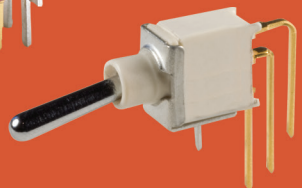
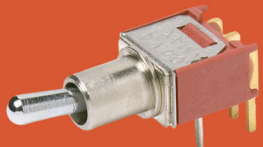
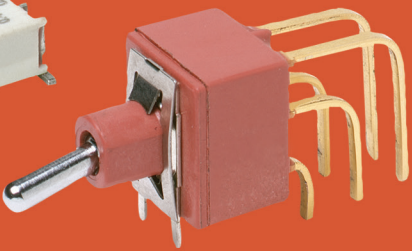
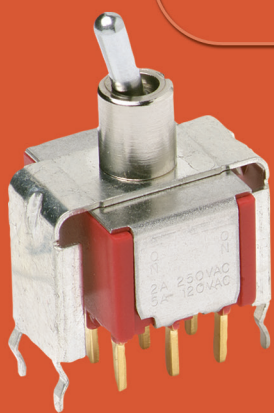


audio  
automotive  
aerospace  
communication devices  
consumer appliances  
consumer electronics  
datacom  
data storage  
handheld devices  
industrial  
industrial equipment  
instrumentation  
medical  
military  
mobile phones  
portable tools  
pumps & motors  
security alarms  
telecom  
test equipment  
thermostatic controls



# toggle

# Toggles

## Product Selection Guide

<b>Toggles</b>									
Series	7000	Military	E	ET	T	GT	9000	PT	ILT
<b>Switch Type</b>	Miniature	Miniature	Miniature	Subminiature	Subminiature	Ultraminiature	Power	Sealed power	Power
<b>Poles/Throws</b>	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	SPST, SPDT, DPST, DPDT	DPDT	SPST, DPST	SPST
<b>Maximum Current Silver/Gold</b>	5 Amps	5 Amps	7.5 Amps/ 5 Amps	3 Amps/ 2 Amps	3 Amps/ 2 Amps	0.4 VA	10 Amps	25 Amps	20 Amps
<b>Process Sealed</b>			•	•		•		•	
<b>PCB Mount Options</b>									
Vertical	•	•	•	•	•	•	•		
Right Angle	•	•	•	•	•	•			
Vertical Right Angle	•	•	•	•	•	•	•		
<b>Surface Mount Options</b>									
Vertical						•			
Right Angle				•		•			
<b>Panel Mount Options</b>									
Rear Mount	•	•	•		•		•	•	•
<b>Termination Options</b>									
PCB Thru-hole	•	•	•	•	•	•	•		
Wire Wrap	•		•	•	•				
Solder Lug	•	•	•		•		•	•	
Quick Connect	•		•				•	•	•
<b>Other Available Options</b>									
Support Brackets	•	•	•	•	•	•	•		•
Snap-in Retention	•		•	•					•
ESD Protection	•		•	•	•				•
Tape & Reel				•		•			
<b>Bushing Options</b>									
10-48					•				
1/4-40	•	•	•		•		•		
15/32	•						•	•	
M6P 0.75 (Metric)	•								
<b>Page No.</b>	F-3	F-17	F-22	F-30	F-37	F-43	F-50	F-55	F-59



T

Toggle

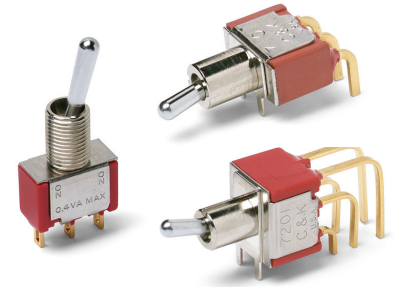
# 7000 Series Miniature Toggle Switches

## Features/Benefits

- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS compliant models available

## Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



## Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 5 AMPS @ 120 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-15 for additional ratings.

ELECTRICAL LIFE: 7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

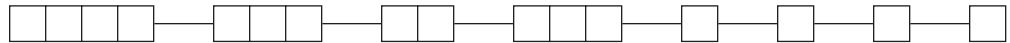
For materials see page F-5.

**NOTE:** Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible.

**NOTE:** Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-5 thru F-17. For additional options not shown in catalog, consult our Customer Service Center.



