

## 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
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> <div style="border: 1px solid black; width: 15px; height: 15px;"></div> </div>	<div style="border: 1px solid black; width: 15px; height: 15px;"></div>	<div style="border: 1px solid black; width: 15px; height: 15px;"></div>	<div style="border: 1px solid black; width: 15px; height: 15px;"></div>
<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>	<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>	<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>	<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>	<p>Terminal plating</p> <p><b>Q</b> Silver</p> <p><b>R</b> Gold</p> <p><b>C</b> Gold over silver</p>	<p>Seal</p> <p><b>E</b> EPOXY (std)</p> <p><b>N</b> NO EPOXY</p>	<p>RoHS soldering</p> <p><input type="checkbox"/> RoHS Compliant</p> <p><input type="checkbox"/> RoHS &amp; Lead Free</p>

# 1M Series

Miniature Toggle Switches

## SWITCH FUNCTION

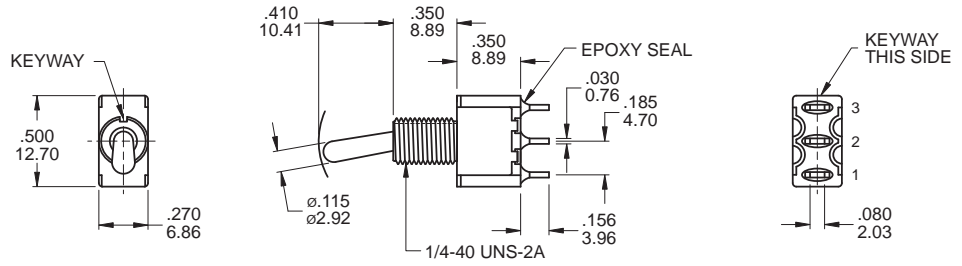
NO. POLES	UL/CSA MODEL NO.	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS / SCHEMATIC					
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3			
SP	Q1111	1MS1	ON	NONE	ON	2-3 	N/A	2-1 			
	Q1112	1MS2	ON	NONE	MOM		OPEN				
	Q1113	1MS3	ON	OFF	ON						
	Q1114	1MS4	MOM	OFF	MOM						
	Q1115	1MS5	ON	OFF	MOM						
DP	Q1121	1MD1	ON	NONE	ON	2-3,5-6 	N/A	2-1,5-4 			
	Q1122	1MD2	ON	NONE	MOM		OPEN				
	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				2-3,5-6	2-3,5-4	2-1,5-4
	▲ 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		OPEN				
	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		OPEN				
	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				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	1M48	ON	ON	MOM						

