

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

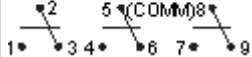
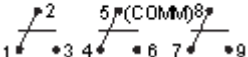
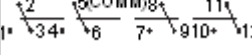
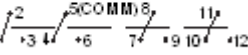
Number of Poles	UL/CSA Model Numbers	Model Number	Switch Function			Connected Terminals/Schematic		
			Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
SP	Q1111	1MS1	On	None	ON	2 to 3	N/A	2 to 1
	Q1112	1MS2			MOM			
	Q1113	1MS3	MOM	Off	ON		Open	
	Q1114	1MS4			MOM			
	Q1115	1MS5			MOM			
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			MOM			

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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
								
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			
3P	Q1131	1M31		MOM				
	Q1132	1M32		Off	On		Open	
	Q1133	1M33			MOM			
	Q1134	1M34			MOM			
Q1135	1M35	On	None	On	2 to 3, 5 to 6, 8 to 9, 11 to 12		2 to 1, 5 to 4, 8 to 7, 11 to 10	
4P	Q1141			1M41				MOM
	Q1142		1M42	Off	On			
	Q1143		1M43		MOM			
	Q1144		1M44		MOM			
	Q1145	1M45	On	On	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	
	Q1146	1M46						MOM
	Q1147	1M47						MOM
Q1148	1M48	On						

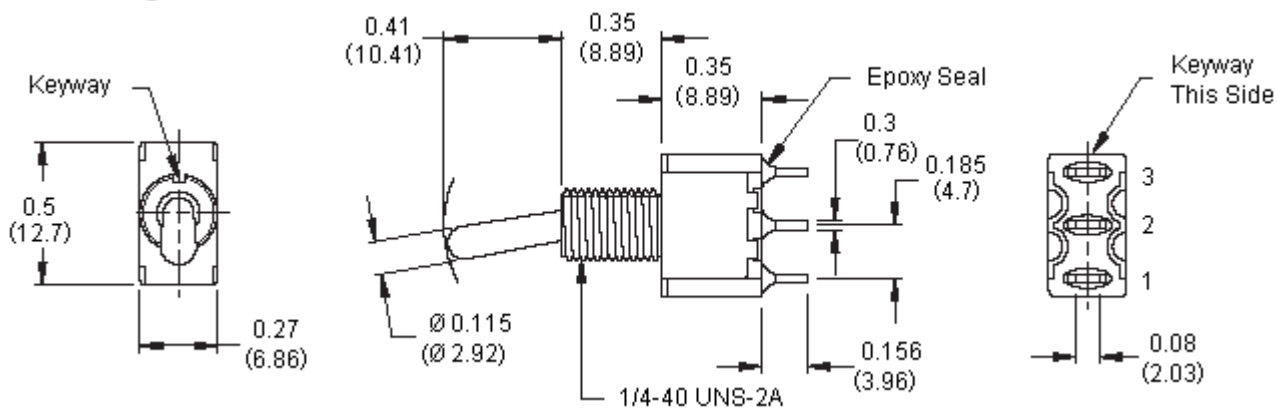
Toggle Switches



Miniature

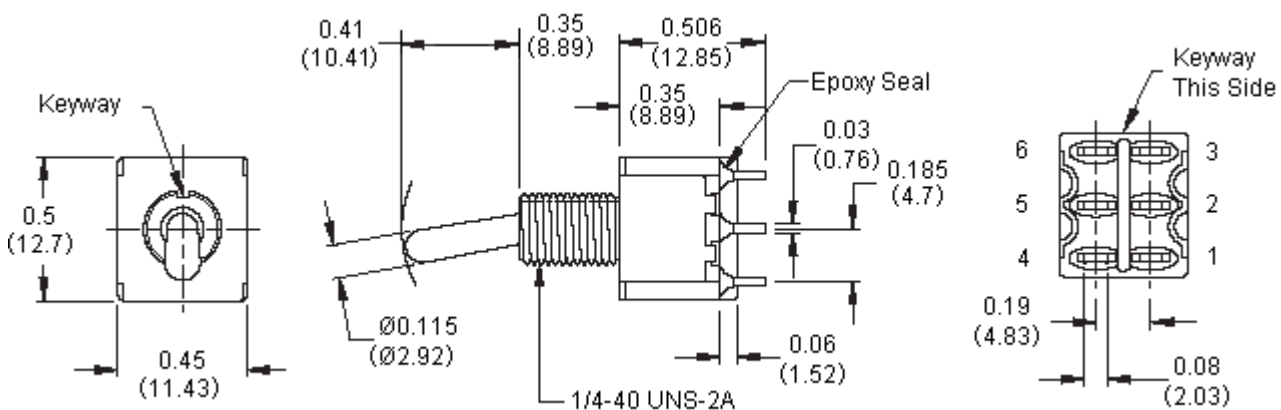
Pole Options

SPDT



Dimensions : Inches (Millimetres)

DPDT



Dimensions : Inches Millimetres)