### Switch Function

- 7101** SP On-None-On
- 7103** SP On-Off-On
- 7105** SP Mom.-Off-Mom.
- 7107** SP On-Off-Mom.
- 7108** SP On-None-Mom.
- 7109** SP None-On-Mom.
- 7201** DP On-None-On
- 7203** DP On-Off-On
- 7205** DP Mom.-Off-Mom.
- 7207** DP On-Off-Mom.
- 7208** DP On-None-Mom.
- 7211** DP On-On-On
- 7213** DP On-On-Mom.
- 7215** DP Mom.-On-Mom.
- 7301** 3P On-None-On
- 7303** 3P On-Off-On
- 7305** 3P Mom.-Off-Mom.
- 7308** 3P On-None-Mom.
- 7401** 4P On-None-On
- 7403** 4P On-Off-On
- 7405** 4P Mom.-Off-Mom.
- 7408** 4P On-None-Mom.
- 7411** 4P On-On-On
- 7413** 4P On-On-Mom.
- 7415** 4P Mom.-On-Mom.

**Note:** UL models available, see pages F-4 & F-5.

### Actuator

- M** .200" high
- P3** Flatted, anti-rotation, .450" high
- S** .420" high
- T** .687" high, 15/32 bushing
- K2** Locking lever, .704" high
- K9** Locking lever, .704" high
- K12** Locking lever, .732" high
- K19** Locking lever, .732" high
- L** .840" high
- L1** .640" high
- L1P** Anti-rotation, .640" high
- L2** .550" high
- L2P** Anti-rotation, .550" high
- L3** Plastic .940" inch
- L40** Lever handle without cap
- L41** .531" high lever handle with cap
- L42** .838" high lever handle with cap
- MP** Anti-rotation, .200" high
- P1** Flatted, anti-rotation, .840" high
- P4** Flatted, anti-rotation, .250" high
- SP** Anti-rotation, .420" high
- T1** .487" high, 15/32 bushing
- T1P** Anti-rotation, .487" high, 15/32 bushing
- T2P** Flatted, anti-rotation, .610" high, 15/32 bushing,
- TP** Anti-rotation, .687" high, 15/32 bushing

### Bushing

- D** .280 high, keyway
- H** .296 high, flat
- Y** .350 high, keyway
- NONE** No bushing choice required
- CW** Splashproof
- D8** .280" high, flat
- D9** .280" high, keyway
- H3** .315" high, keyway
- H4** 8mm high, keyway
- Y1** .378" high, keyway
- Y3** 8.9mm high, keyway
- Y4** .378" high, flat
- Y9** .350" high, keyway

### Terminations

- A** Right angle, PC thru-hole
- AV2** Vert. right angle, PC thru-hole
- C** PC Thru-hole
- V3** .460 high, V-bracket
- Z** Solder lug
- A2** Right angle, PC thru-hole
- A3** Right angle, PC thru-hole
- A4** Right angle, PC thru-hole
- AW1** Right angle, extended, PC thru-hole
- AW4** Right angle, extended, PC thru-hole
- V2** .555" high, V-bracket
- V4** .630" high, V-bracket
- V6** .460" high, V-bracket
- V7** .630" high, V-bracket
- V8** .953" high, V-bracket
- V9** 1.150" high, V-bracket
- V21** .555" high, snap-in V-bracket
- V31** .460" high, snap-in V-bracket
- V41** .630" high, snap-in V-bracket
- V71** .630" high, snap-in V-bracket
- V81** .953" high, snap-in V-bracket

### Contact Material

- B** Gold
- P** Gold, matte-tin
- Q** Silver
- S** Silver, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

### Seal

- E** Epoxy
- I** Epoxy potted base

### Actuator Color/Finish

- NONE** Bright chrome
- 2** Black
- 3** Red
- S** Satin chrome

### KXX Actuator Color/Finish

- NONE** Natural aluminum
- 2** Black anodized aluminum
- 3** Red anodized aluminum
- 7** Blue anodized aluminum
- G** Grip tip aluminum

### Bushing Finish

- NONE** Nickel on all bushings (except D8, satin chrome)
- 2** Black

- W** .750" long, wire wrap
- W1** .964" long, wire wrap
- W3** .425" long, wire wrap
- W4** 1.062" long, wire wrap
- W5** 1.305" long, wire wrap
- Z3** Quick connect



F

Toggle

# 7000 Series Miniature Toggle Switches

## Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page F-15 for additional contact materials.

CENTER CONTACTS & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See above for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking Ring: Brass, nickel plated.

Lockwasher: Steel, nickel plated.