MOM= MOMENTARY

▲ Please check the availability in advance before order

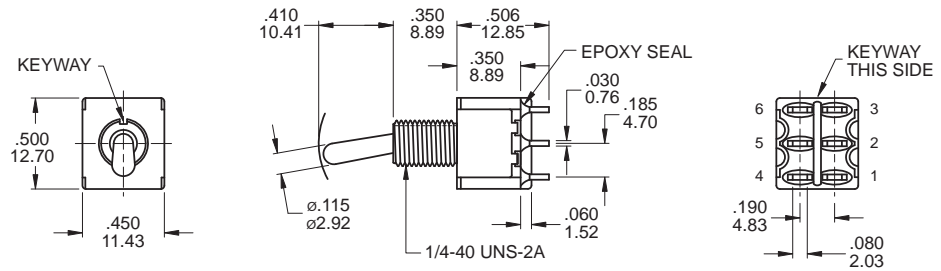
1M Toggle Switches

## POLE OPTIONS



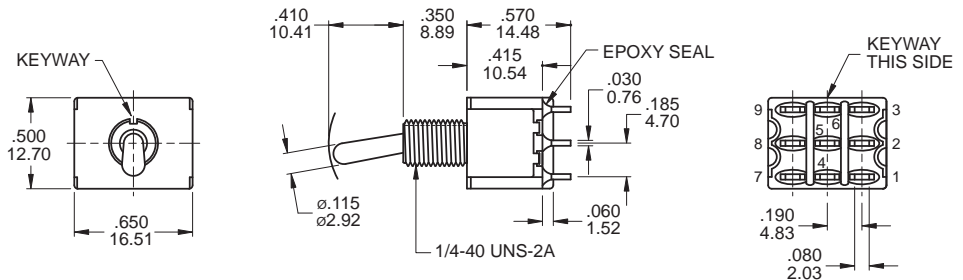
**SPDT**

Part No. Shown : 1MS1T1B1M1QE



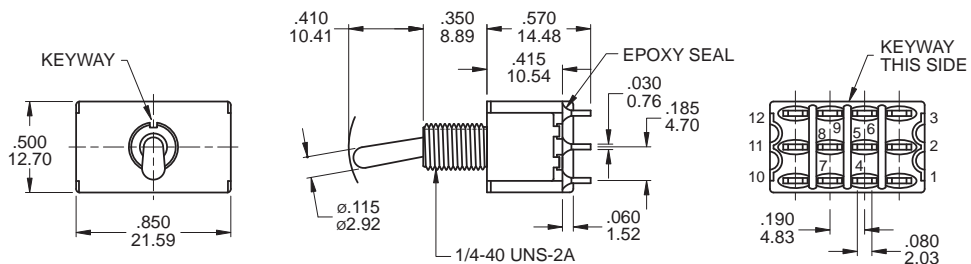
**DPDT**

Part No. Shown : 1MD1T1B1M1QE



**3PDT**

Part No. Shown : 1M31T1B1M1QE



**4PDT**

Part No. Shown : 1M41T1B1M1QE



1M  
Toggle Switches

# 1M Series

Miniature Toggle Switches

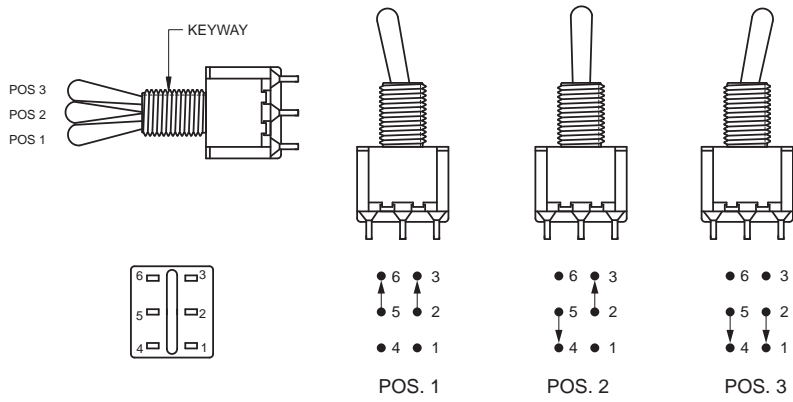
## 3-WAY SWITCH

## 3-Way Wiring Diagram Schematics

1M Toggle Switches

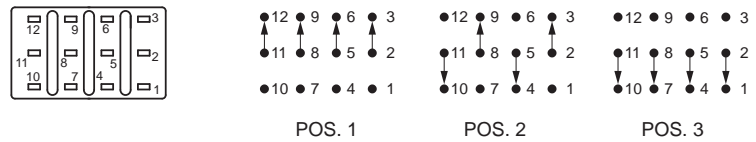
### SINGLE POLE, 3 POSITION

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



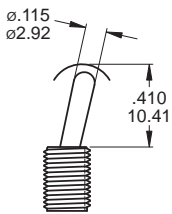
### DOUBLE POLE, 3 POSITION

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

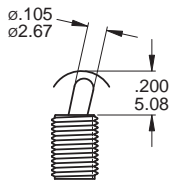


## ACTUATOR OPTIONS

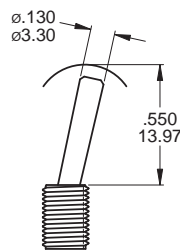
### T1 STD



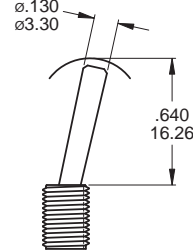
### T2



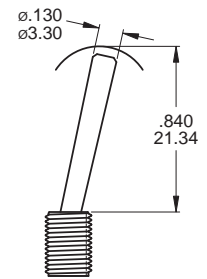
### T3



### T4



### T5



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

Add .070 (1.78) for B3 Bushing ;

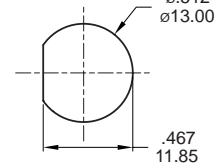
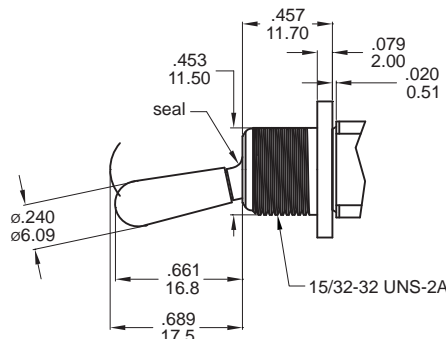
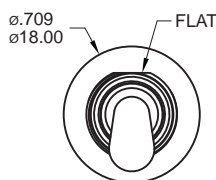
Subtract .020 (0.51) for B6 Bushing ;

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

### T88B52

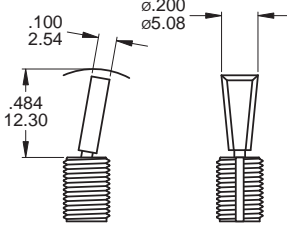
### SPLASH PROOF

Std SPDT for M1.M2 Terminal

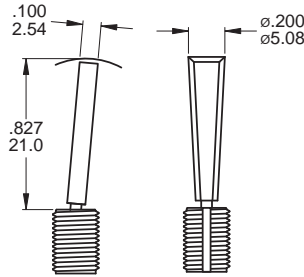


PANEL MOUNTING  
Without locking ring (Flat)