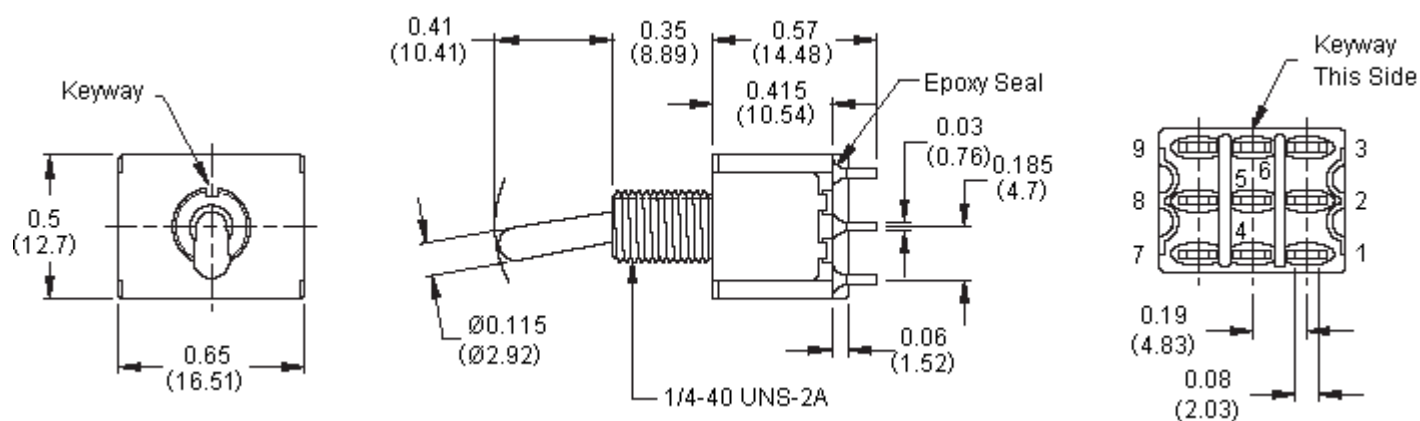
Toggle Switches



Miniature

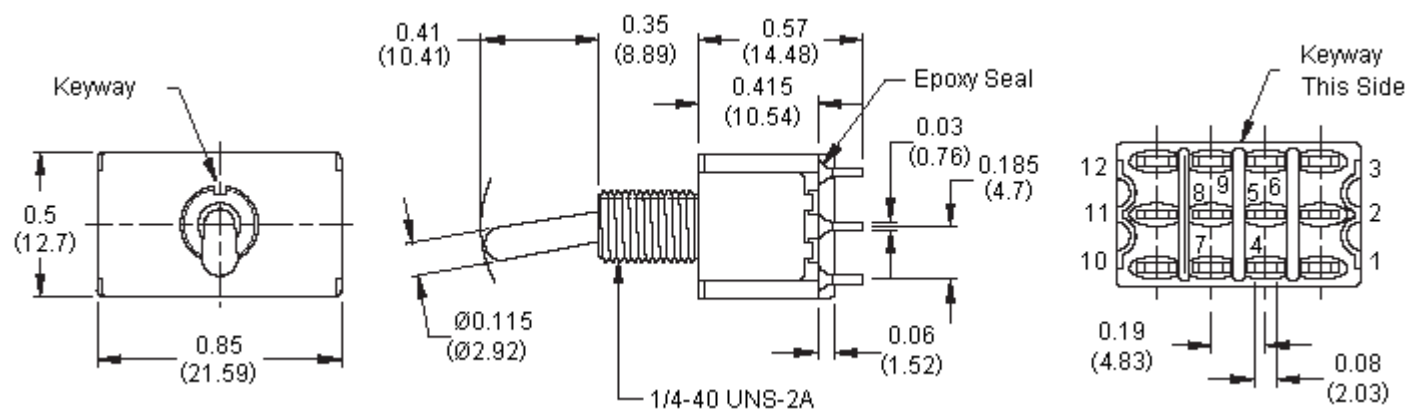
Pole Options

3PDT



Dimensions : Inches (Millimetres)

4PDT



Dimensions : Inches (Millimetres)

