b>B52</b> 11.70 high, flat (15/32 bushing)				

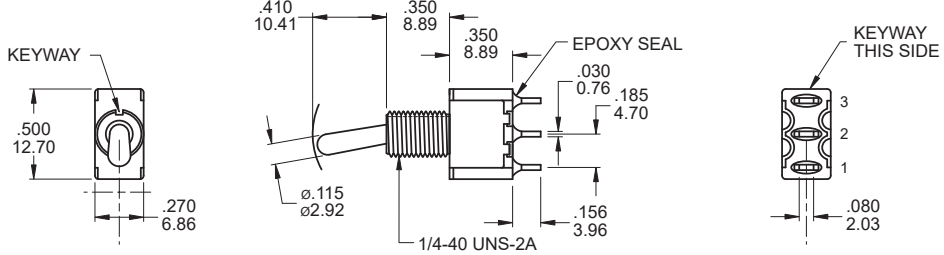
### SWITCH FUNCTION

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	BTMS1	ON	NONE	ON		N/A	
	Q1112	BTMS2	ON	NONE	MOM	2-3		2-1
	Q1113	BTMS3	ON	OFF	ON			
	Q1114	BTMS4	MOM	OFF	MOM		OPEN	
	Q1115	BTMS5	ON	OFF	MOM			
DP	Q1121	BTMD1	ON	NONE	ON		N/A	
	Q1122	BTMD2	ON	NONE	MOM	2-3,5-6		2-1,5-4
	Q1123	BTMD3	ON	OFF	ON			
	Q1124	BTMD4	MOM	OFF	MOM		OPEN	
	Q1125	BTMD5	ON	OFF	MOM			
	Q1126	BTMD6	ON	ON	ON			
	▲ Q1127	BTMD7	MOM	ON	MOM	2-3,5-6	2-3,5-4	2-1,5-4
	▲ Q1128	BTMD8	ON	ON	MOM			
3P	Q1131	BTM31	ON	NONE	ON		N/A	
	Q1132	BTM32	ON	NONE	MOM	2-3,5-6,8-9		2-1,5-4,8-7
	Q1133	BTM33	ON	OFF	ON			
	Q1134	BTM34	MOM	OFF	MOM		OPEN	
	Q1135	BTM35	ON	OFF	MOM			
4P	Q1141	BTM41	ON	NONE	ON		N/A	
	Q1142	BTM42	ON	NONE	MOM	2-3,5-6,8-9,11-12		2-1,5-4,8-7,11-10
	Q1143	BTM43	ON	OFF	ON			
	Q1144	BTM44	MOM	OFF	MOM		OPEN	
	Q1145	BTM45	ON	OFF	MOM			
	Q1146	BTM46	ON	ON	ON			
	▲ Q1147	BTM47	MOM	ON	MOM	2-3,5-6,8-9,11-12	2-3,5-4,8-9,11-10	2-1,5-4,8-7,11-10
	▲ Q1148	BTM48	ON	ON	MOM			

MOM= MOMENTARY

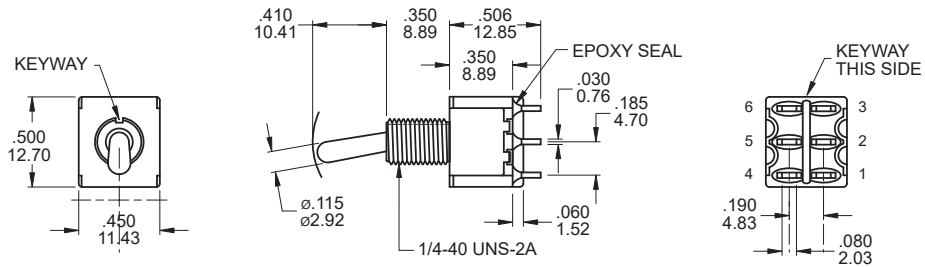
▲ Please check the availability in advance before order