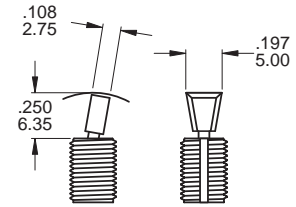
**T6** FLATTED WITH ANTIROTATION



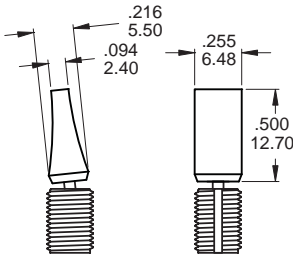
**T61**



**T63**



**T62**



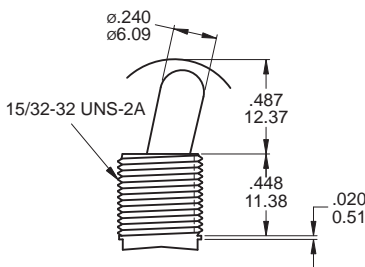
**Plastic No.Color :**

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.

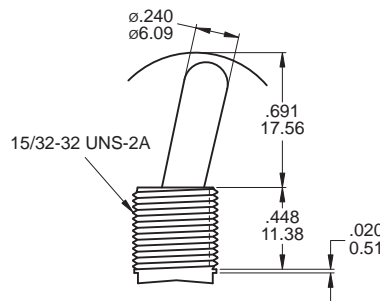
\* Besides standard color, other colors need to check stocks available.

**T7**



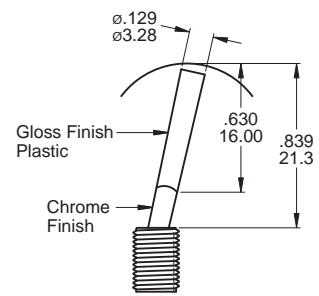
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 13.00mm

**T8**



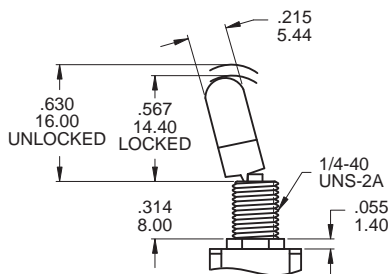
Use with B13 bushing  
Use with B18,B20 the lever is antirotation and the size of lever is 18.00mm

**T9**

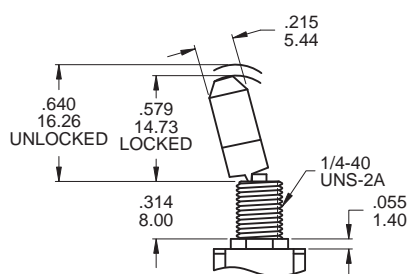


B1 / B2 bushing std with black(T92) and red(T93) color only(std.)

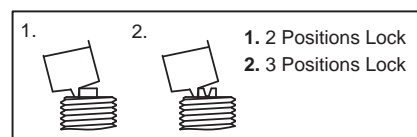
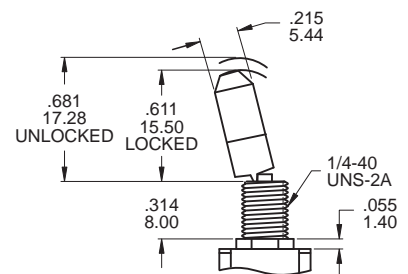
**TL1B25 THD STD**  
**B26 NON-THD**



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



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



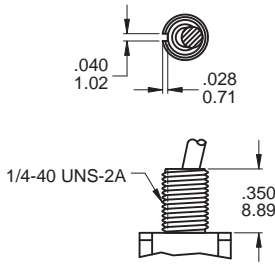
# 1M Series

Miniature Toggle Switches

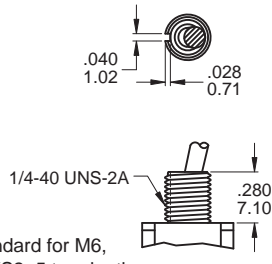
## BUSHING OPTIONS

1M Toggle Switches

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

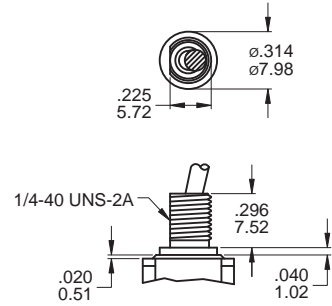


**B3 THD**  
**B4 NON-THD**

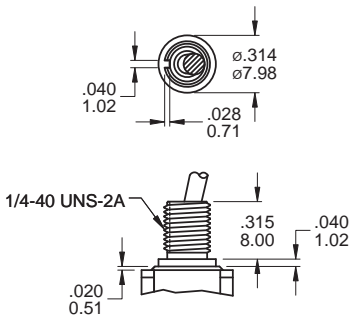


B4 is standard for M6, M7 and VS2-5 termination options.