Toggle Switches



Miniature

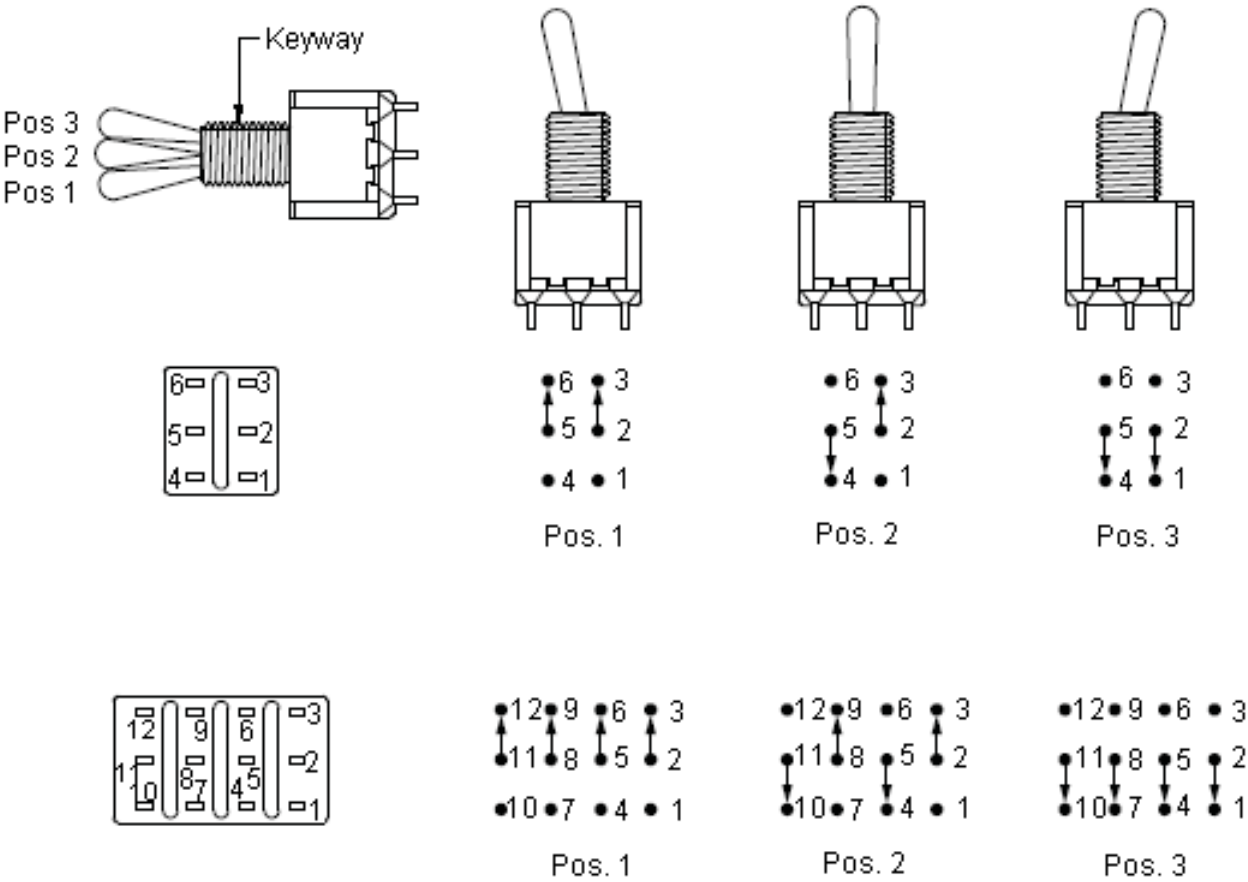
Single Pole, 3 Position

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



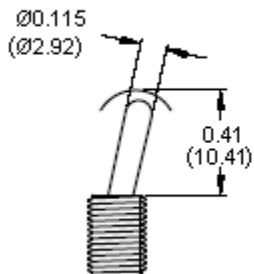
Toggle Switches



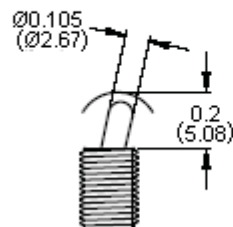
Miniature

Actuator Options

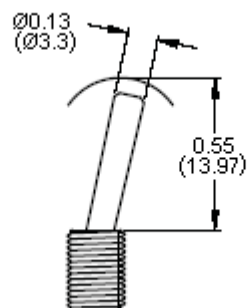
T1 STD



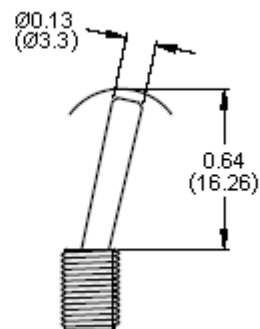
T2



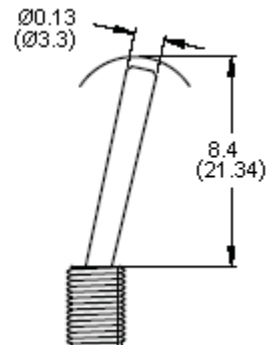
T3



T4



T5

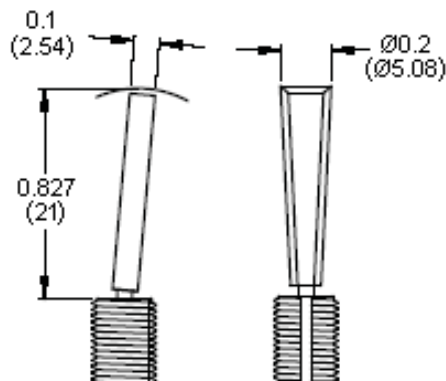
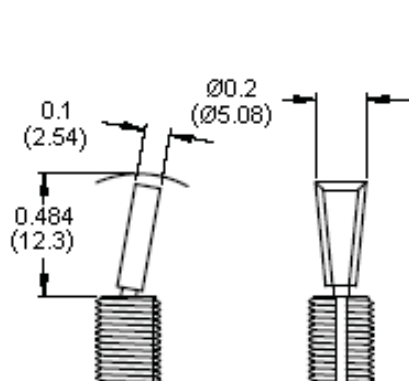


Note: T1 to T5 Actuator shown with standard B1 bushing ;
add .07 (1.78) for B3 Bushing ;
Subtract 0.02 (0.51) for B6 Bushing ;
Std for M1, M2 Terminal sub 0.016 (0.4) for M6, M7, VSX

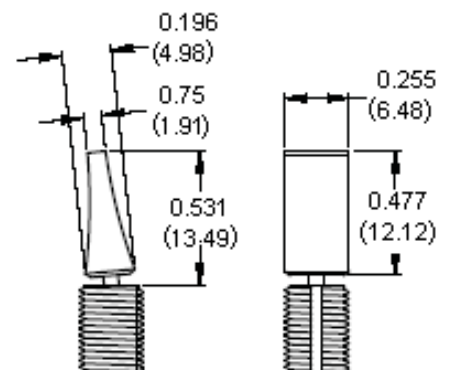
Dimensions : Inches (Millimetres)

T6 Flatted with anti-rotation

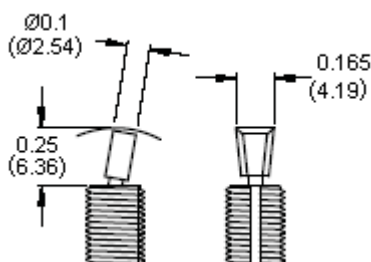
T61



T62



T63



Dimensions : Inches (Millimetres)

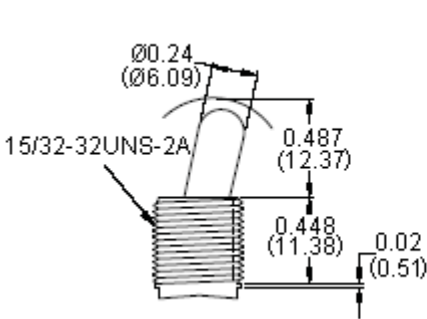
Note: T6, T6-1, T6-2, T63 use with B11, B12, B15, B16 bushing only

Toggle Switches

Miniature

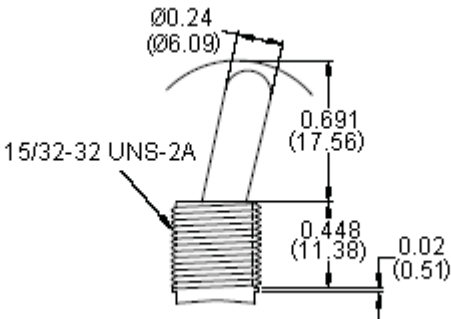


T7



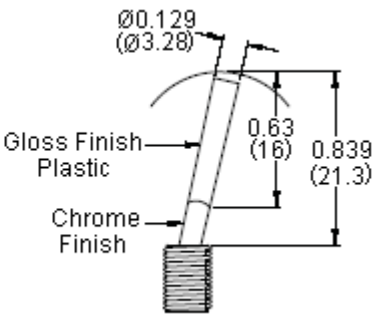
Use with B13 bushing
Use with B18, B20 the lever is anti-rotation and the size of lever is 13 mm