### POLE OPTIONS



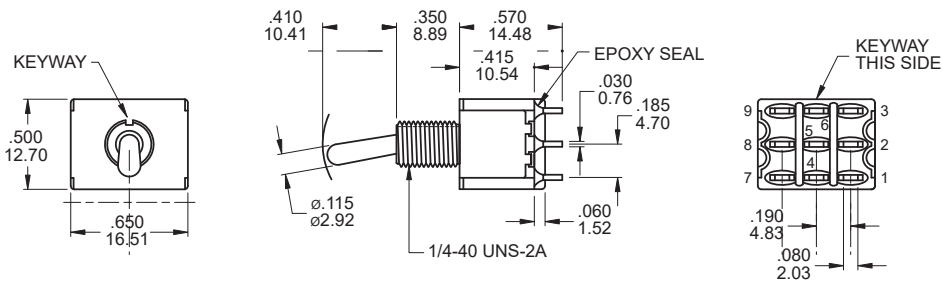
#### SPDT

Part No. Shown : BTMS1T1B1M1QE



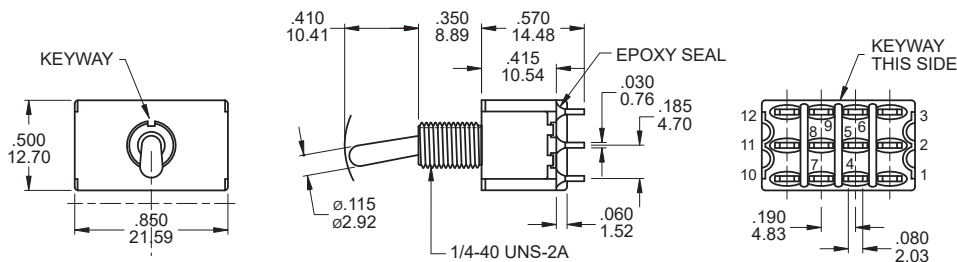
#### DPDT

Part No. Shown : BTMD1T1B1M1QE



#### 3PDT

Part No. Shown : BTM31T1B1M1QE



#### 4PDT

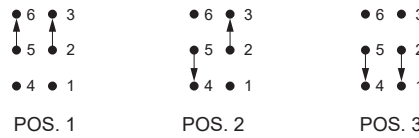
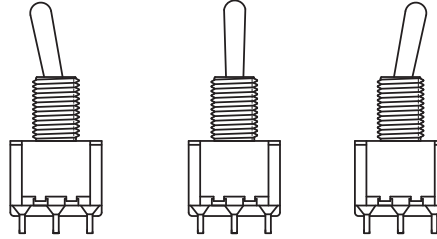
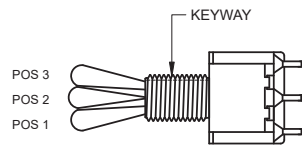
Part No. Shown : BTM41T1B1M1QE

### 3-WAY SWITCH

### 3-Way Wiring Diagram Schematics

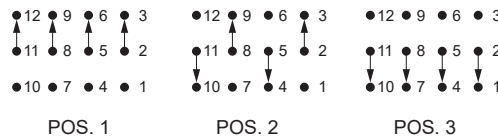
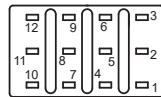
#### SINGLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
BTMD6	ON	ON	ON
Term. Comm.	2-3,5-6	2-3,5-4	2-1,5-4



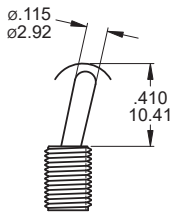
#### DOUBLE POLE, 3 POSITION

Model No.	POS 1	POS 2	POS 3
BTM46	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

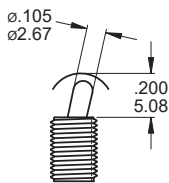


### ACTUATOR OPTIONS

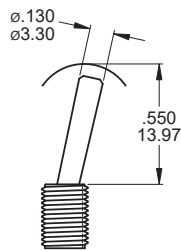
#### T1 STD



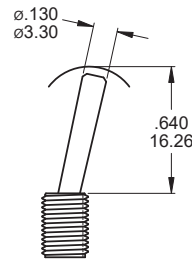
#### T2



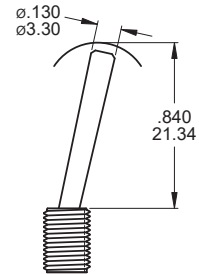
#### T3



#### T4



#### T5

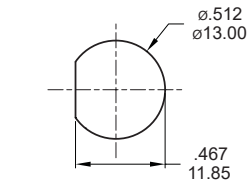
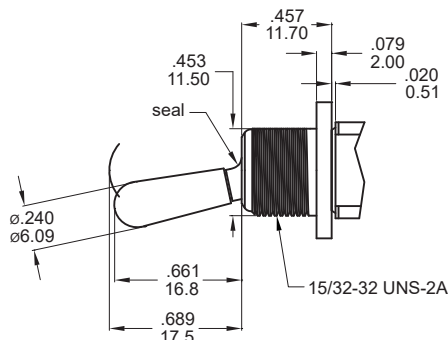
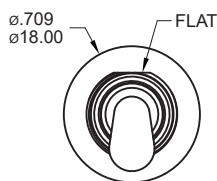


**NOTE** T1 ~ T5 Actuator shown with standard B1 Bushing ;  
 Add .070 (1.78) for B3 Bushing ;  
 Subtract .020 (0.51) for B6 Bushing ;  
 Std for M1 , M2 Terminal sub .016 (0.40) for M6 , M7 , VSX

#### T88B52

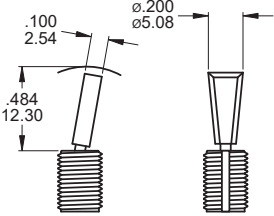
#### SPLASH PROOF

Std SPDT for M1.M2 Terminal

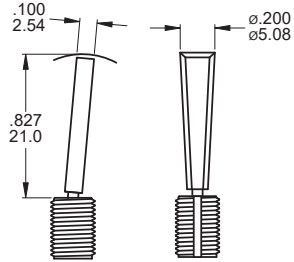


PANEL MOUNTING  
 Without locking ring (Flat)

