

# Toggle Switches

## Miniature









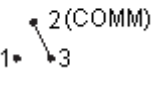
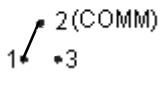
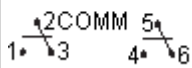
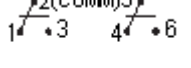
### Specifications:

Contact rating	: Dependent upon contact material
Mechanical life	: 40,000 make and break cycles
Maximum contact resistance	: 10 mΩ
Initial voltage	: 2 to 4 V dc
Current	: 10 mA for both silver and gold plated contacts
Minimum Insulation resistance	: 1,000 MΩ
Dielectric strength	: 1,000 Vrms at sea level
Operating temperature	: -30°C to 85°C

### Materials:

Case	: Diallylphthalate (DAP) (UL94v-0)
Actuator	: Brass, chrome plated
Bushing	: Brass, nickel plated
Housing	: Stainless steel
Switch support	: Brass, tin plated
Terminal/contact	: Silver or gold plated

### Switch Function










Number of Poles	UL/CSA Model Numbers	Model Number	Switch Function			Connected Terminals/Schematic		
			Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
								
SP	Q1111	1MS1	On	None	ON	2 to 3	N/A	2 to 1
	Q1112	1MS2			MOM			
	Q1113	1MS3	MOM	Off	ON		Open	
	Q1114	1MS4			MOM			
	Q1115	1MS5			On			
DP	Q1121	1MD1	On	None	ON	2 to 3, 5 to 6	N/A	2 to 1, 5 to 4
	Q1122	1MD2			MOM			
	Q1123	1MD3	MOM	Off	ON		Open	
	Q1124	1MD4			MOM			
	Q1125	1MD5			On			

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Number of Poles	UL/CSA Model Numbers	Model Number	Switch Function			Connected Terminals/Schematic						
			Position 1	Position 2	Position 3	Position 1	Position 2	Position 3				
												
DP	Q1126	1MD6	On	On	On	2 to 3, 5 to 6	2 to 3, 5 to 4	2 to 1, 5 to 4				
	Q1127	1MD7	MOM		MOM							
	Q1128	1MD8	On	None	On				2 to 3, 5 to 6, 8 to 9	N/A	2 to 1, 5 to 4, 8 to 7	
Q1131	1M31	MOM										
Q1132	1M32	On			Open							
Q1133	1M33	MOM										
Q1134	1M34	MOM			Off	MOM						
Q1135	1M35	On	None	On	2 to 3, 5 to 6, 8 to 9, 11 to 12	N/A		2 to 1, 5 to 4, 8 to 7, 11 to 10				
Q1141	1M41			MOM								
Q1142	1M42			On								
Q1143	1M43			On								
Q1144	1M44			MOM			Off		MOM			
Q1145	1M45			On								
Q1146	1M46			On			On		On	2 to 3, 5 to 4, 8 to 9, 11 to 10	2 to 3, 5 to 4, 8 to 9, 11 to 10	2 to 1, 5 to 4, 8 to 7, 11 to 10
Q1147	1M47			MOM			On		MOM			
Q1148	1M48	On	On	MOM								

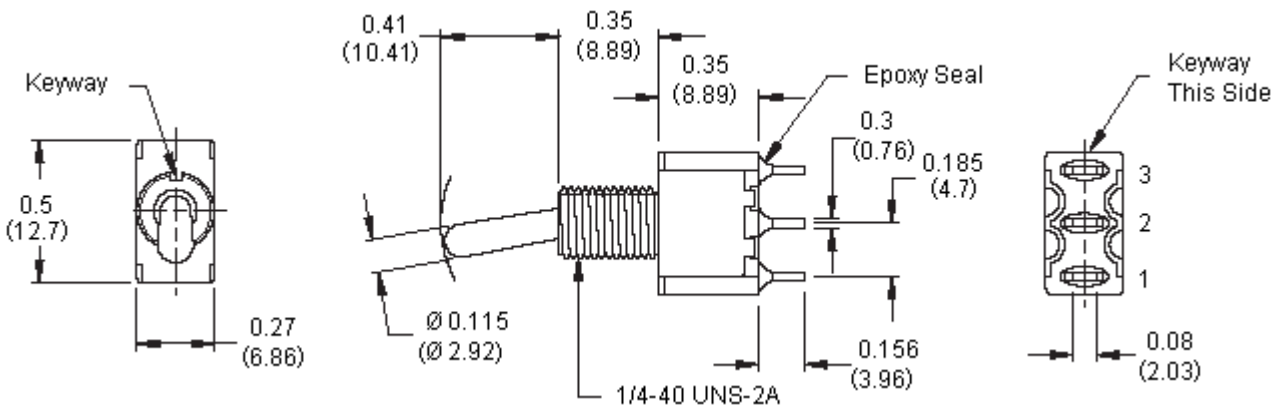
# Toggle Switches



## Miniature

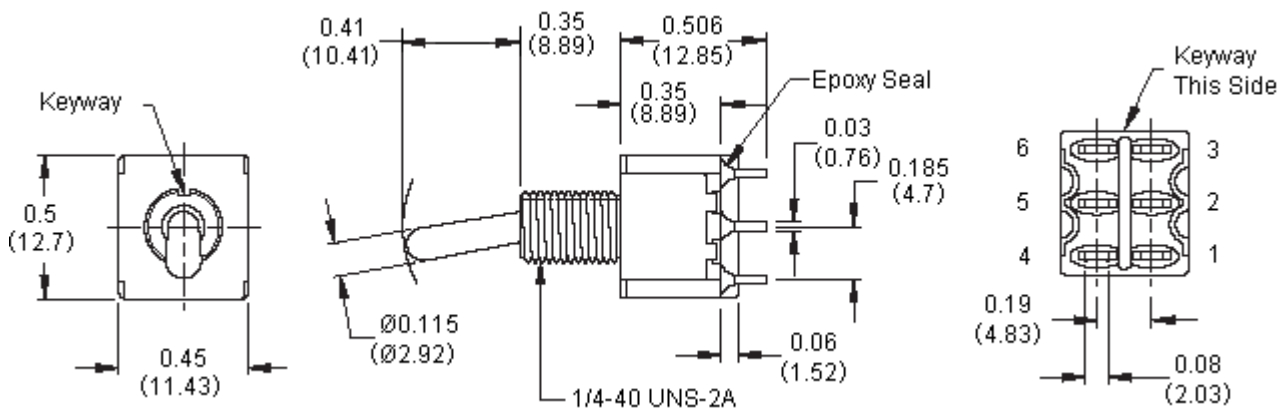
### Pole Options

#### SPDT



Dimensions : Inches (Millimetres)