T8



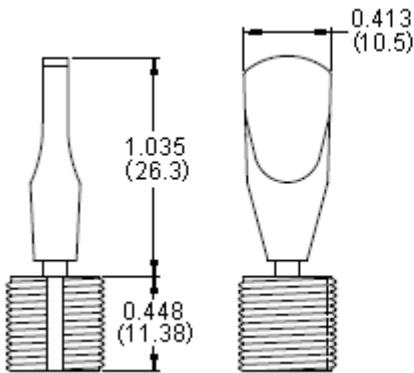
Use with B13 bushing
Use with B18, B20 the lever is anti-rotation and the size of lever is 18 mm

T9



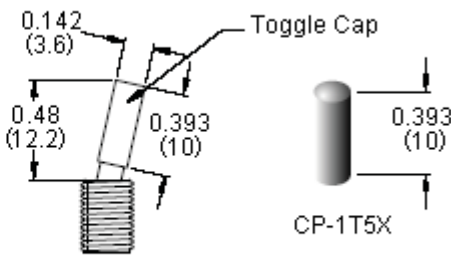
Dimensions : Inches (Millimetres)
B1/B2 bushing std with black and red colour only (std).

TA Plastic Black



Use with B18 bushing only

T11



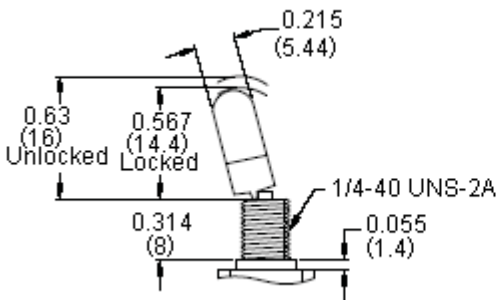
Note: T11 Actuator shown with standard B1 bushing;
Add 0.07 (1.78) for B3 bushing;
Subtract 0.02 (0.51) for B6 bushing.
Std for M1.M2 Terminal sub. 0.016 (0.4) for M6.M7.VSX

Dimensions : Inches (Millimetres)

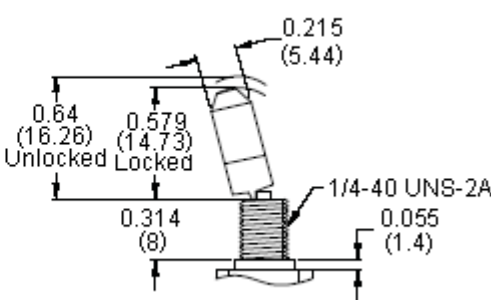
Plastic No. Colour :

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)

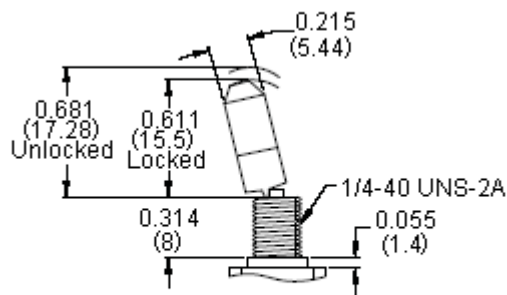


Toggle Switches

Miniature

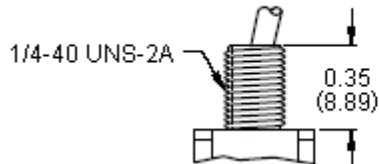
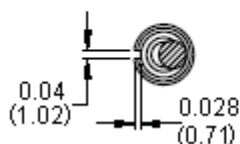


TL3B25

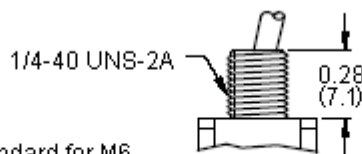
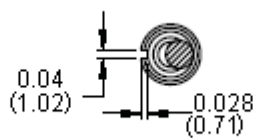


Dimensions : Inches (Millimetres)

B1 THD STD
B2 NON-THD

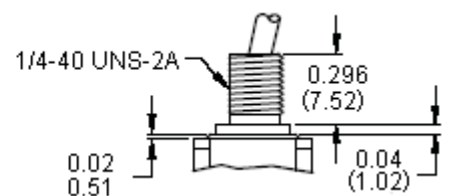
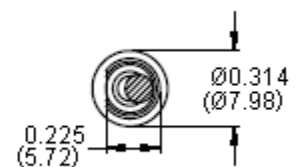


B3 THD
B4 NON-THD



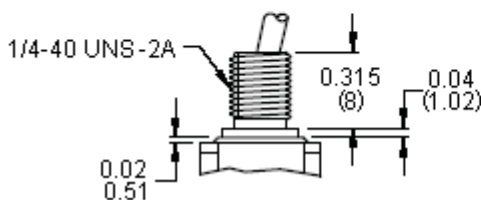
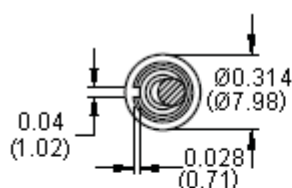
B4 is standard for M6, M7 and VS2 to 5 termination options.

B5 High Torque

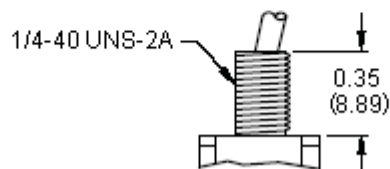
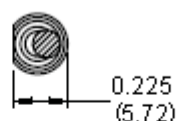


Dimensions : Inches (Millimetres)

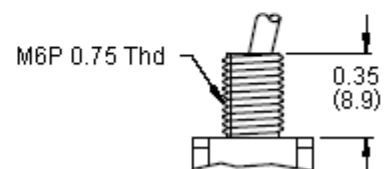
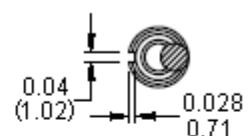
B6 High Torque