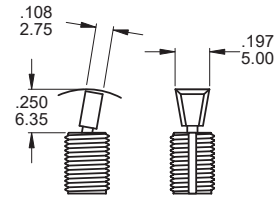
**T6** FLATTED WITH ANTIROTATION



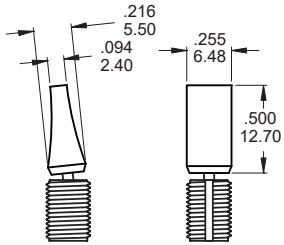
**T61**



**T63**



**T62**



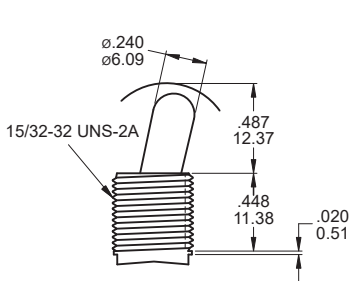
Plastic No.Color :

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.

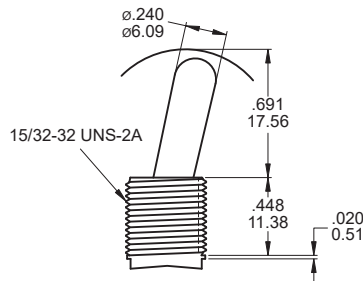
\* Besides standard color, other colors need to check stocks available.

**T7**



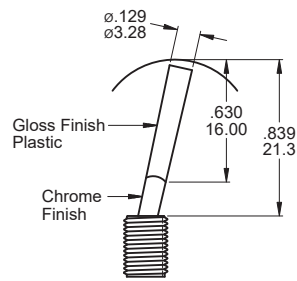
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 13.00mm

**T8**



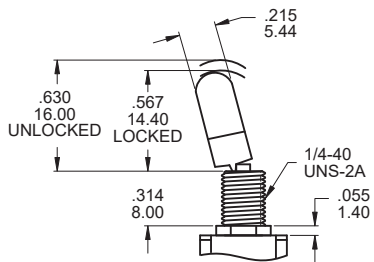
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 18.00mm

**T9**

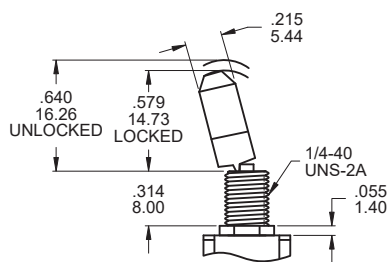


B1 / B2 bushing std with black(T92) and red(T93) color only(std.)

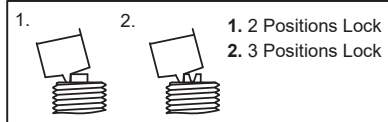
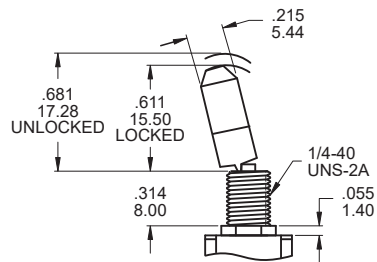
**TL1B25 THD STD**  
**B26 NON-THD**