#### DPDT



Dimensions : Inches Millimetres)



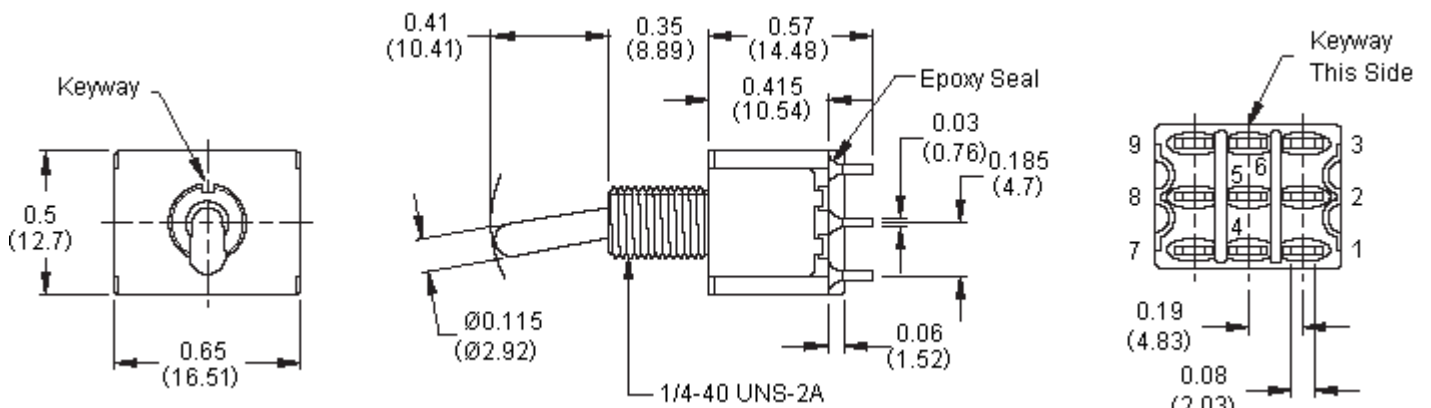
# Toggle Switches



## Miniature

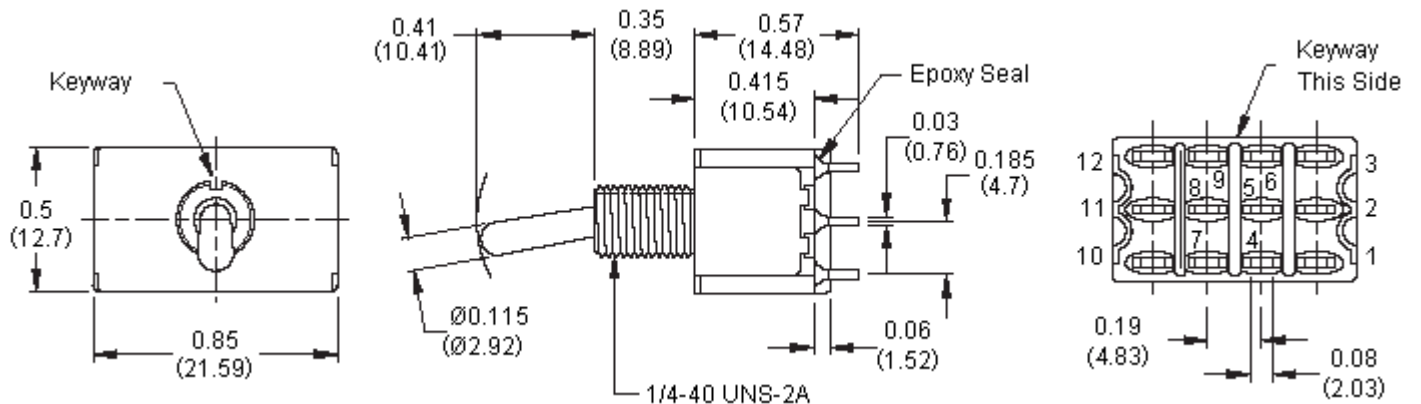
### Pole Options

#### 3PDT



Dimensions : Inches (Millimetres)

#### 4PDT



Dimensions : Inches (Millimetres)



# Toggle Switches

## Miniature

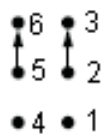
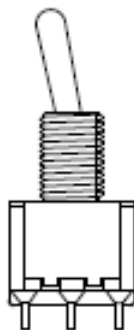
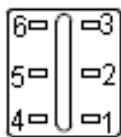
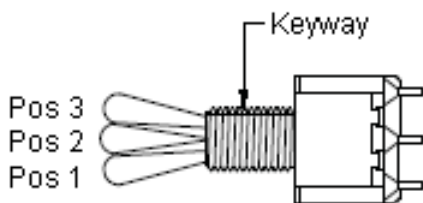
### Single Pole, 3 Position

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

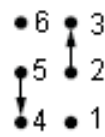
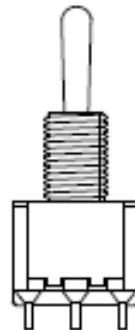
### Double Pole, 3 Position

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

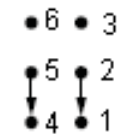
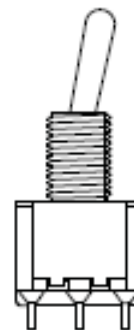
### 3-Way Wiring Diagram Schematics



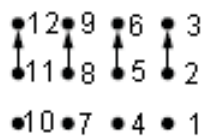
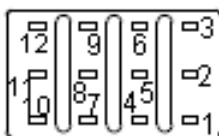
Pos. 1