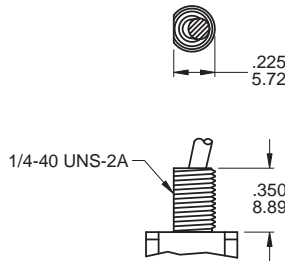
**B5 HIGH TORQUE**



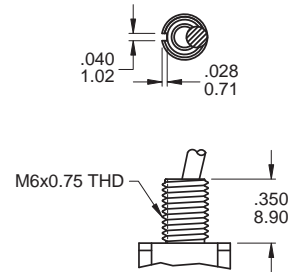
**B6 HIGH TORQUE**



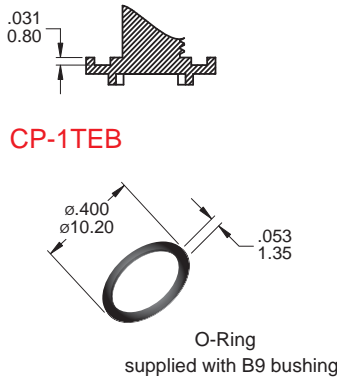
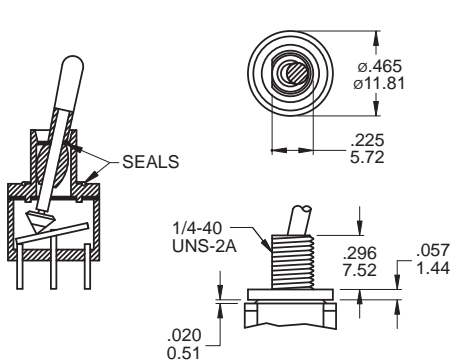
**B7 THD STD**



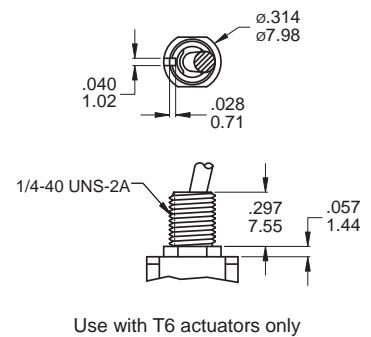
**B8 METRIC THD**



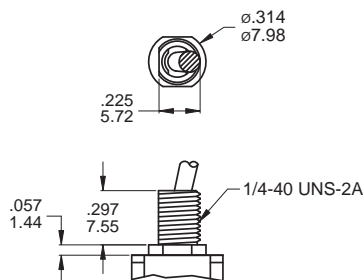
**B9 SPLASH PROOF**



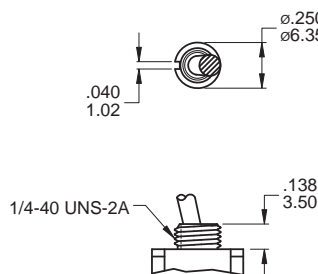
**B11 THD STD**  
**B12 NON-THD**



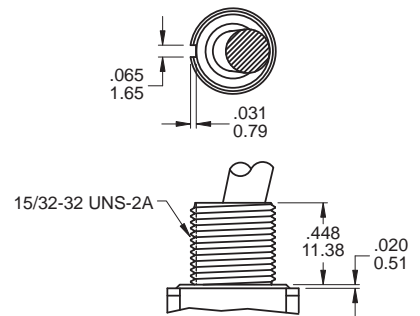
**B15 THD STD**  
**B16 NON-THD**



**B17**

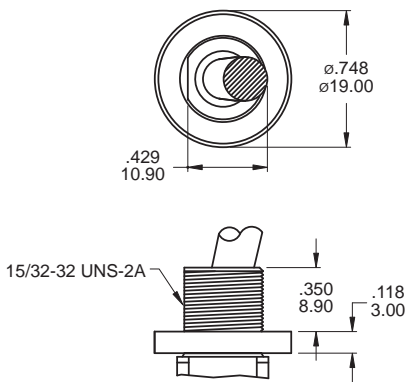


**B13**



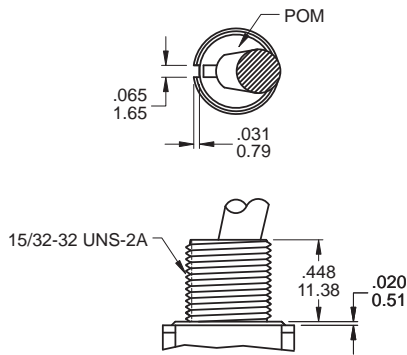
Use with T7, T8 actuators only  
B13 Bear strength from top of actuator up to 10kg aside up to 15kg

## B14 SPLASH PROOF



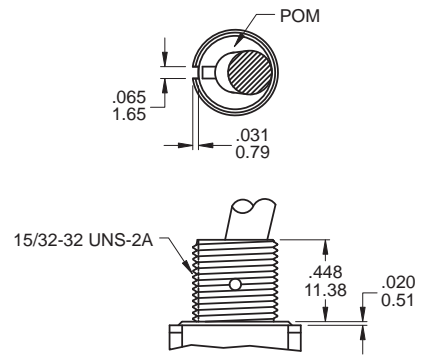
Use with T7, T8 actuators only

## B18



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

## B20



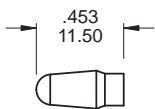
Use with T7, T8 and TA actuators only with Plastic (POM) Insert

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



## OPTIONAL TOGGLE CAP

### CP-T1XX



Use with T1 actuator

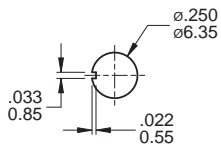
### CAP Color :

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

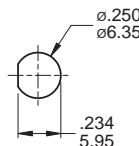
\* Besides standard color, other colors need to check stocks available.