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

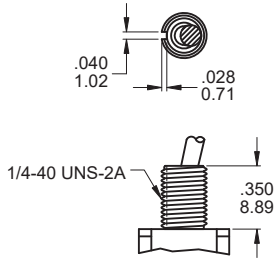


**TL3B25 THD STD**  
**B26 NON-THD**

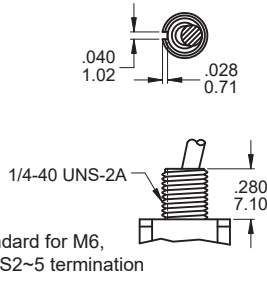


#### BUSHING OPTIONS

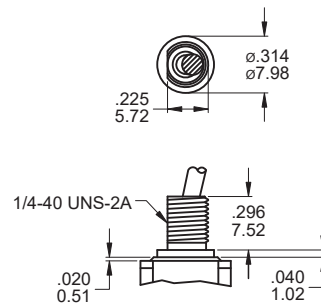
**B1** THD STD  
**B2** NON-THD



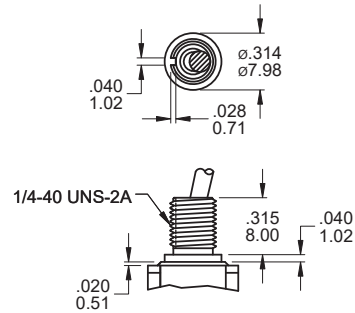
**B3** THD  
**B4** NON-THD



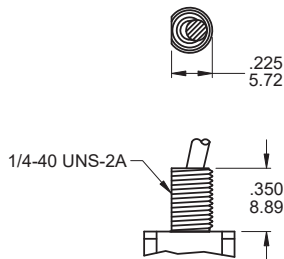
**B5** HIGH TORQUE



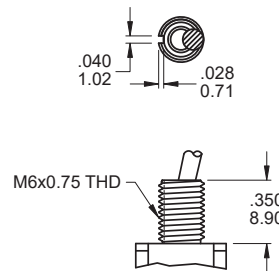
**B6** HIGH TORQUE



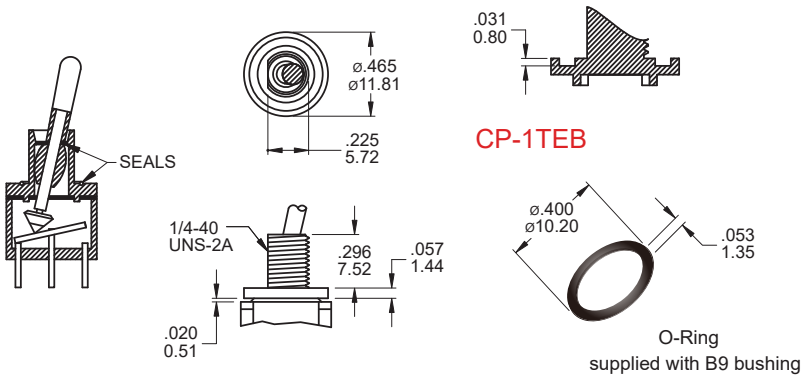
**B7** THD STD



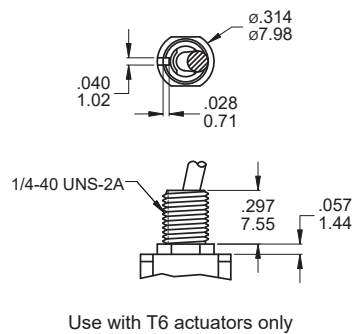
**B8** METRIC THD



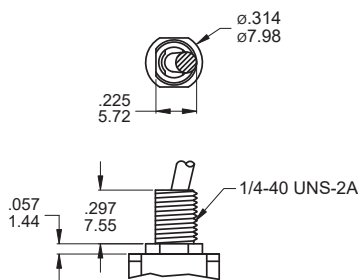
**B9** SPLASH PROOF



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

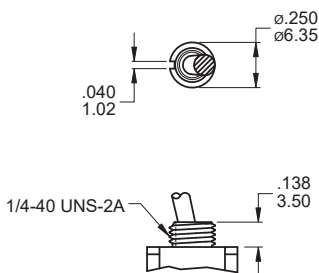


**B15** THD STD  
**B16** NON-THD

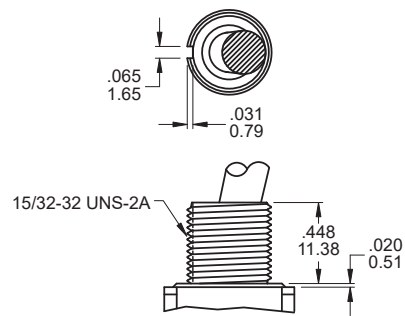


Use with T6 actuators only

**B17**

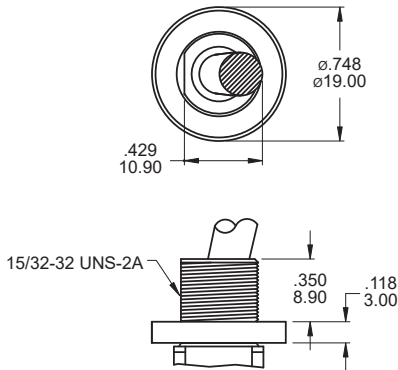


**B13**



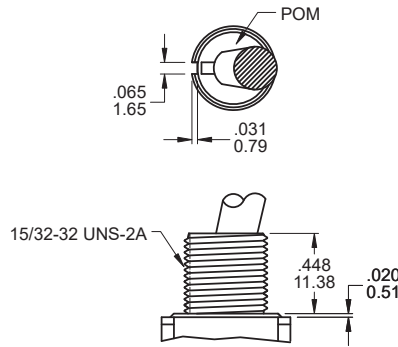
Use with T7, T8 actuators only  
B13 Bear strength from top of actuator up to 10kg aside up to 15kg

#### B14 SPLASH PROOF



Use with T7, T8 actuators only

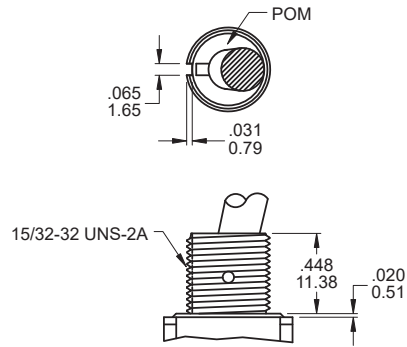
#### B18



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

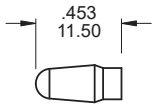
#### B20



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

### OPTIONAL TOGGLE CAP

#### CP-T1XX



Use with T1 actuator

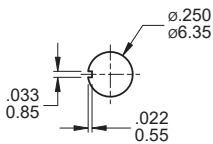
#### CAP Color :

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

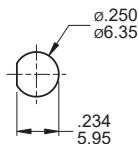
\* Besides standard color, other colors need to check stocks available.