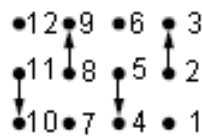
Pos. 2



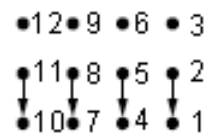
Pos. 3



Pos. 1



Pos. 2



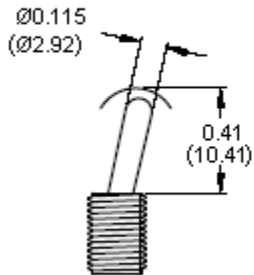
Pos. 3

# Toggle Switches

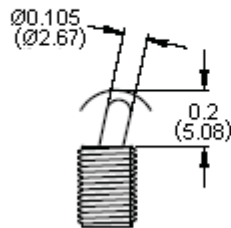
## Miniature

### Actuator Options

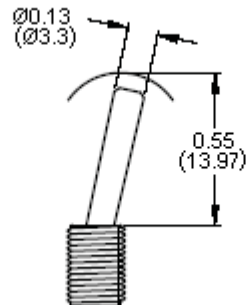
**T1 STD**



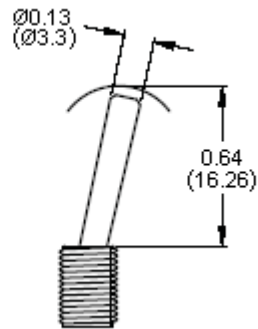
**T2**



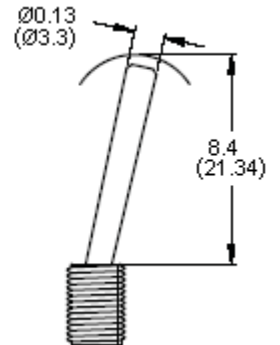
**T3**



**T4**



**T5**

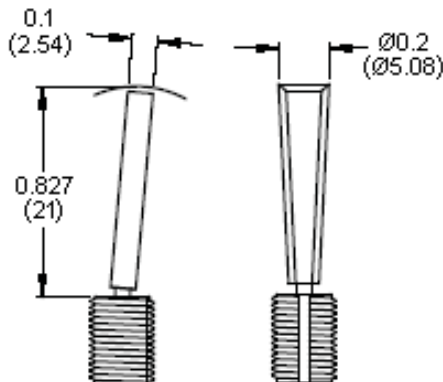
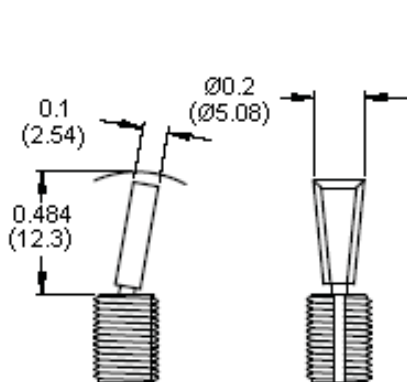


**Note:** T1 to T5 Actuator shown with standard B1 bushing :  
 add .07 (1.78) for B3 Bushing ;  
 Subtract 0.02 (0.51) for B6 Bushing ;  
 Std for M1, M2 Terminal sub 0.016 (0.4) for M6, M7, VSX

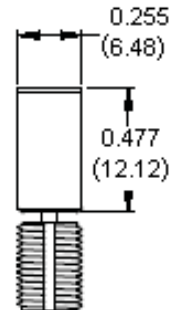
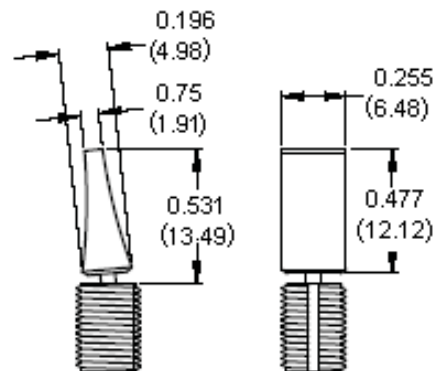
Dimensions : Inches (Millimetres)

### T6 Flatted with anti-rotation

**T61**

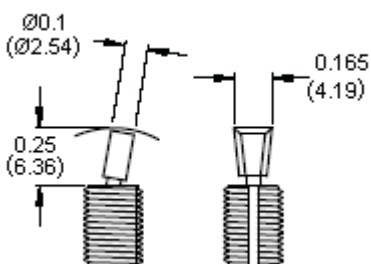


**T62**



Dimensions : Inches (Millimetres)

**T63**



Dimensions : Inches (Millimetres)

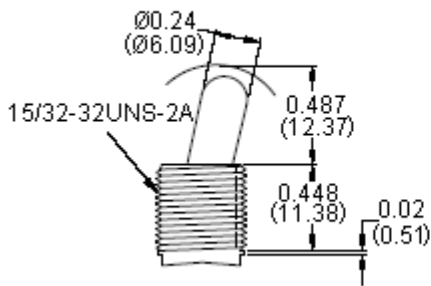
**Note:** T6, T6-1, T6-2, T63 use with B11, B12, B15, B16 bushing only

# Toggle Switches



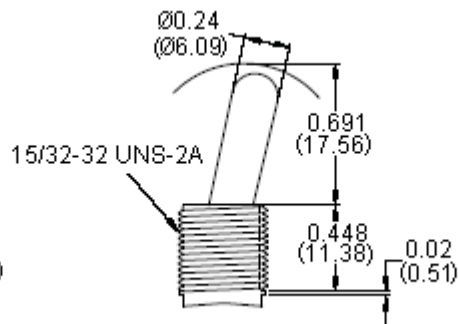
## Miniature

**T7**



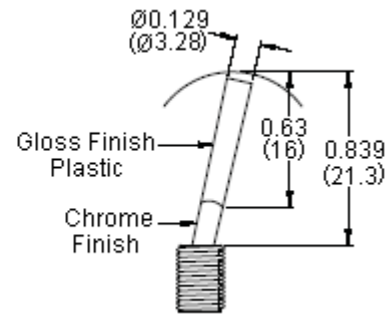
Use with B13 bushing  
Use with B18, B20 the lever is anti-rotation and the size of lever is 13 mm

**T8**



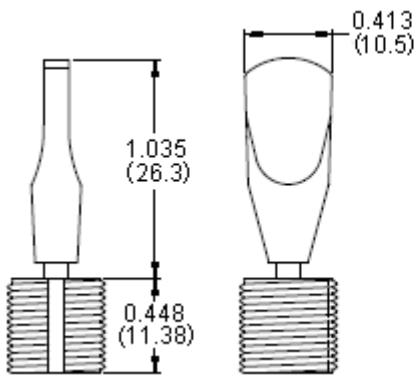
Use with B13 bushing  
Use with B18, B20 the lever is anti-rotation and the size of lever is 18 mm

**T9**



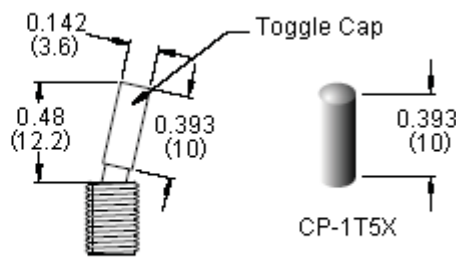
Dimensions : Inches (Millimetres)  
B1/B2 bushing std  
with black and red colour only (std).