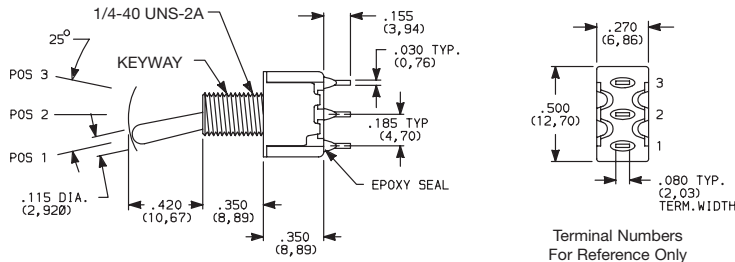
**NOTE:** Materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## SWITCH FUNCTION



NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
			KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	
SP	<b>7101</b>	<b>U11</b>	ON	NONE	ON	2-3	N/A	2-1	
	<b>7103</b>	<b>U13</b>	ON	OFF	ON	2-3	OPEN	2-1	
	<b>7105</b>	<b>U15</b>	MOM.	OFF	MOM.				
	<b>7107</b>	<b>U17</b>	ON	OFF	MOM.				
	<b>7108</b>	<b>U18</b>	ON	NONE	MOM.	2-3	N/A	2-1	
	<b>7109</b>	<b>U19</b>	NONE	ON	MOM.	N/A	2-3	2-1	

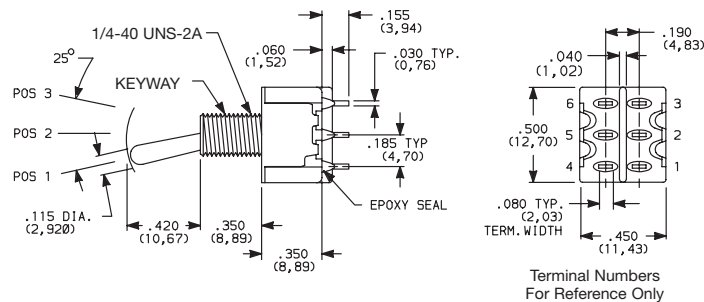
### SPDT



Part number shown: 7101SYZBE

DP	<b>7201</b>	<b>U21</b>	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	<b>7203</b>	<b>U23</b>	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	<b>7205</b>	<b>U25</b>	MOM.	OFF	MOM.				
	<b>7207</b>	<b>U27</b>	ON	OFF	MOM.				
	<b>7208</b>	<b>U28</b>	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	<b>7211 *</b>	<b>U211 *</b>	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
	<b>7213 *</b>	<b>U213 *</b>	ON	ON	MOM.				
	<b>7215 *</b>	<b>U215 *</b>	MOM.	ON	MOM.				

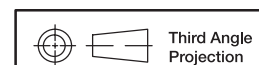
### DPDT



Part number shown: 7201SYZQE

MOM. = Momentary  
\*\* Wiring for 3-way switch

\*\* U11-U415 model nos. with all options when ordered with G, R, Q or S contact material.



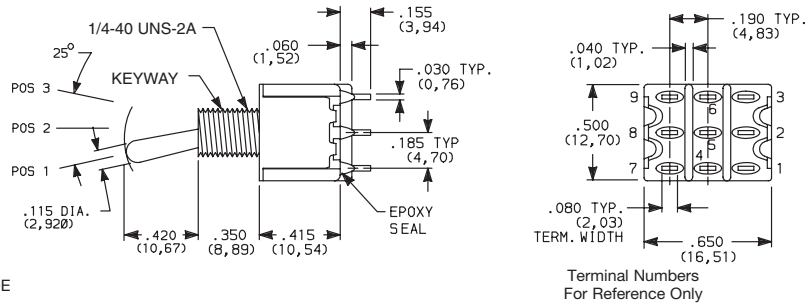
Third Angle Projection

# 7000 Series Miniature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	UL** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
			KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	
3P	<b>7301</b>	<b>U31</b>	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
	<b>7303</b>	<b>U33</b>	ON	OFF	ON	2-3,5-6,8-9	OPEN	2-1,5-4,8-7	
	<b>7305</b>	<b>U35</b>	MOM.	OFF	MOM.				
	<b>7307</b>	<b>U37</b>	ON	OFF	MOM.				
	<b>7308</b>	<b>U38</b>	ON	NONE	MOM.				