B7 Thd STD



B8 Metric Thd



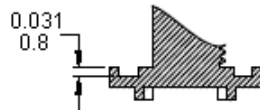
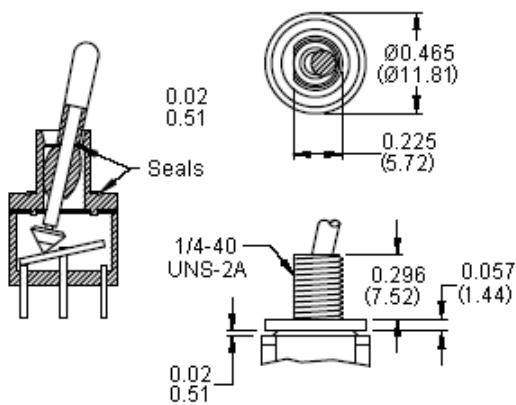
Dimensions : Inches (Millimetres)

Toggle Switches

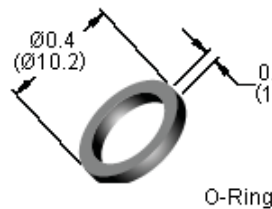
Miniature



B9 Splash Proof



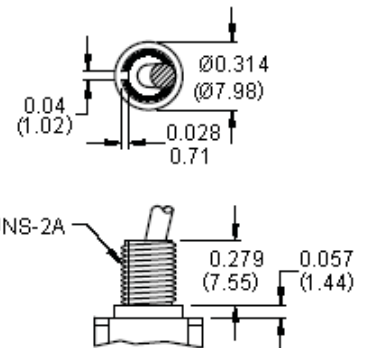
CP-1TEB



O-Ring

Supplied with B9 Bushing

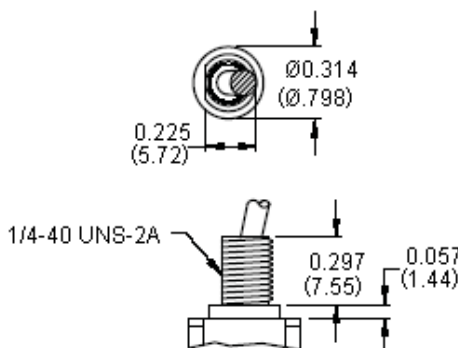
**B11 THD STD
B12 NON-THD**



Dimensions : Inches (Millimetres)

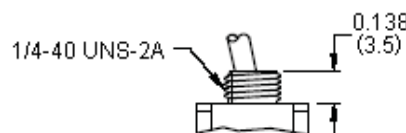
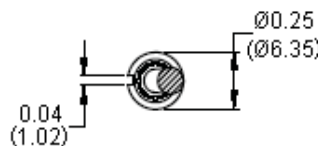
Use with T6 actuators only

**B15 THD STD
B16 NON-THD**

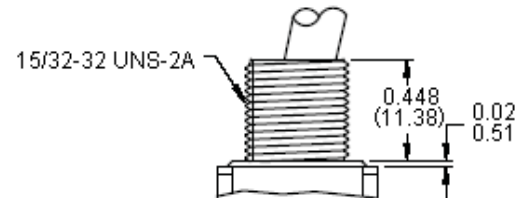
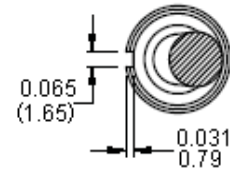


Use with T6 actuators only

B17



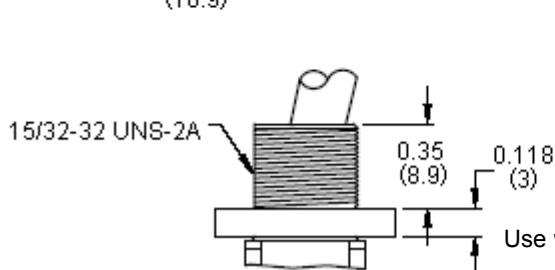
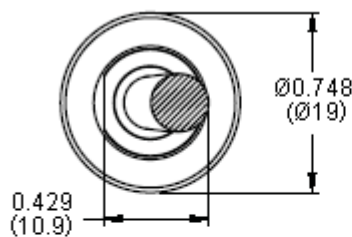
B13



Dimensions : Inches (Millimetres)

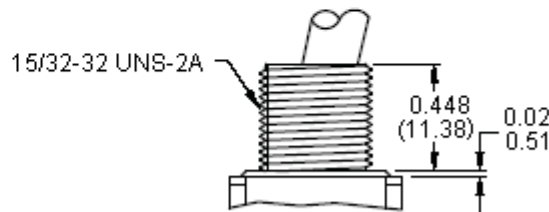
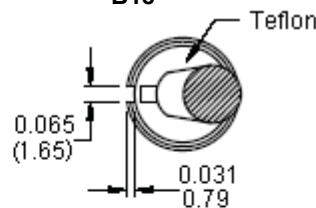
Use with T7, T8 actuators only
B13 Bear strength from top of actuator
up to 10 kg aside up to 15 kg

B14 Splash Proof



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

B18



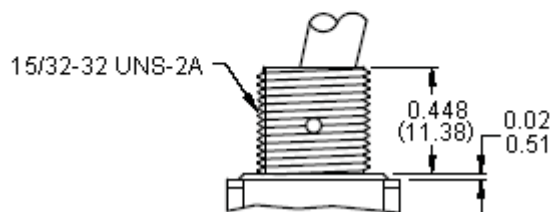
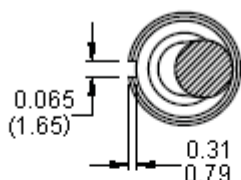
Dimensions : Inches (Millimetres)

Toggle Switches

Miniature



B20



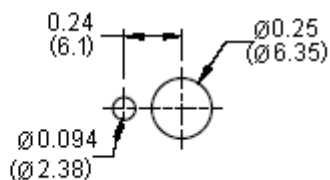
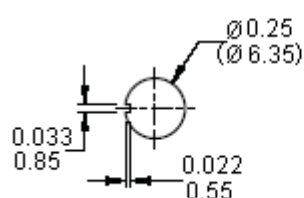
Dimensions : Inches (Millimetres)