### TA Plastic Black



Use with B18 bushing only

**T11**



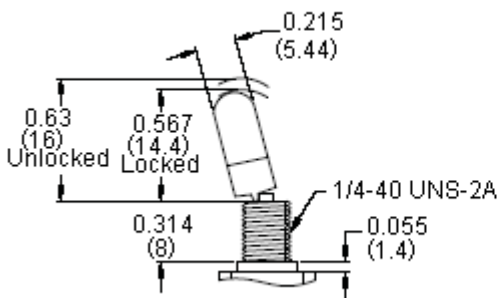
**Note:** T11 Actuator shown with standard B1 bushing;  
Add 0.07 (1.78) for B3 bushing;  
Subtract 0.02 (0.51) for B6 bushing.  
Std for M1.M2 Terminal sub. 0.016 (0.4) for M6.M7.VSX

Dimensions : Inches (Millimetres)

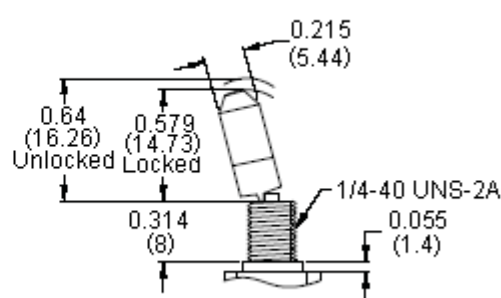
**Plastic No. Colour :**

Item No	Colour
1	White
2	Black (Std)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

**TL1B25**



**TL2B25**

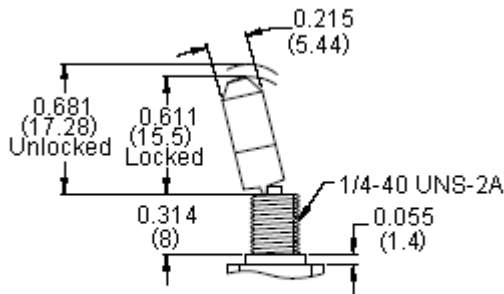


Dimensions : Inches (Millimetres)

# Toggle Switches

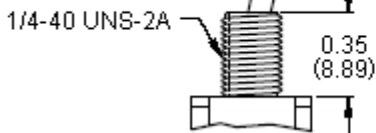
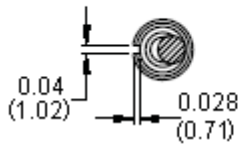
## Miniature

### TL3B25

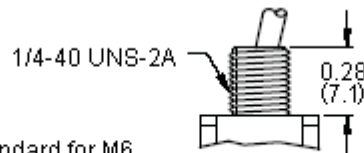
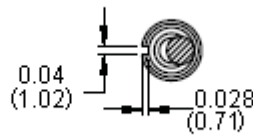


Dimensions : Inches (Millimetres)

#### B1 THD STD B2 NON-THD

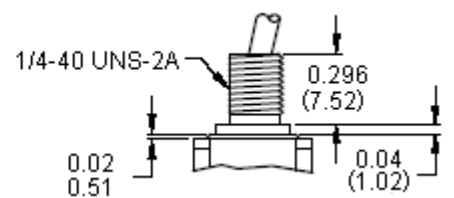
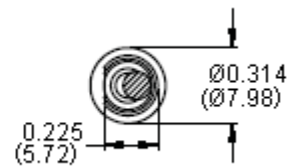


#### B3 THD B4 NON-THD



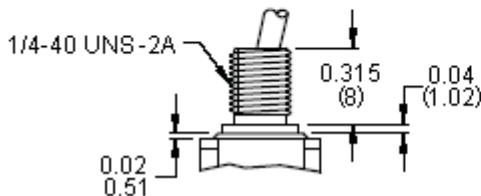
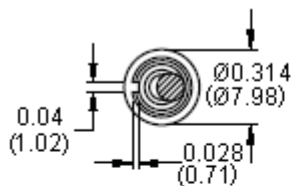
B4 is standard for M6, M7 and VS2 to 5 termination options.

#### B5 High Torque

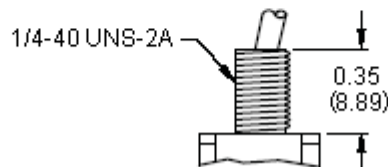
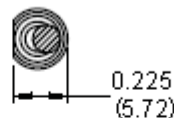


Dimensions : Inches (Millimetres)

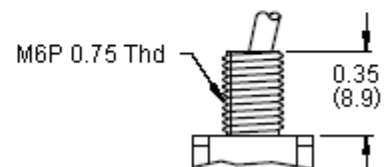
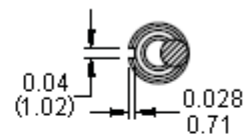
#### B6 High Torque



#### B7 Thd STD



#### B8 Metric Thd



Dimensions : Inches (Millimetres)

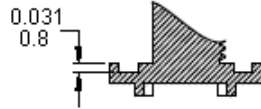
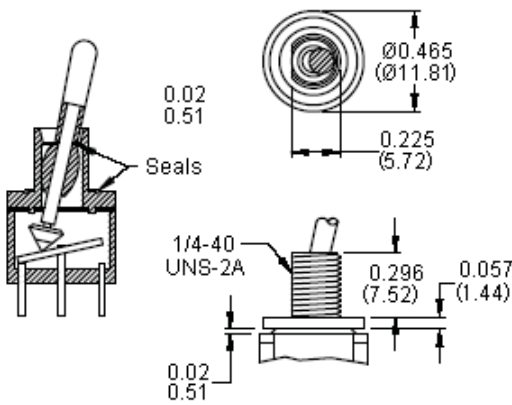


# Toggle Switches

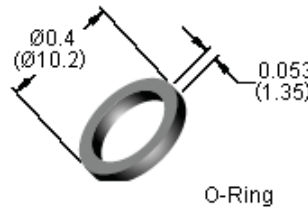
## Miniature



**B9 Splash Proof**



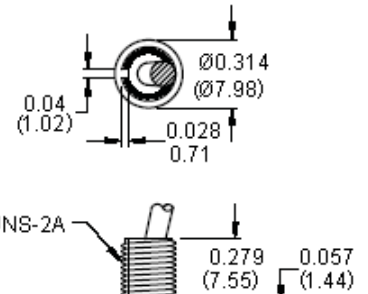
**CP-1TEB**



O-Ring

Supplied with B9 Bushing

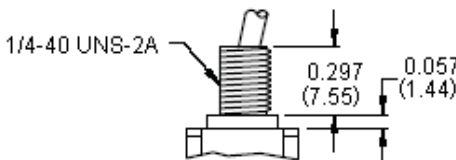
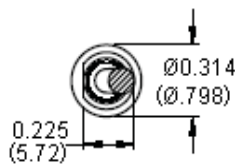
**B11 THD STD  
B12 NON-THD**