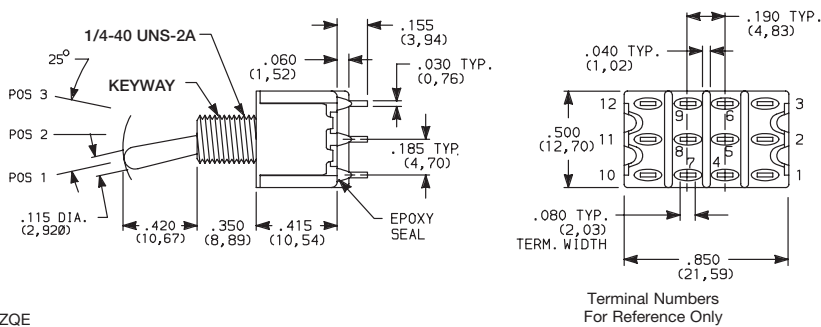
### 3PDT



Part number shown: 7301SYZQE

4P	<b>7401</b>	<b>U41</b>	ON	NONE	ON	2-3,5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	
	<b>7403</b>	<b>U43</b>	ON	OFF	ON	2-3,5-6,8-9,11-12	OPEN	2-1,5-4,8-7,11-10	
	<b>7405</b>	<b>U45</b>	MOM.	OFF	MOM.				
	<b>7408</b>	<b>U48</b>	ON	NONE	MOM.				
	<b>7411*</b>	<b>U411*</b>	ON	ON	ON				
	<b>7413*</b>	<b>U413*</b>	ON	ON	MOM.				
	<b>7415*</b>	<b>U415*</b>	MOM.	ON	MOM.				

### 4PDT



Part number shown: 7401SYZQE

MOM. = Momentary

\*\* [Wiring for 3-way switch](#)

\*\* U11-U415 model nos. with all options when ordered with G, Q, R or S contact material.

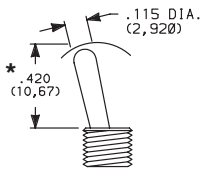
# 7000 Series Miniature Toggle Switches

## ACTUATOR



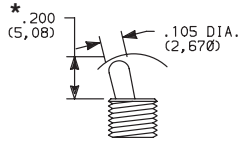
ACTUATOR FINISH

**S** .4206" HIGH <sup>1</sup>  
**SP** ANTIROTATION, .4206" HIGH <sup>2,3</sup>



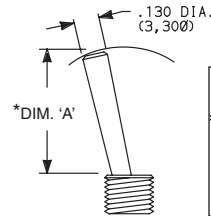
S actuator standard when ordered with C, W-W5, Z & Z3 terminations. Caps are available separately, see page F-16.

**M** .2006" HIGH <sup>1</sup>  
**MP** ANTIROTATION, .2006" HIGH <sup>2,3</sup>



M actuator standard when ordered with all terminations except C, W-W5, Z & Z3. Caps are available separately, see page F-16.

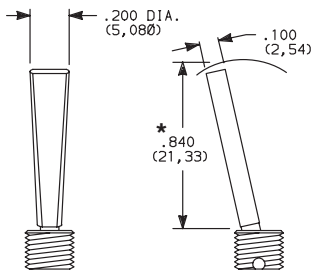
**L, L1, L2** .8406", .6406", .5506" HIGH <sup>1</sup>  
**L1P, L2P** ANTIROTATION, .8406", .6406", .5506" HIGH <sup>2,3</sup>



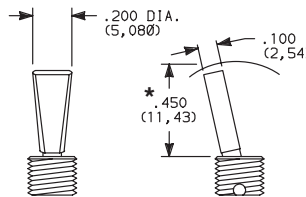
OPTION CODE	DIM 'A'
L	.840 (21,34)
L1, L1P	.640 (16,26)
L2, L2P	.550 (13,97)

Caps are available separately, see page F-16.

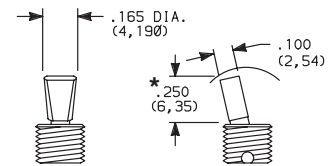
**\*P1** FLATTED WITH ANTIROTATION, .8406" HIGH <sup>2,3</sup>



**\*P3** FLATTED WITH ANTIROTATION, .4506" HIGH <sup>2,3</sup>

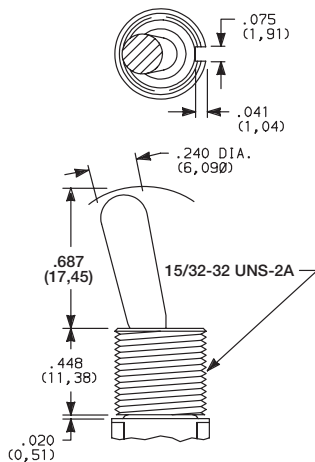


**\*P4** FLATTED WITH ANTIROTATION, .2506" HIGH <sup>2,3</sup>

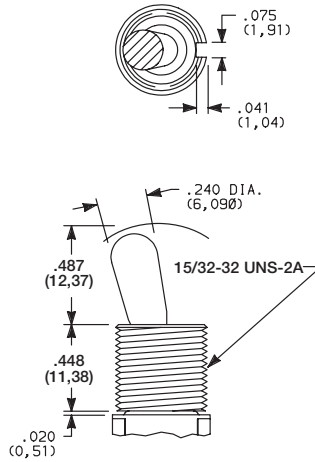


\*Dress nut part number 709901201 supplied standard with threaded bushing. (Part number 709903201 with metric threaded bushings.)