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

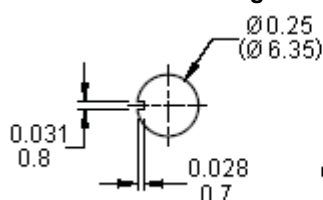
Panel Mounting

1/4 In Bushing

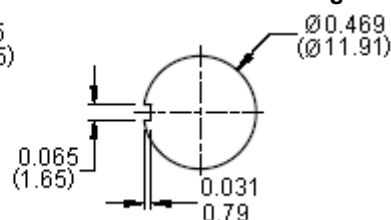


Dimensions : Inches (Millimetres)

Metric Bushing

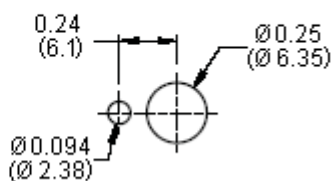
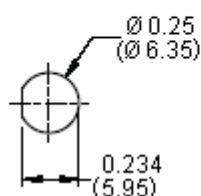


15/32 In Bushing



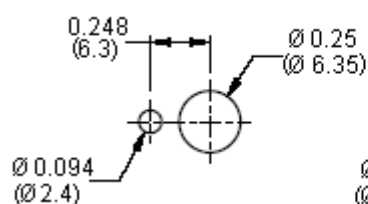
Dimensions : Inches (Millimetres)

1/4 In Bushing

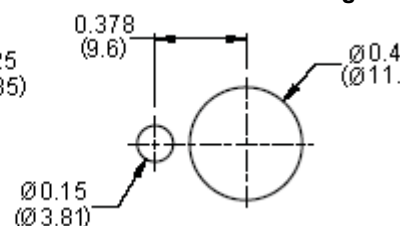


Dimensions : Inches (Millimetres)

Metric Bushing



15/32 In Bushing



Dimensions : Inches (Millimetres)

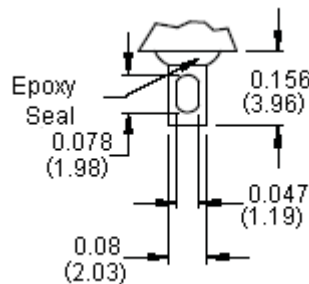
Toggle Switches

Miniature



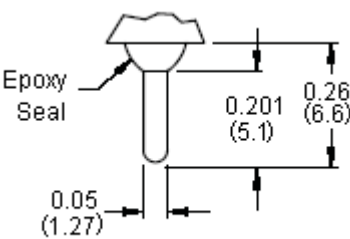
Termination Options

M1 Solder Lug



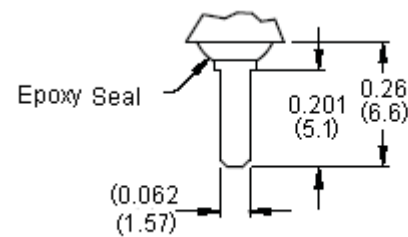
Dimensions : Inches (Millimetres)
0.03 (0.76) Thk

M2 PC Thru-Hole



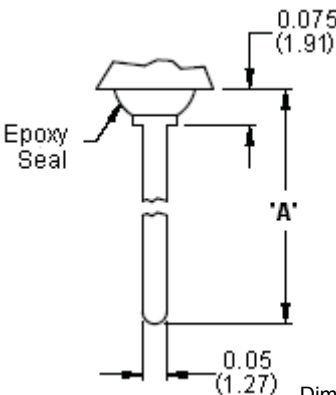
Dimensions : Inches (Millimetres)
0.03 (0.76) Thk

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)

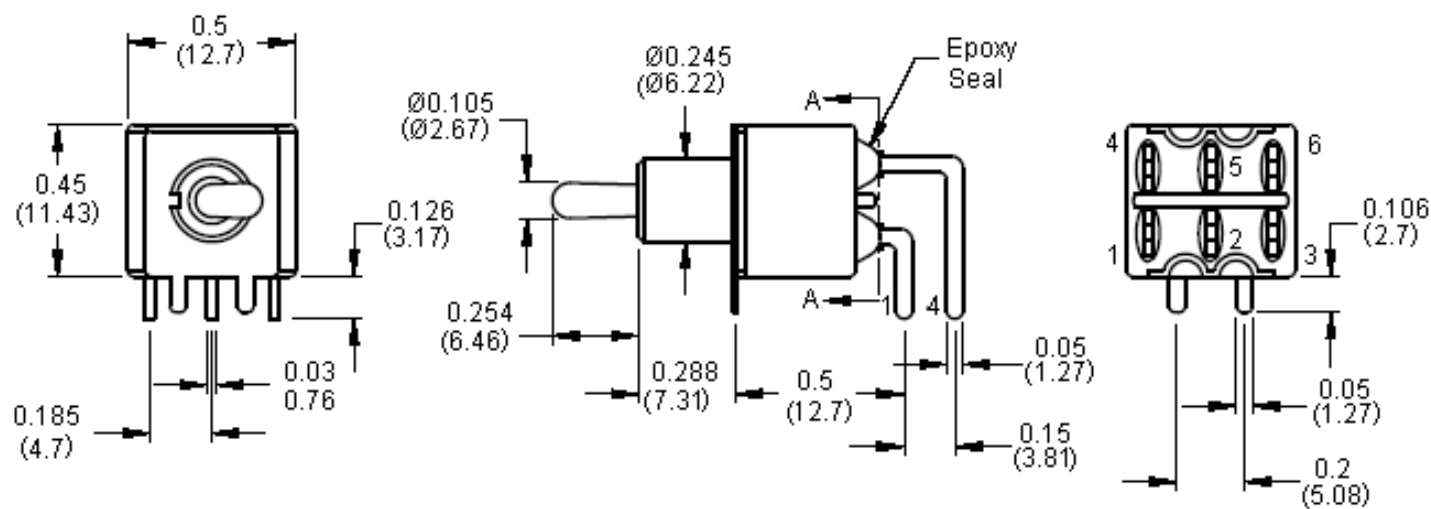


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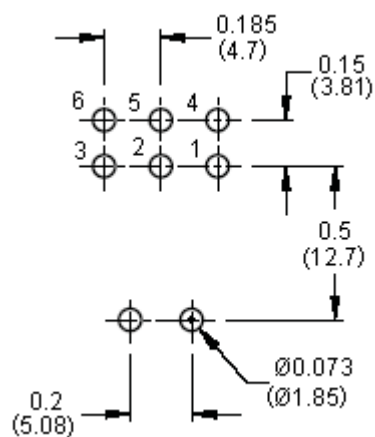
M6