Dimensions : Inches (Millimetres)

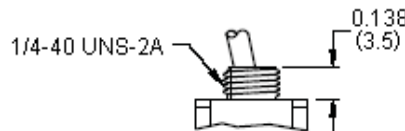
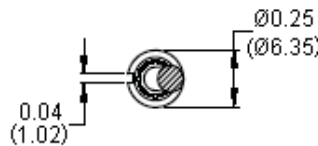
Use with T6 actuators only

**B15 THD STD  
B16 NON-THD**

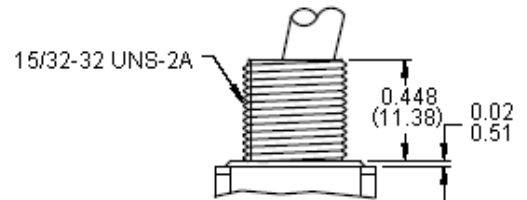
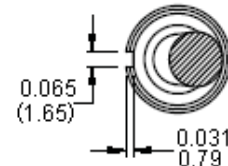


Use with T6 actuators only

**B17**



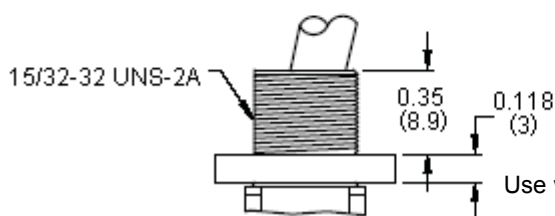
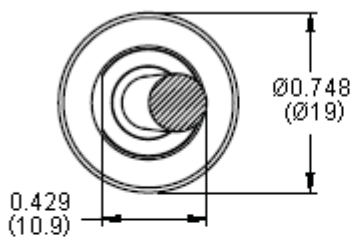
**B13**



Dimensions : Inches (Millimetres)

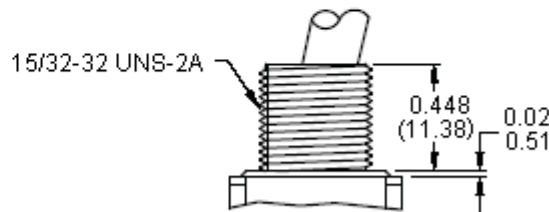
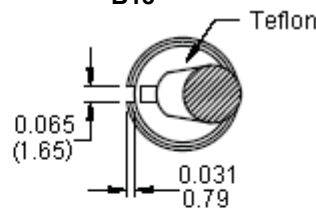
Use with T7, T8 actuators only  
B13 Bear strength from top of actuator  
up to 10 kg aside up to 15 kg

**B14 Splash Proof**



Use with T7, T8 and T10 actuators only with plastic  
(Teflon) Insert

**B18**



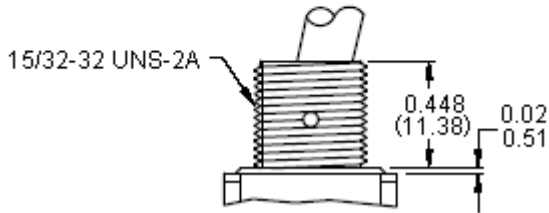
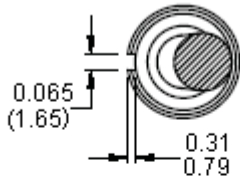
Dimensions : Inches (Millimetres)

# Toggle Switches

## Miniature



### B20



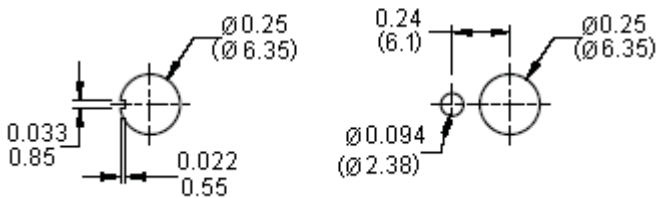
Dimensions : Inches (Millimetres)

**Use with T7, T8 and T10 actuators only**

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

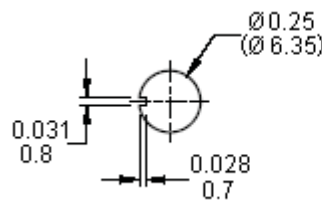
## Panel Mounting

### 1/4 In Bushing

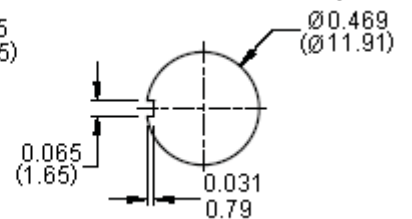


Dimensions : Inches (Millimetres)

### Metric Bushing

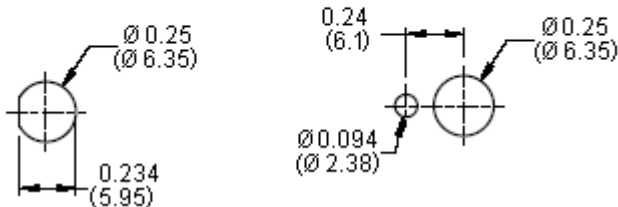


### 15/32 In Bushing



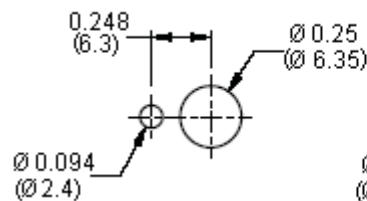
Dimensions : Inches (Millimetres)

### 1/4 In Bushing

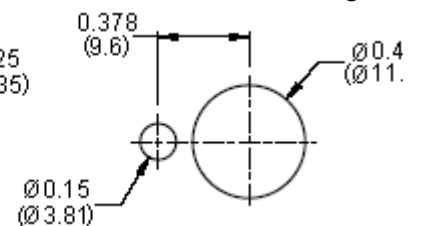


Dimensions : Inches (Millimetres)

### Metric Bushing



### 15/32 In Bushing



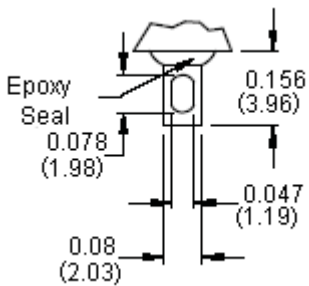
Dimensions : Inches (Millimetres)