### PANEL MOUNTING

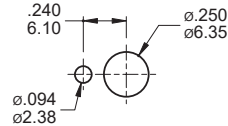
#### 1/4 IN BUSHING



Without locking ring (Keyway)

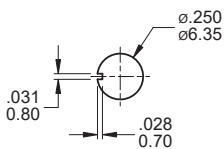


Without locking ring (Flat)

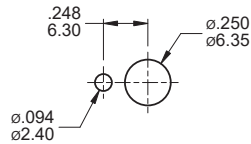


With standard locking ring.

#### METRIC BUSHING

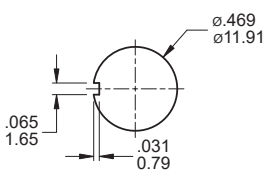


Without locking ring (Keyway)

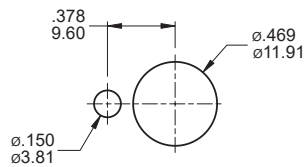


With standard locking ring.

#### 15/32 IN BUSHING

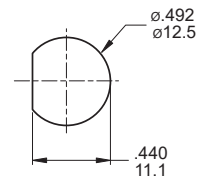


Without locking ring (Keyway)



With standard locking ring.

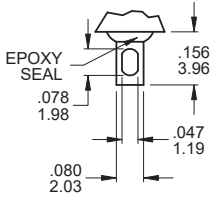
#### SPLASH PROOF BUSHING



Without locking ring (Flat)

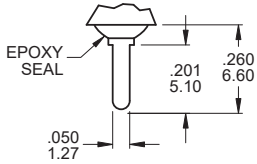
#### TERMINATION OPTIONS

##### M1 Solder lug



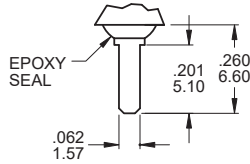
.030(0.76) THK.

##### M2 PC Thru-hole



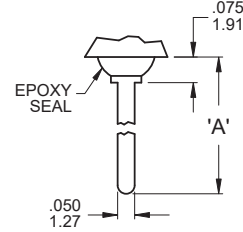
.030(0.76) THK.

##### 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

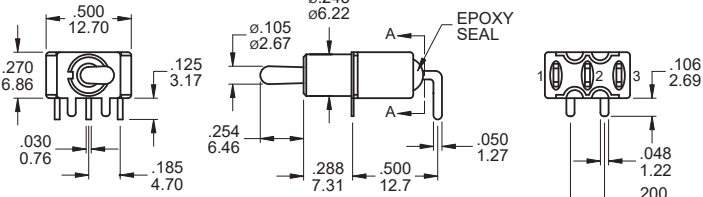
**VS5** Vertical bracket P.C. Mount

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

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

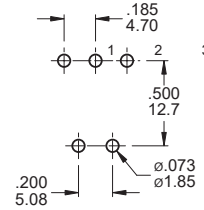
OPTION CODE	DIM. 'A'
M51	.736 (18.70)
M52	.953 (24.20)
M53	.415 (10.55)
M54	1.062 (26.97)