Dimensions : Inches (Millimetres)

Section A-A
Term. Nos. for
Reference Only

P. C. Mounting



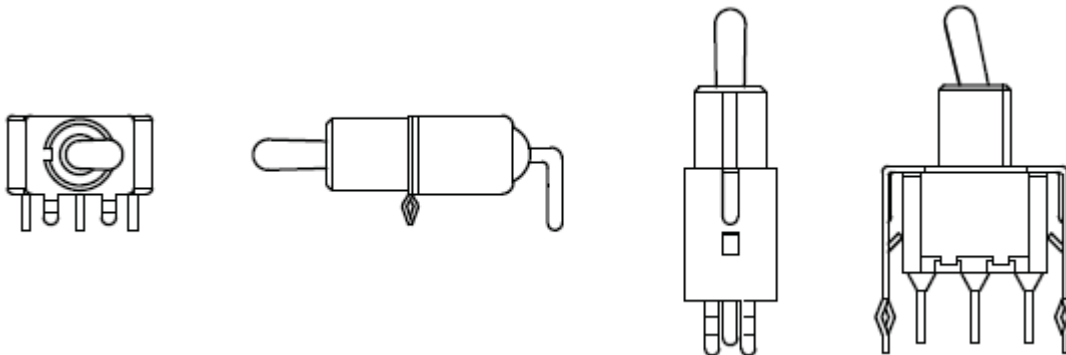
Dimensions : Inches (Millimetres)

Toggle Switches

Miniature

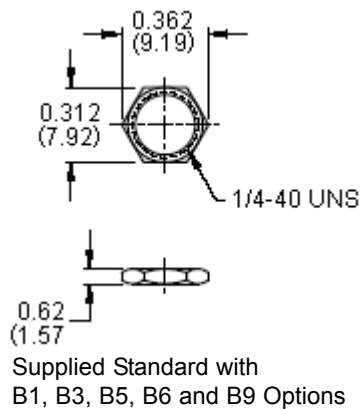


SNAP-IN Termination Options

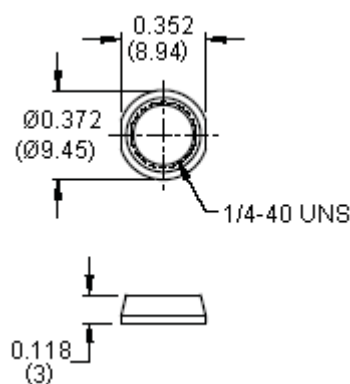


Hardware

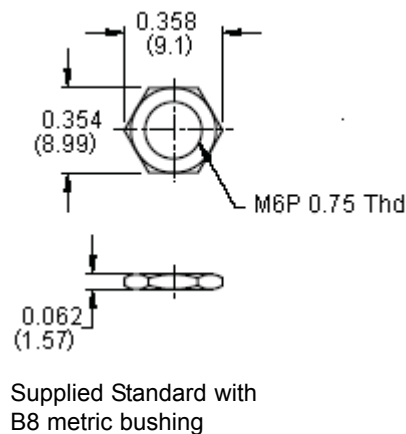
1/4 Nuts HDW2



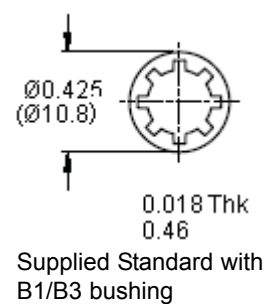
Dress Nut HDW3



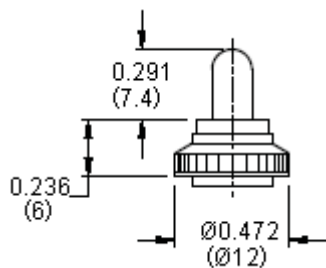
Metric Nut HDW6



Lock Washer HDW11

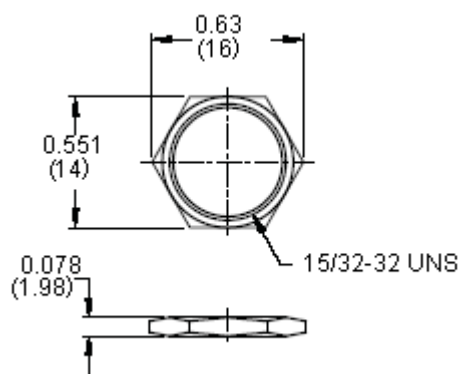


Optional Rubber Hood Sealing



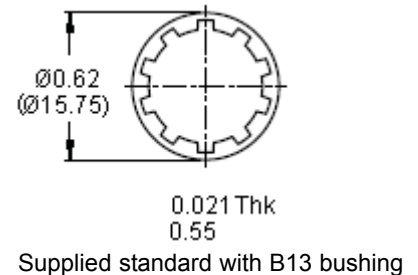
K1 = Metric
E1 = Inch (Std.)
for actuator T1, T2 and
B1, B3, B5, B6 Bushing only

15/32 Nuts HDW4



Supplied standard with B13 bushing

Lock Washer HDW12



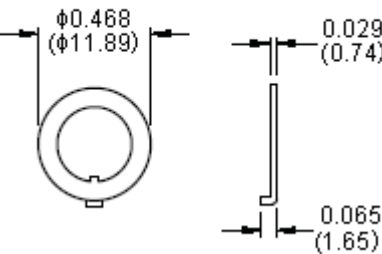
Dimensions : Inches (Millimetres)