# Toggle Switches

## Miniature

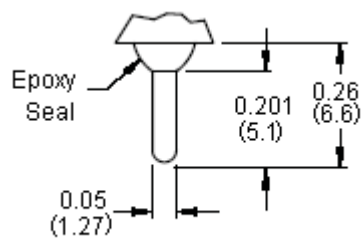
### Termination Options

**M1 Solder Lug**



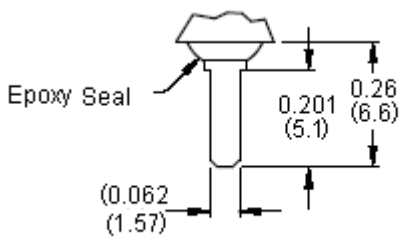
Dimensions : Inches (Millimetres)  
**0.03 (0.76) Thk**

**M2 PC Thru-Hole**



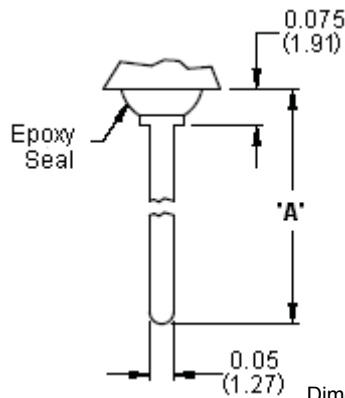
Dimensions : Inches (Millimetres)  
**0.03 (0.76) Thk**

**M5 Wire Wrap**



Dimensions : Inches (Millimetres)  
**Thk 0.03 (0.76)**

**M3 Quick Connect**



**Thk 0.03 (0.76)**

Dimensions : Inches (Millimetres)

### Other Termination Options

- M6 Right Angle P.C. Mount
- M7 Right Angle P.C. Mount
- VS2 Vertical Bracket P.C. Mount
- VS3 Vertical Bracket P.C. Mount
- VS5 Vertical Bracket P.C. Mount

RE Mating Quick Connector  
Amp P/N 60900-1

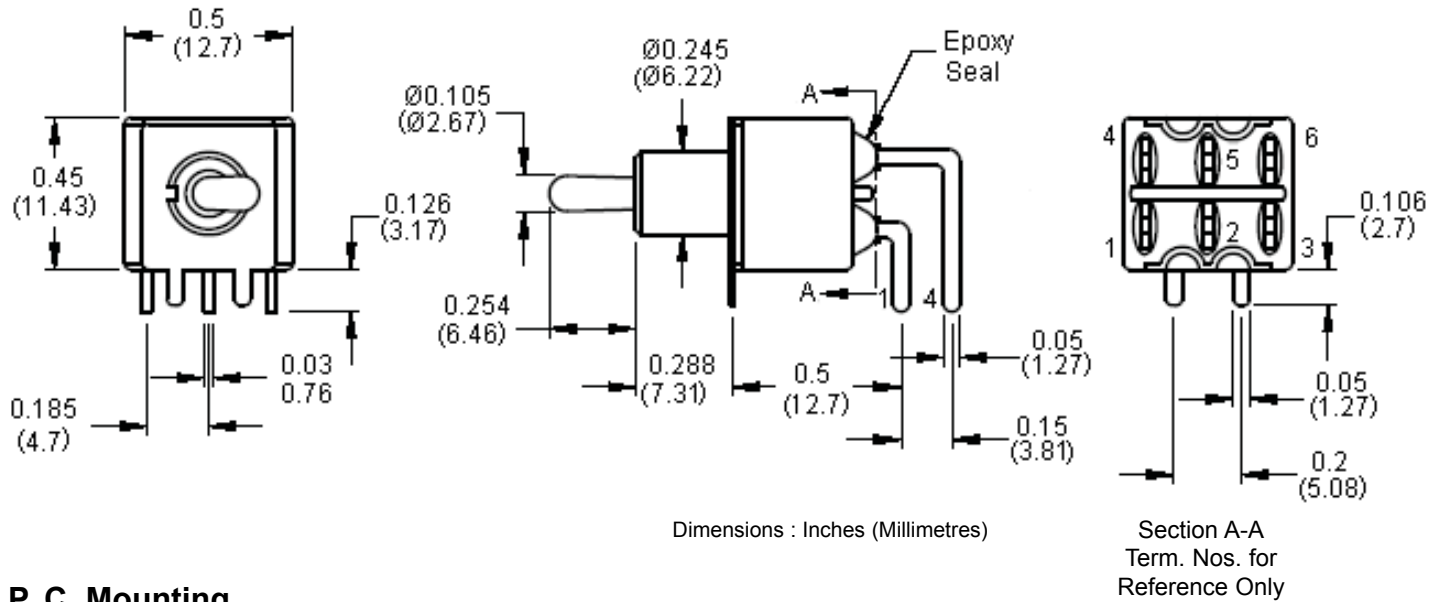
Option Code	Dimension 'A'
M5-1	0.736 (18.7)
M5-2	0.953 (24.2)
M5-3	0.415 (10.55)
M5-4	1.062 (26.97)

# Toggle Switches

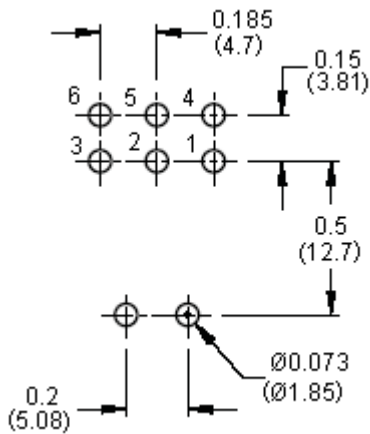


## Miniature

### M6



### P. C. Mounting



Dimensions : Inches (Millimetres)