## PANEL MOUNTING

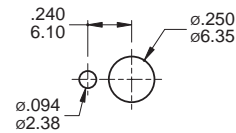
### 1/4 IN BUSHING



Without locking ring (Keyway)

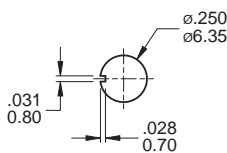


Without locking ring (Flat)

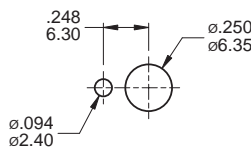


With standard locking ring.

### METRIC BUSHING

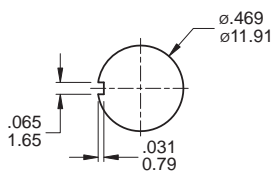


Without locking ring (Keyway)

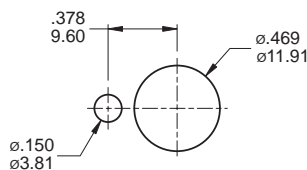


With standard locking ring.

### 15/32 IN BUSHING

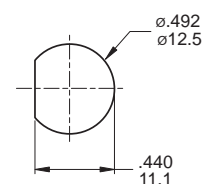


Without locking ring (Keyway)



With standard locking ring.

### SPLASH PROOF BUSHING



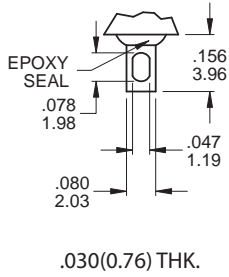
Without locking ring (Flat)

# 1M Series

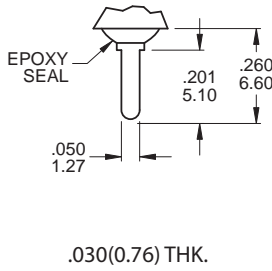
Miniature Toggle Switches

## TERMINATION OPTIONS

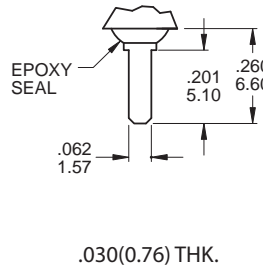
### M1 Solder lug



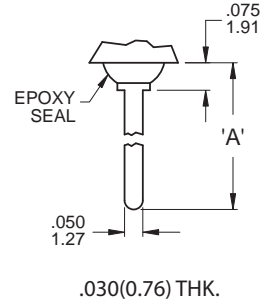
### M2 PC Thru-hole



### M3 Quick connect



### M5 Wire Wrap



## 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

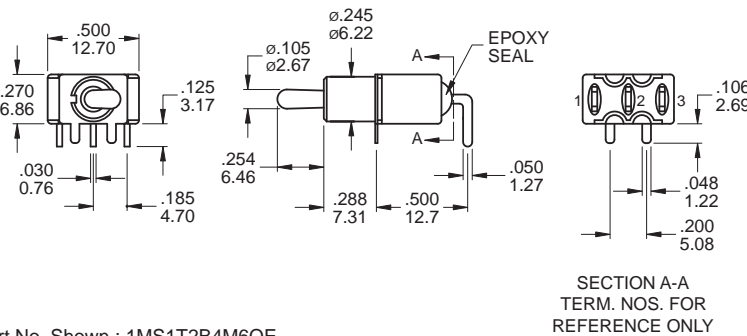
**VS5** Vertical bracket P.C. Mount

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

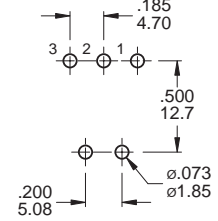
**V2N** Vertical bracket P.C. Mount with snap-in bracket