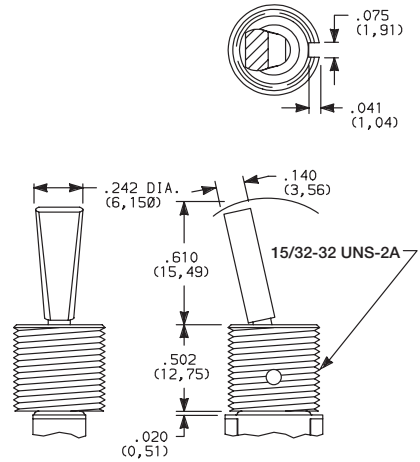
**T** .687 (17,45) HIGH <sup>1,2</sup>  
**TP** ANTIROTATION, .687 (17,45) HIGH, 15/32 BUSHING <sup>1,2,3</sup>



**T1** .487 (12,37) HIGH <sup>1,2</sup>  
**T1P** ANTIROTATION, .487 (12,37) HIGH, 15/32 BUSHING <sup>1,2,3</sup>



**T2P** FLATTED, ANTIROTATION, .6106" HIGH, 15/32 BUSHING <sup>1,2,3</sup>



Bushing option code not required unless CW splashproof bushing ordered. TP & T1P actuators not available with CW splashproof bushing. All TXX actuators not available on single pole models with A-A4, AW1-AW4 terminations.

Bushing option code not required. T2P actuator not available with CW splashproof bushing or single pole models with A-A4, AW1-AW4 terminations.

<sup>1</sup> L, L1, L2, M, S & TXX actuators not available with Y1 bushing.

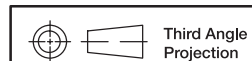
<sup>2</sup> L1P, L2P, MP, P1, P3, P4, SP & TXX actuators not available with D8 & H4 bushing.

<sup>3</sup> Antirotation: Provides anti-'push-in' feature on actuator.

\* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

OPTION CODE	ACTUATOR FINISH
<b>NONE</b>	BRIGHT CHROME-With Nickel Plated Bushing
<b>2</b>	BLACK
<b>S</b>	SATIN CHROME

**NOTE:** Black hardware is supplied when either black actuators or bushings are specified. For additional hardware, see Technical Data.

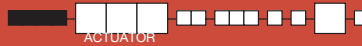


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# 7000 Series Miniature Toggle Switches

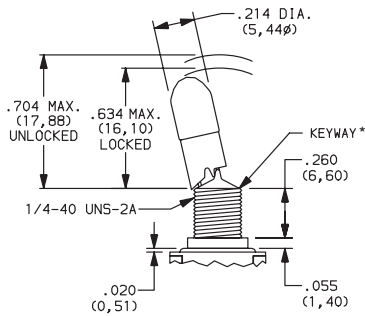
## ACTUATOR

ACTUATOR FINISH/COLOR

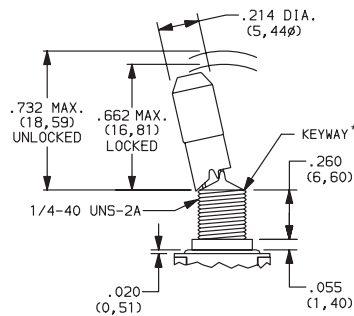


- K2** LOCKING LEVER, .704" HIGH (threaded)
- K9** LOCKING LEVER, .704" HIGH (unthreaded)

- K12** LOCKING LEVER, .732" HIGH (threaded)
- K19** LOCKING LEVER, .732" HIGH (unthreaded)



Replaces K, K8



Replaces K1, K18



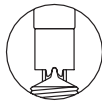
OPTION CODE	ACTUATOR CAP FINISH
<b>NONE</b>	NATURAL ALUMINUM-With Nickel Plated Bushing
<b>2</b>	BLACK ANODIZED ALUMINUM
<b>3</b>	RED ANODIZED ALUMINUM
<b>7</b>	BLUE ANODIZED ALUMINUM
<b>G</b>	GRIP TIP ALUMINUM

\* All KXX models including KXXCW have a keyway

### Locking Positions



-01 Models  
2 Position lock



-03 & -11 Models  
3 Position lock



-05, -09 & -15 Models  
1 Position lock



-07 & -13 Models  
2 Position lock



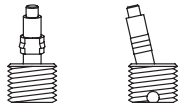
-08 Models  
1 Position lock

**NOTE:** To prevent accidental actuation, toggle must be lifted before being actuated. When released, toggle will lock in place. Overtightening mounting nut may cause actuator to bind.