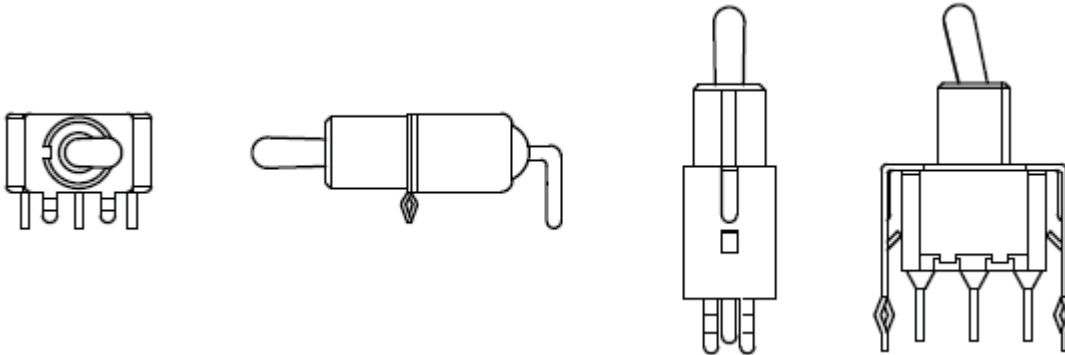


# Toggle Switches



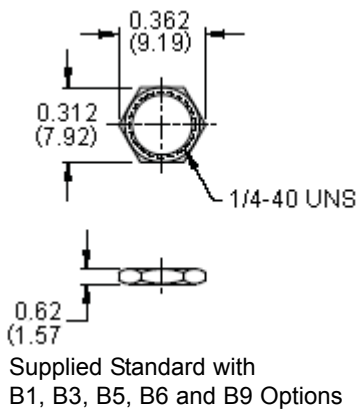
## Miniature

### SNAP-IN Termination Options

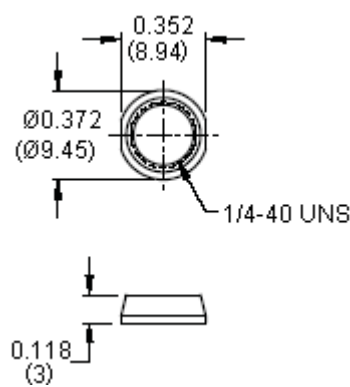


### Hardware

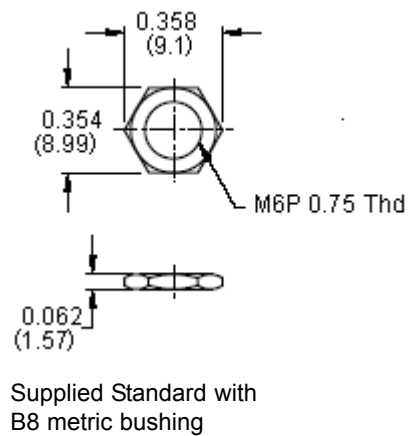
#### 1/4 Nuts HDW2



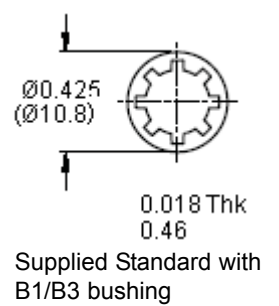
#### Dress Nut HDW3



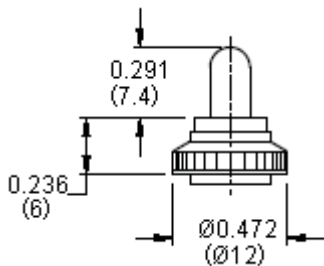
#### Metric Nut HDW6



#### Lock Washer HDW11

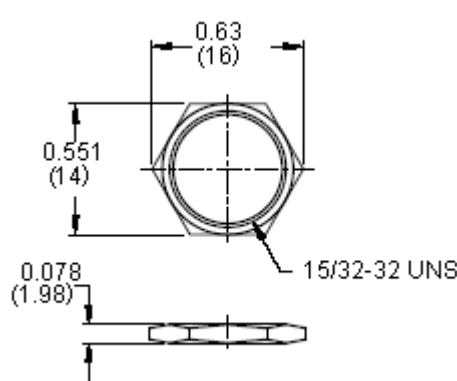


#### Optional Rubber Hood Sealing



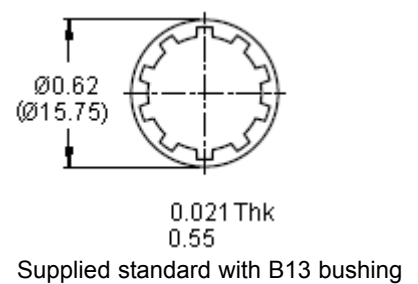
K1 = Metric  
E1 = Inch (Std.)  
for actuator T1, T2 and B1, B3, B5, B6 Bushing only

#### 15/32 Nuts HDW4



Supplied standard with B13 bushing

#### Lock Washer HDW12



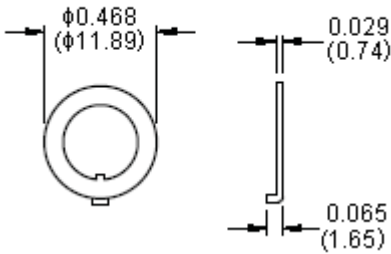
Dimensions : Inches (Millimetres)

# Toggle Switches



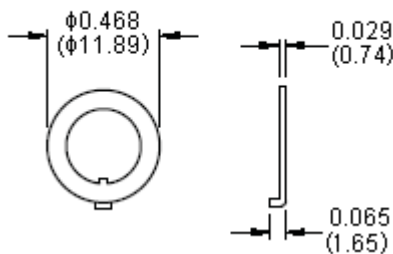
## Miniature

**HDW15**



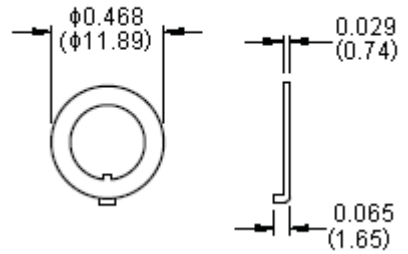
Locking ring supplied standard

**HDW16**



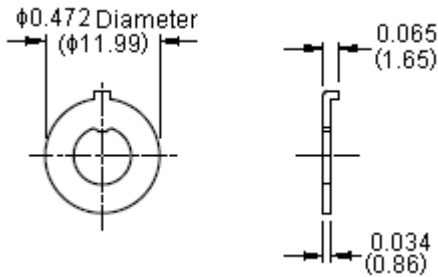
Locking ring supplied with B5 bushing

**HDW17**



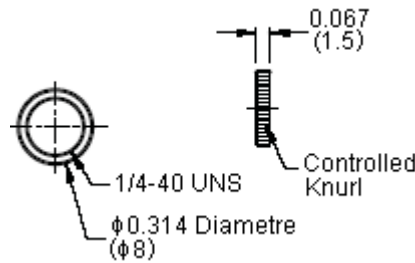
Locking ring supplied with B13, B18, B20 bushing