Toggle Switches

Miniature

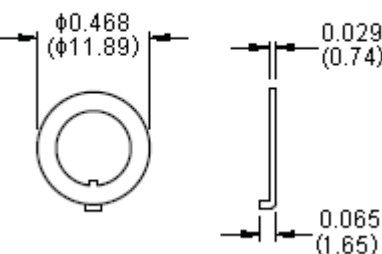


HDW15



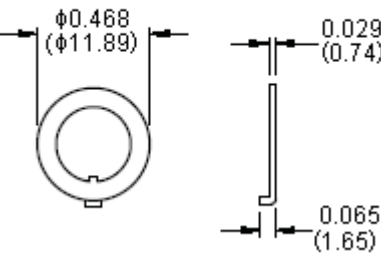
Locking ring supplied standard

HDW16



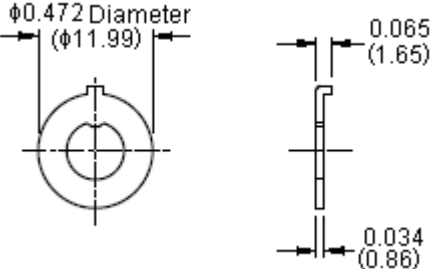
Locking ring supplied with B5 bushing

HDW17



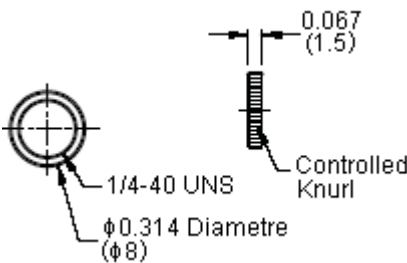
Locking ring supplied with B13, B18, B20 bushing

HDW18



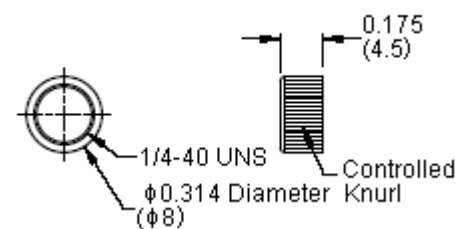
Locking ring supplied with B8 bushing

HDW19



Nu-1M18

HDW20

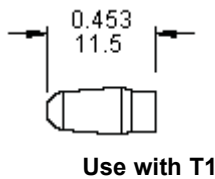


NU-1M24

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

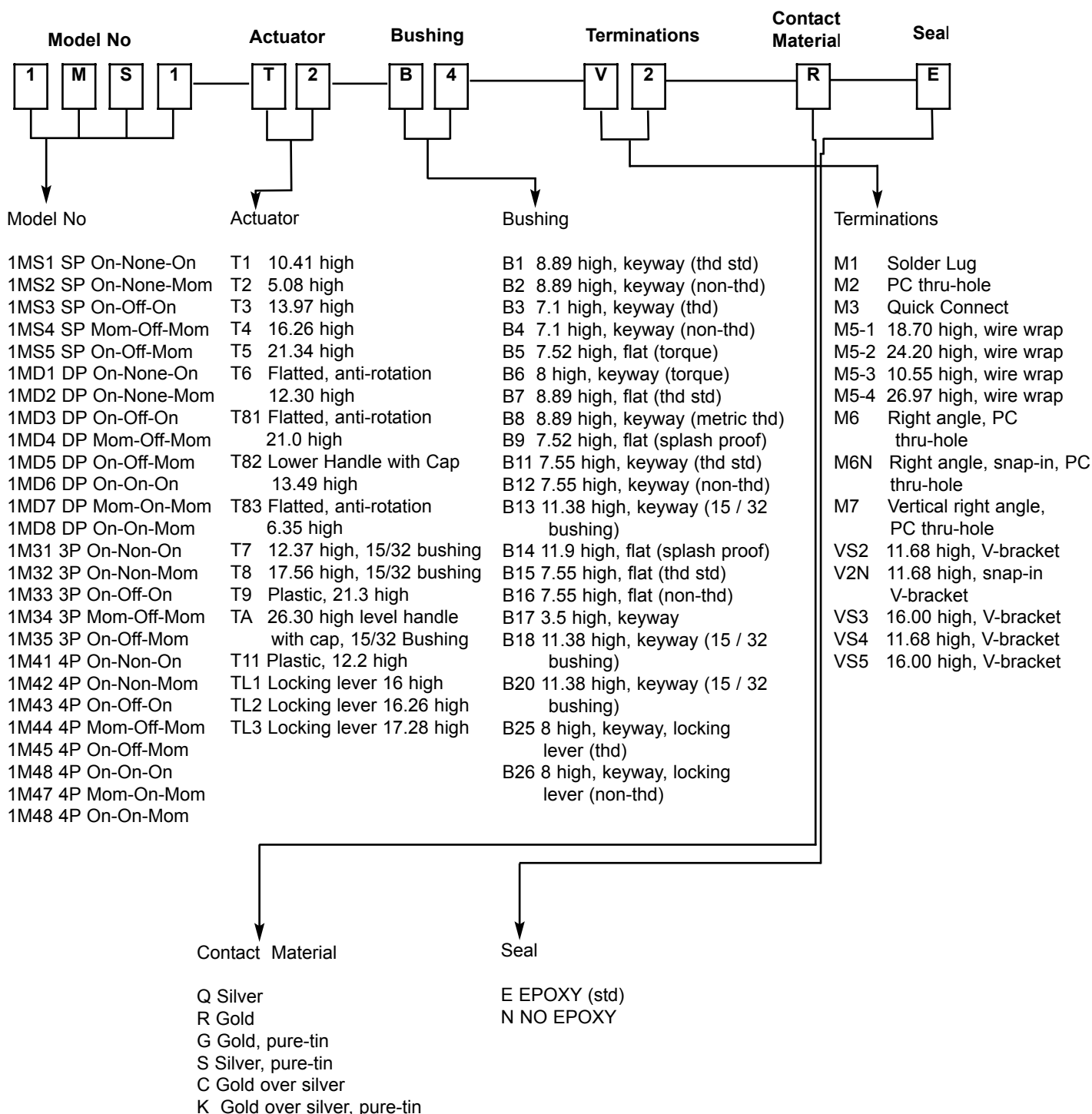
Miniature



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

Miniature



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