Locking levers supplied with bushing shown.

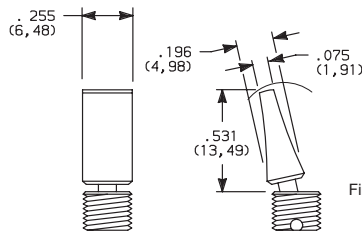
Bushing option code not required unless CW splashproof bushing ordered.

- L40** LEVER HANDLE WITHOUT CAP



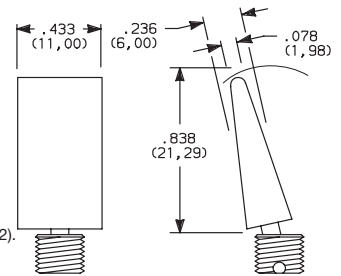
No color choice required

- L41** PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4810

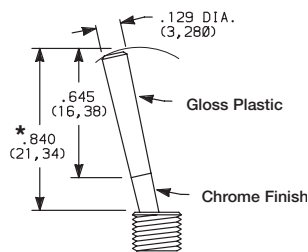


Finish: Matte (L41 & L42).

- L42** PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4811



- L3** PLASTIC .940" HIGH



OPTION CODE	PLASTIC ACTUATOR COLORS
<b>NONE</b>	No Actuator Color (L40 option)
<b>2</b>	BLACK
<b>3</b>	RED

**NOTE:** Lever handle for L41 & L42 actuators supplied, but not installed. For interchangeability, order L40 actuator option and lever handles separately, see page F-16. L4X actuators not available with H4, Y1, Y4 bushings. Antirotation: Provides anti-'push-in' feature on actuator.

\* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



F

Toggle

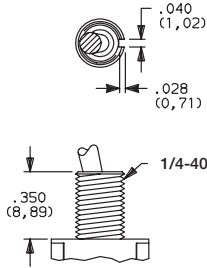
# 7000 Series Miniature Toggle Switches

## BUSHING

BUSHING FINISH



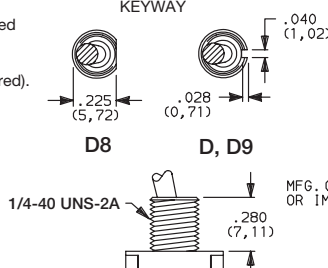
**Y** .350" HIGH, THREADED, KEYWAY  
**Y9** .350" HIGH, UNTHREADED, KEYWAY



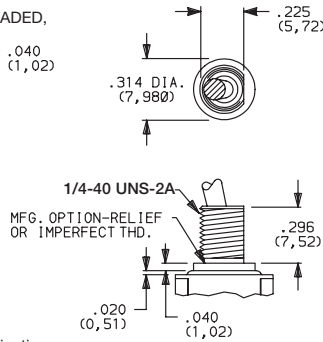
**NONE** NO BUSHING

No bushing choice required with KXX, TXX actuators. (exception: Specify CW if splashproof bushing desired).

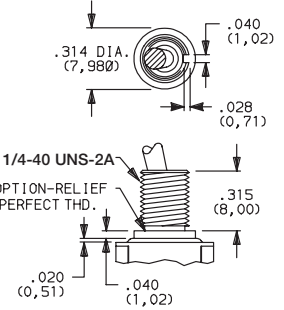
**D** .280" HIGH, THREADED, KEYWAY  
**D8** .280" HIGH, UNTHREADED, FLAT<sup>3</sup>  
**D9** .280" HIGH, UNTHREADED, KEYWAY



**H** .296" HIGH, FLAT THREADED, HIGH TORQUE<sup>1,2</sup>



**H3** .315" HIGH, KEYWAY THREADED, HIGH TORQUE<sup>1,2</sup>

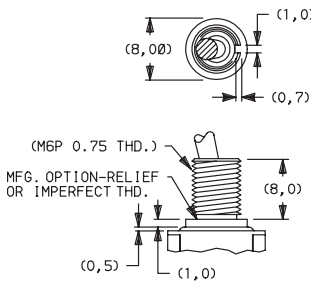


Y bushing standard with C, W-W5, Z or Z3 terminations.