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

### M6



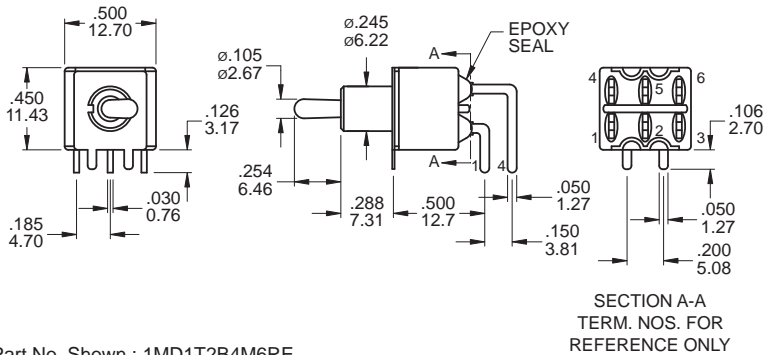
### P.C. MOUNTING



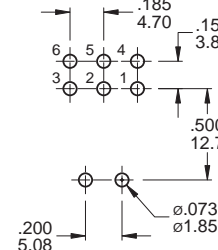
### SPDT

Part No. Shown : 1MS1T2B4M6QE

### M6



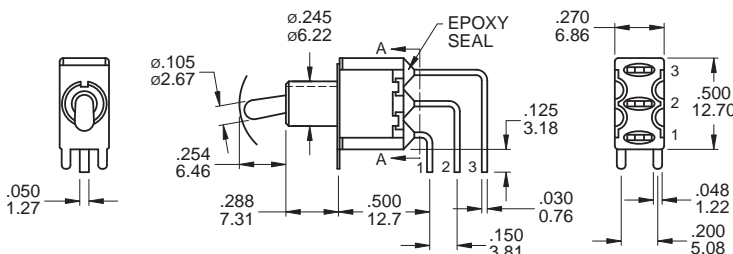
### P.C. MOUNTING



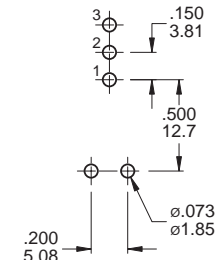
### DPDT

Part No. Shown : 1MD1T2B4M6RE

### M7



### P.C. MOUNTING



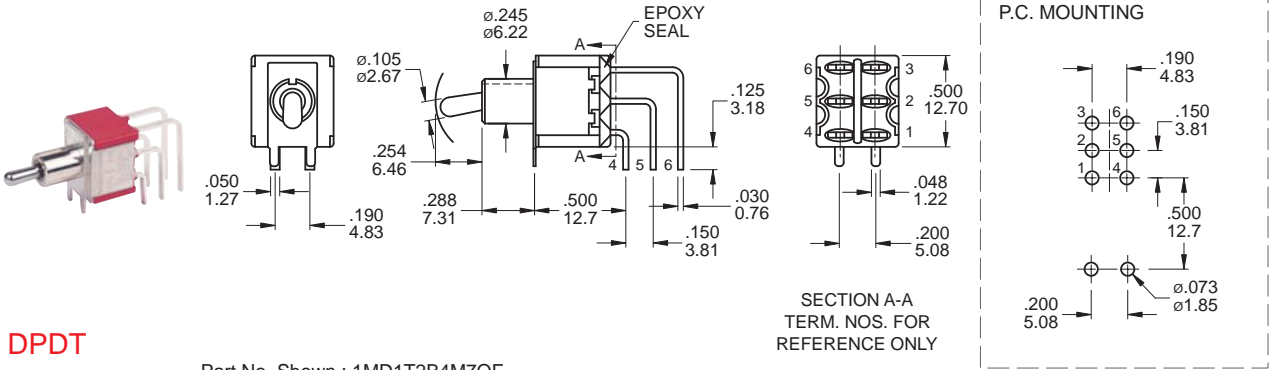
### SPDT

Part No. Shown : 1MS1T2B4M7QE