##### M6



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

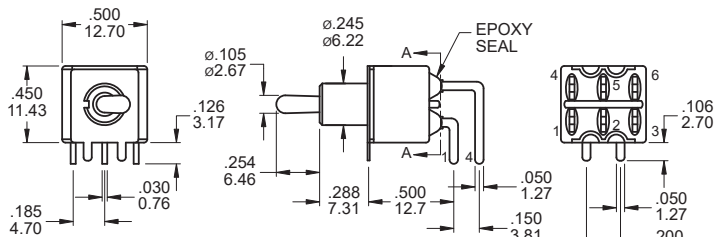
##### P.C. MOUNTING



##### SPDT

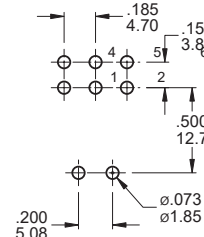
Part No. Shown : BTMS1T2B4M6QE

##### M6



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

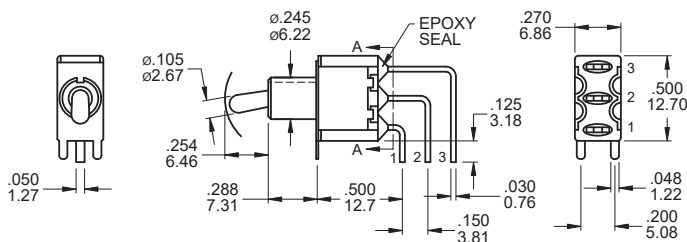
##### P.C. MOUNTING



##### DPDT

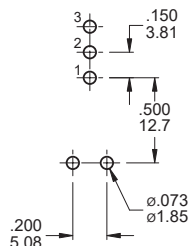
Part No. Shown : BTMD1T2B4M6RE

##### M7



SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

##### P.C. MOUNTING

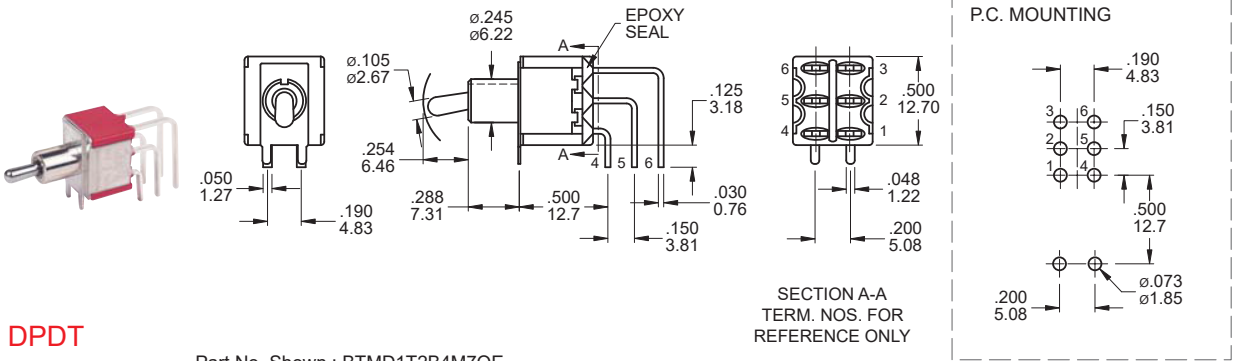


##### SPDT

Part No. Shown : BTMS1T2B4M7QE



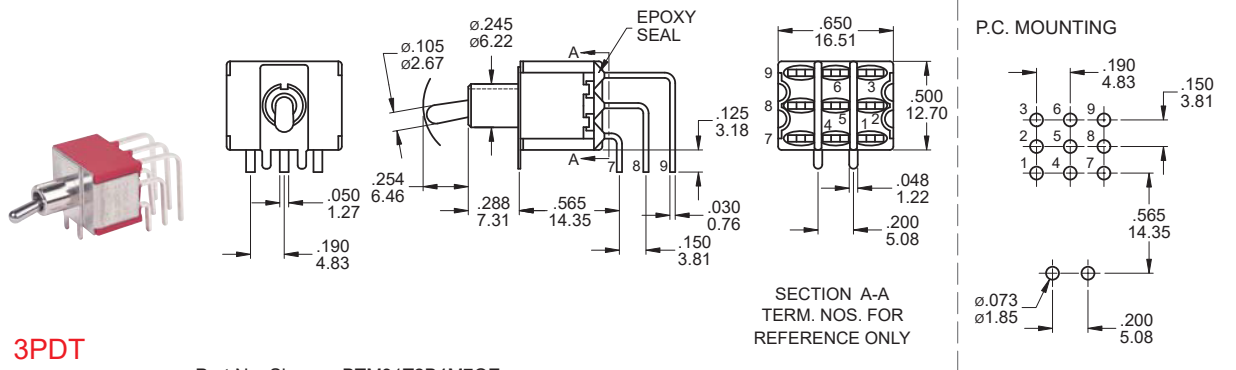
M7



DPDT