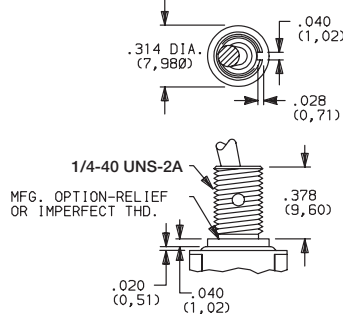
D9 bushing standard with all terminations except C, W-W5, Z or Z3. Add .070 (1,78) to all actuators lengths with D, D8 & D9 bushings.

Subtract .020 (0,51) from all actuator lengths for H3 bushing.

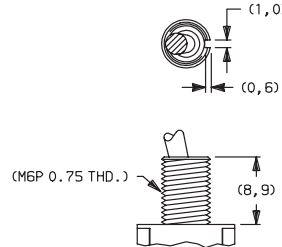
**H4** 8mm HIGH, KEYWAY, THREADED, METRIC HIGH TORQUE<sup>1,2,3</sup>



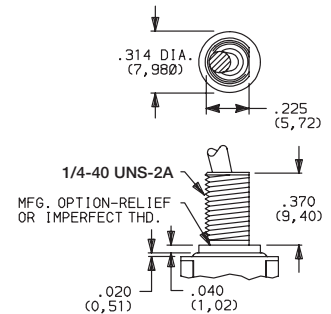
**Y1** .378" HIGH, KEYWAY, THREADED, HIGH TORQUE<sup>1,2,4</sup>



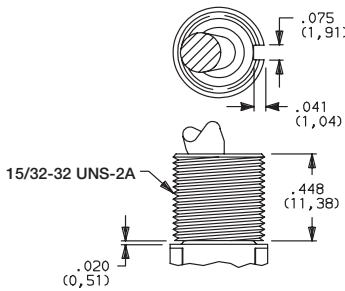
**Y3** 8.9mm HIGH, KEYWAY, THREADED, METRIC



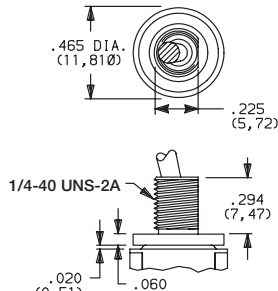
**Y4** .378" HIGH, FLAT, THREADED, HIGH TORQUE<sup>1,2,5</sup>



**CW** THREADED, SPLASHPROOF<sup>1,2</sup>  
For T & T1 actuators.



For actuators other than T, T1 and KXX.



IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.

IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal and external bushing seal washer standard. IP65 degree of protection for LXP, MP, PX or SP with CW option.

OPTION CODE	BUSHING FINISH
<b>NONE</b>	NICKEL on all bushings except 'D8' satin chrome.
<b>2</b>	BLACK

<sup>1</sup> Will withstand 12 in.-lbs. of torque with no distortion.

<sup>2</sup> CW, H, H3, H4, Y1 & Y4 bushings not available on single pole models with A4 terminations.

<sup>3</sup> D8 & H4 bushings available only with L, L1, L2, M & S actuators.

<sup>4</sup> Y1 bushing available only with LXP, MP, PX & SP actuators.

<sup>5</sup> Y4 bushing not available with L4X actuators.

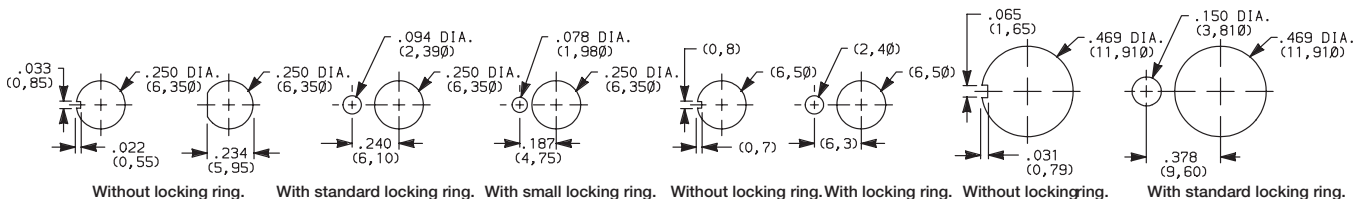
**NOTE:** Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available.

### PANEL MOUNTING

1/4 INCH BUSHING

METRIC BUSHING

15/32 INCH BUSHING



Without locking ring.

With standard locking ring.

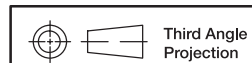
With small locking ring.