**HDW18**



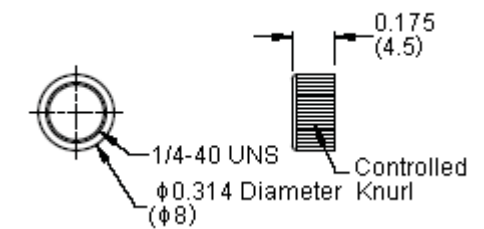
Locking ring supplied with B8 bushing

**HDW19**



**Nu-1M18**

**HDW20**

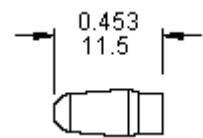


**NU-1M24**

Dimensions : Inches (Millimetres)

## Optional Toggle Cap

**CP-T1XX**



Use with T1

Cap Colour :

Item No	Colour
1	White
2	Black (Std)
3	Red
5	Yellow
6	Green
7	Blue
9	Gray

# Toggle Switches



## Miniature

### Contact Material Options

	Contact Plating	Terminal Plating	Ratings
Q	Silver	Q = Silver	5 Amperes with resistant load at 120 V ac or 28 V dc 2 Amps with resistant load at 250 V ac
S		S = Silver, pure-tin	
C	Gold over Silver	C = Gold over silver	
K		K = Gold over silver, pure-tin	
R	Gold	R = Gold	0.4 Volt-Amperes (VA) maximum at (20 V maximum (AC or DC)
G		G = Gold, pure-tin	

### Soldering Process:

- Manual soldering : Use soldering iron of 30 watts, controlled at 350°C  
approximately 5 seconds while applying solder
- Wave soldering : Recommended soldering temperature : 260 ±5°C  
Duration of solder immersion : Maximum 5 ±1 seconds. (PCB is 1.6 mm in thickness)

### Soldering : Vapour Phase

### Part Number Table

Description	Part Number
SWITCH, PCB, DPDT, ON-MOM	1MD2T2B4VS3RE
SWITCH, PCB, DPDT, MOM-OFF-MOM	1MD4T2B4VS3RE
SWITCH, PCB, DPDT, ON-OFF-ON	1MD3T2B4VS3RE
SWITCH, PCB, DPDT, ON-OFF-MOM	1MD5T2B4VS3RE
SWITCH, PCB, DPDT, ON-ON-ON	1MD6T2B4VS3RE
SWITCH, PCB, SPDT, ON-MOM	1MS2T2B4M6RE
SWITCH, PCB, SPDT, ON-OFF-MOM	1MS5T2B4M6RE
SWITCH, PCB, DPDT, ON-MOM	1MD2T2B4M6RE
SWITCH, PCB, DPDT, MOM-OFF-MOM	1MD4T2B4M6RE
SWITCH, PCB, DPDT, ON-OFF-MOM	1MD5T2B4M6RE
SWITCH, PCB, DPDT, ON-ON-ON	1MD6T2B4M6RE
SWITCH, PCB, SPDT, ON-MOM	1MS2T2B4M7RE
SWITCH, PCB, SPDT, MOM-OFF-MOM	1MS4T2B4M7RE
SWITCH, PCB, SPDT, ON-OFF-MOM	1MS5T2B4M7RE
SWITCH, PCB, DPDT, ON-MOM	1MD2T2B4M7RE

# Toggle Switches



## Miniature

### Part Number Table

Description	Part Number
SWITCH, PCB, DPDT, MOM-OFF-MOM	1MD4T2B4M7RE
SWITCH, PCB, DPDT, ON-OFF-ON	1MD3T2B4M7RE
SWITCH, PCB, DPDT, ON-OFF-MOM	1MD5T2B4M7RE
SWITCH, PCB, DPDT, ON-ON-ON	1MD6T2B4M7RE
SWITCH, SOLDER TAG, SPDT, ON-MOM	1MS2T1B5M1QE
SWITCH, SOLDER TAG, SPDT, MOM-OFF-MOM	1MS4T1B5M1QE
SWITCH, SOLDER TAG, SPDT, ON-OFF-MOM	1MS5T1B5M1QE
SWITCH, SOLDER TAG, DPDT, ON-MOM	1MD2T1B5M1QE
SWITCH, SOLDER TAG, DPDT, MOM-OFF-MOM	1MD4T1B5M1QE
SWITCH, SOLDER TAG, DPDT, ON-OFF-MOM	1MD5T1B5M1QE
SWITCH, SOLDER TAG, DPDT, ON-ON-ON	1MD6T1B5M1QE
SWITCH, SOLDER TAG, 3PDT, ON-MOM	1M32T1B5M1QE
SWITCH, SOLDER TAG, 3PDT, ON-ON	1M31T1B5M1QE
SWITCH, SOLDER TAG, 3PDT, MOM-OFF-MOM	1M34T1B5M1QE
SWITCH, SOLDER TAG, 3PDT, ON-OFF-ON	1M33T1B5M1QE
SWITCH, SOLDER TAG, 3PDT, ON-OFF-MOM	1M35T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, ON-MOM	1M42T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, ON-ON	1M41T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, MOM-OFF-MOM	1M44T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, ON-OFF-ON	1M43T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, ON-OFF-MOM	1M45T1B5M1QE
SWITCH, SOLDER TAG, 4PDT, ON-ON-ON	1M46T1B5M1QE
SWITCH, PCB SPDT VERT.	1MS5T2B4V2RE.
SWITCH, SPDT	1MS3T1B5M1QE.
SWITCH, DPDT	1MD3T1B5M1QE.
SWITCH, PCB, SPDT, VERT	1MS1T2B4V2RE
SWITCH, PCB, SPDT, VERT	1MS3T2B4V2RE
SWITCH, PCB, SPDT, VERT	1MS2T2B4V2RE
SWITCH, PCB, SPDT, VERT	1MS4T2B4V2RE
SWITCH, PCB, SPDT, VERT	1MS5T2B4V2RE



# Toggle Switches

## Miniature



### Part Number Table

Description	Part Number
SWITCH, PCB, DPDT, VERT	1MD1T2B4V3RE
SWITCH, PCB, SPDT, HORIZ	1MS1T2B4M6RE
SWITCH, PCB, SPDT, HORIZ	1MS3T2B4M6RE
SWITCH, PCB, SPDT, HORIZ	1MS4T2B4M6RE
SWITCH, PCB, DPDT, HORIZ	1MD1T2B4M6RE
SWITCH, PCB, DPDT, HORIZ	1MD3T2B4M6RE
SWITCH, PCB, SPDT, HORIZ	1MS1T2B4M7RE
SWITCH, PCB, SPDT, HORIZ	1MS3T2B4M7RE
SWITCH, PCB, DPDT, HORIZ	1MD1T2B4M7RE
SWITCH, SPDT, 2.0A, 250V	1MS1T1B5M1QE
SWITCH, SPDT	1MS3T1B5M1QE