Part No. Shown : BTMD1T2B4M7QE

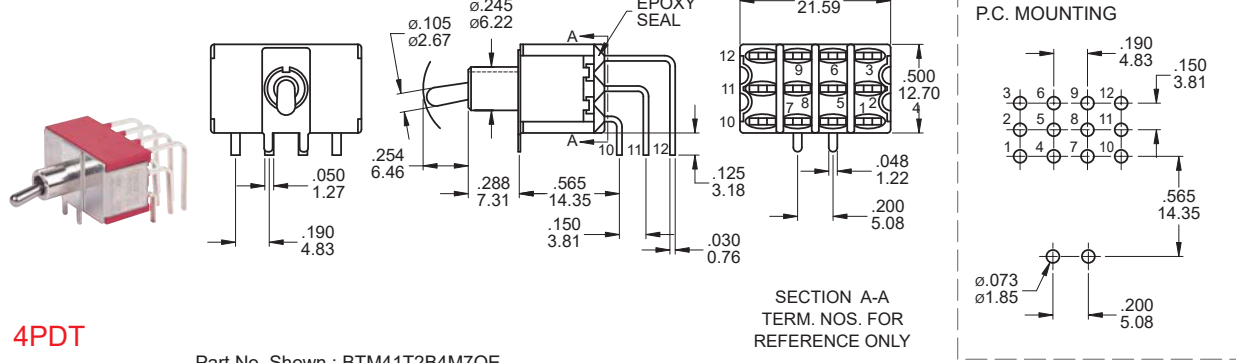
M7



3PDT

Part No. Shown : BTM31T2B4M7QE

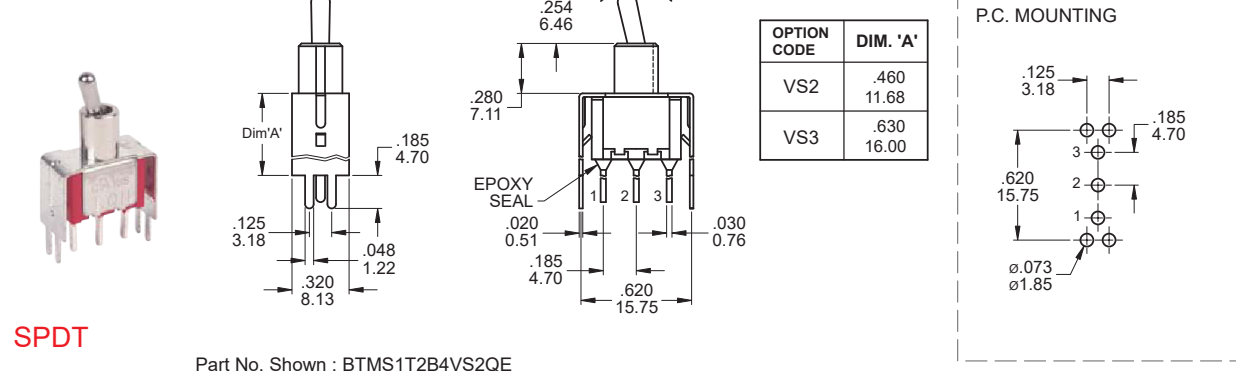
M7



4PDT

Part No. Shown : BTM41T2B4M7QE

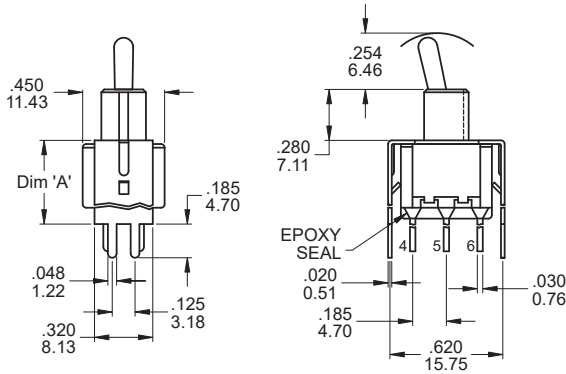
VS2 - VS3



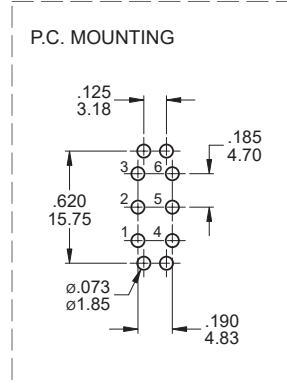
SPDT

Part No. Shown : BTMS1T2B4VS2QE

#### VS2 - VS3



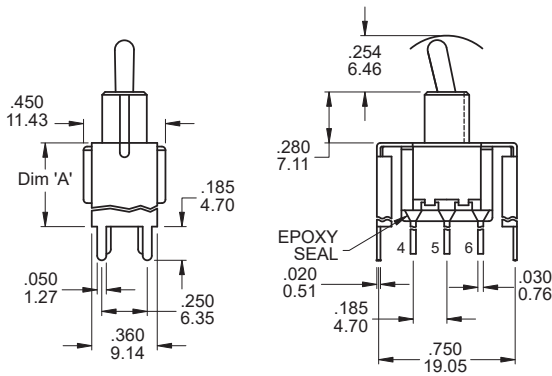
OPTION CODE	DIM. 'A'
VS2	.460 11.68
VS3	.630 16.00



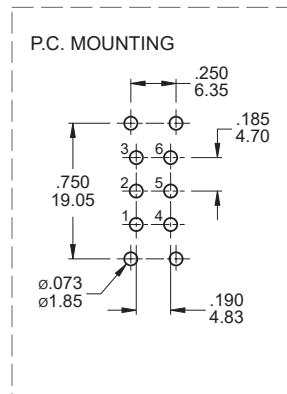
#### DPDT

Part No. Shown : BTMD1T2B4VS3QE

#### VS5



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

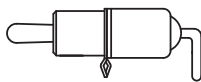
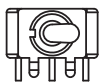