1M  
Toggle Switches

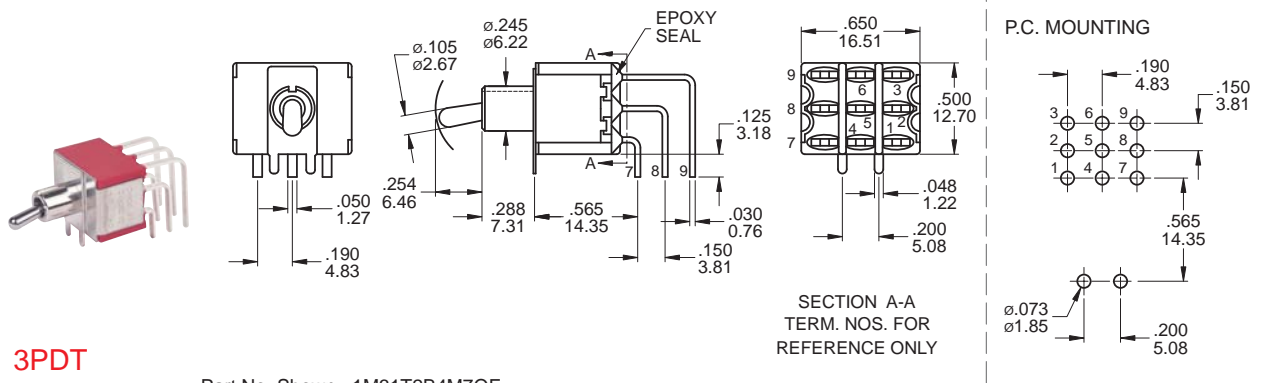


## M7



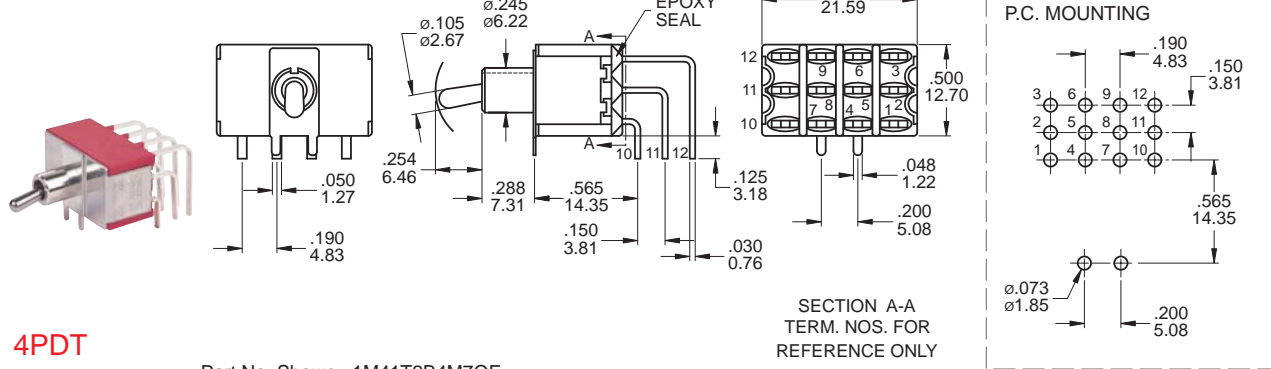
## DPDT

## M7



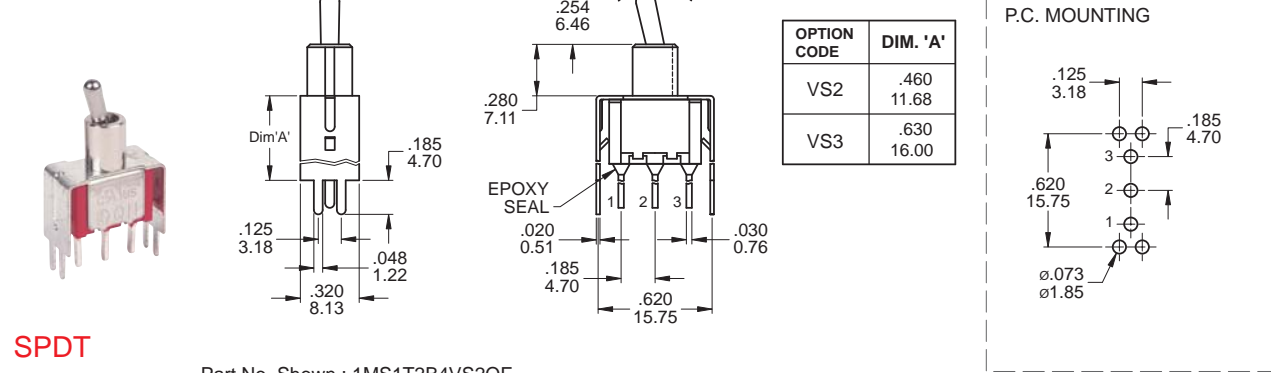
## 3PDT

## M7



## 4PDT

## VS2 - VS3



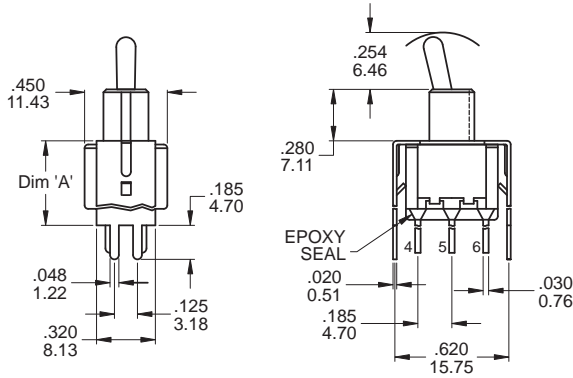
## SPDT

# 1M Series

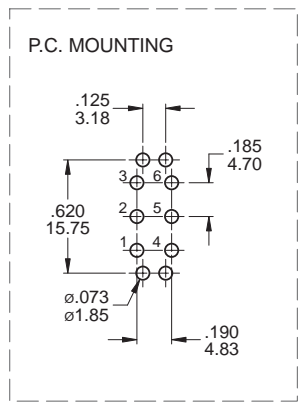
Miniature Toggle Switches

1M  
Toggle Switches

## VS2 - VS3



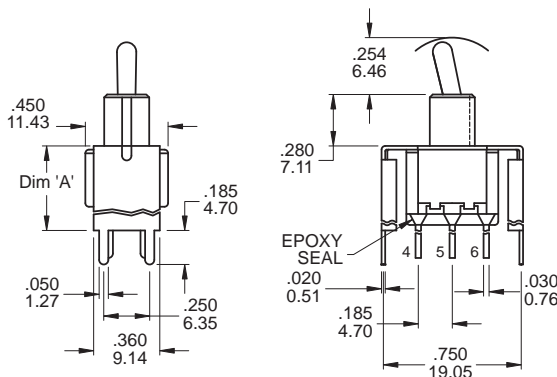
OPTION CODE	DIM. 'A'
VS2	.460 11.68
VS3	.630 16.00



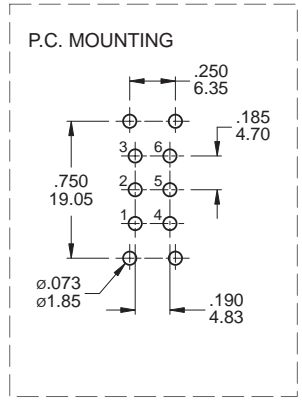
## DPDT

Part No. Shown : 1MD1T2B4VS3QE

## VS5



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

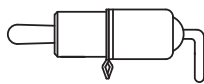
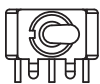


## DPDT

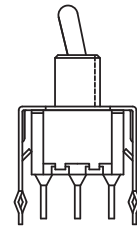
Part No. Shown : 1MD1T2B4VS5QE

## SNAP-IN TERMINATION OPTIONS

### M6N

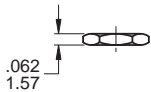
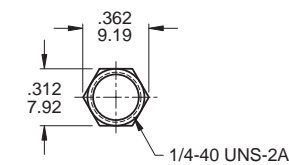


### V2N



## HARDWARE

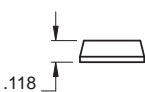
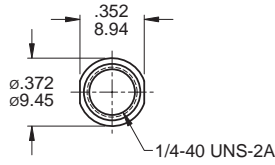
### 1/4 NUT



MNU-1M01A

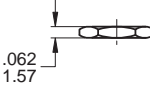
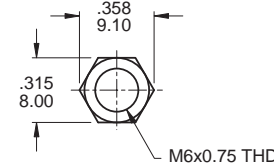
Supplied standard with B1, B3, B5, B6 and B9 options

### DRESS NUT



MNU-1M29

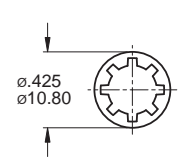
### METRIC NUT



MNU-1M04

Supplied standard with B8 metric bushing

### LOCKWASHER

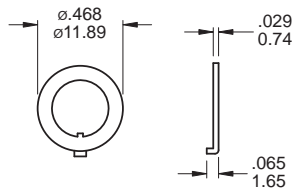


MNU-1M03

Supplied standard with B1 / B3 bushing



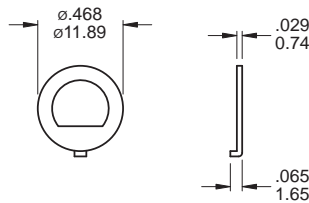
### LOCKING RING



**MNU-1M02**

Locking ring supplied standard

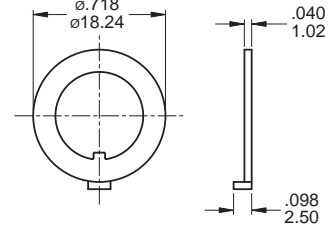
### LOCKING RING



**MNU-1M11**

Locking ring supplied with B5 bushing

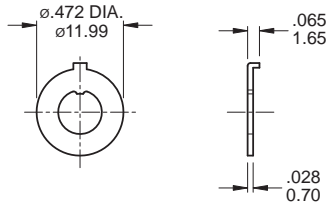
### LOCKING RING



**MNU-1M08**

Locking ring supplied with B13,B18,B20 bushing

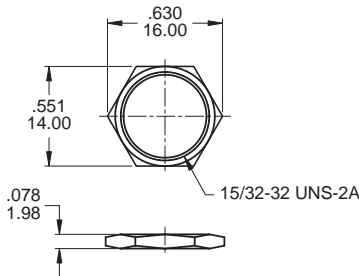
### LOCKING RING



**MNU-1M05**

Locking ring supplied with B8 bushing

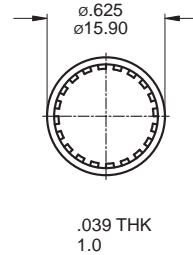
### 15/32 NUT



**MNU1M07**

Supplied standard with B13 bushing

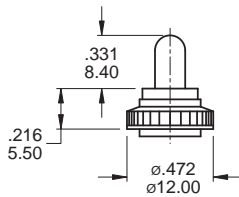
### LOCKWASHER



**MNU-1M09**

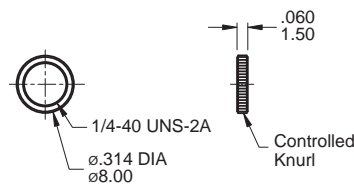
Supplied standard with B13 bushing

### OPTIONAL RUBBER HOOD SEALING



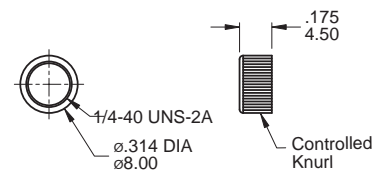
K1=Metric  
E1=Inch (Std.)  
for actuator T1, T2 and  
B1, B3, B5, B6 Bushing only

### 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)