#### DPDT

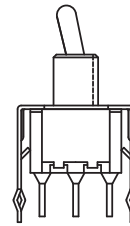
Part No. Shown : BTMD1T2B4VS5QE

## SNAP-IN TERMINATION OPTIONS

#### M6N

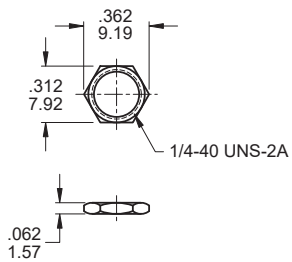


#### V2N



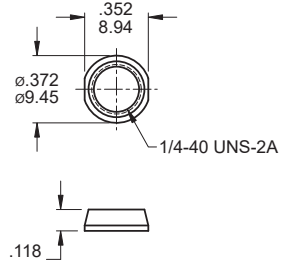
## HARDWARE

#### 1/4 NUT



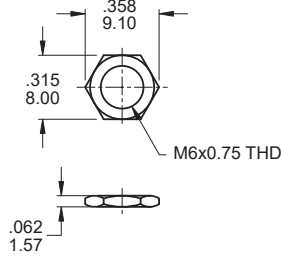
MNU-1M01A

#### DRESS NUT



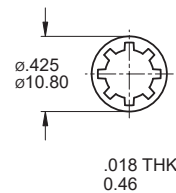
MNU-1M29

#### METRIC NUT



MNU-1M04

#### LOCKWASHER



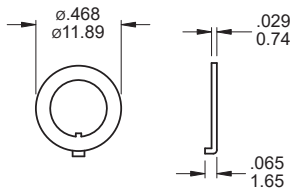
MNU-1M03

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

Supplied standard with B8 metric bushing

Supplied standard with B1 / B3 bushing

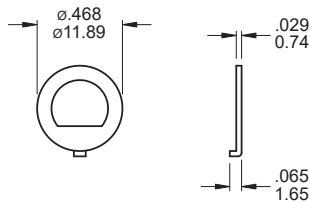
#### LOCKING RING



**MNU-1M02**

Locking ring supplied standard

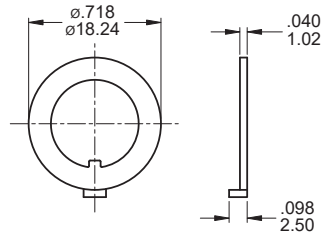
#### LOCKING RING



**MNU-1M11**

Locking ring supplied with B5 bushing

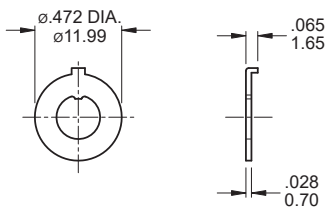
#### LOCKING RING



**MNU-1M08**

Locking ring supplied with B13,B18,B20 bushing

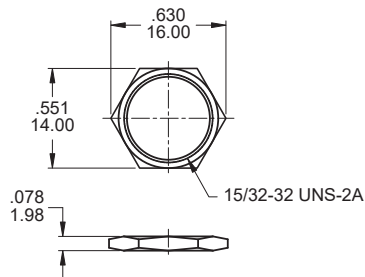
#### LOCKING RING



**MNU-1M05**

Locking ring supplied with B8 bushing

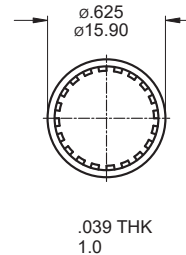
#### 15/32 NUT



**MNU-1M07**

Supplied standard with B13 bushing

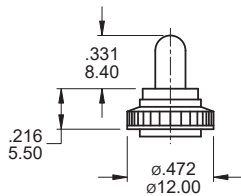
#### LOCKWASHER



**MNU-1M09**

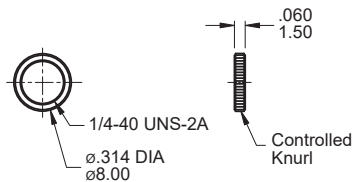
Supplied standard with B13 bushing

#### OPTIONAL RUBBER HOOD SEALING



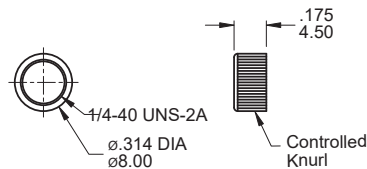
K1=Metric  
E1=Inch (Std.)  
for actuator T1, T2 and  
B1, B3, B5, B6 Bushing only

#### DRESS NUT



**MNU-1M18**

#### DRESS NUT



**MNU-1M24**

### CONTACT MATERIAL OPTIONS

	CONTACT PLATING	TERMINAL PLATING	RATINGS
<b>Q</b>	Silver	<b>Q</b> = Silver	5 Amps with resistant load @ 120VAC or 28VDC
<b>C</b>	Gold over Silver	<b>C</b> = Gold over silver	2 Amps with resistant load @ 250VAC
<b>R</b>	Gold	<b>R</b> = 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)