Without locking ring.

With locking ring.

Without locking ring.

With standard locking ring.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

Toggle

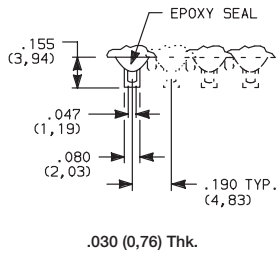


15 Jan 21



## TERMINATIONS

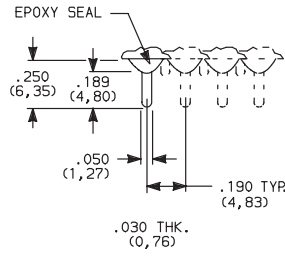
### Z SOLDER LUG



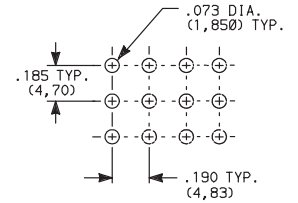
SPDT thru 4PDT

Not available with P, R or S contact materials.

### C PC THRU-HOLE

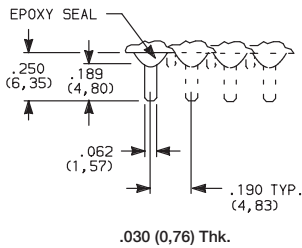


#### PC MOUNTING



SPDT thru 4PDT

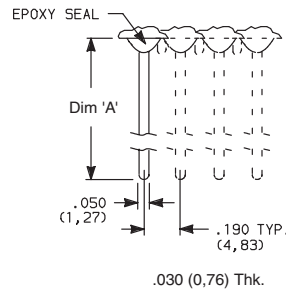
### Z3 QUICK CONNECT



SPDT thru 4PDT

Not available with P, R or S contact materials.  
Mating quick connector available, order part number 530100000, page F-16.

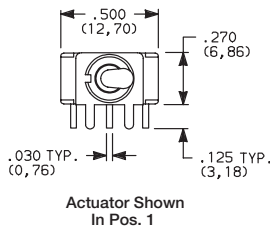
### W, W1, W3, W4, W5 WIRE WRAP



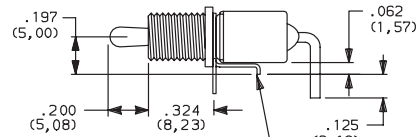
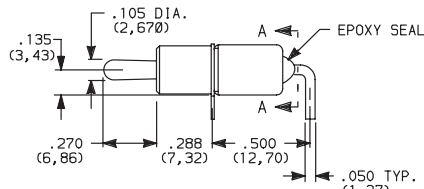
OPTION CODE	DIM 'A'
<b>W</b>	.750 (19,05)
<b>W1</b>	.964 (24,48)
<b>W3</b>	.425 (10,80)
<b>W4</b>	1.062 (26,97)
<b>W5</b>	1.305 (33,15)

SPDT thru 4PDT

### A RIGHT ANGLE, PC THRU-HOLE

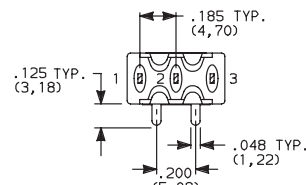


Actuator Shown  
In Pos. 1



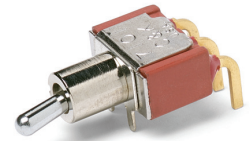
Switch support with CW, H, H3, H4, Y1, Y4 bushings and KXX actuators.

Part No. Shown: 7101MHABE



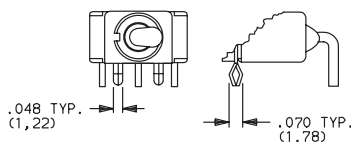
SECTION A-A

Terminal Nos.  
For Reference Only

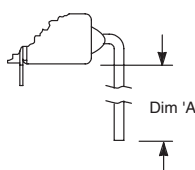


7101MD9ABE  
Horizontal Actuation  
SPDT

### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



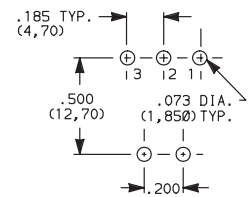
### AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



OPTION CODE	DIM 'A'
<b>AW1</b>	.72 (18,3)
<b>AW4</b>	.83 (21,1)

Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

#### PC MOUNTING



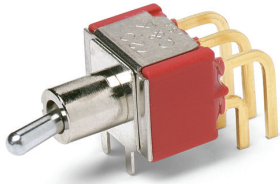
Third Angle  
Projection

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

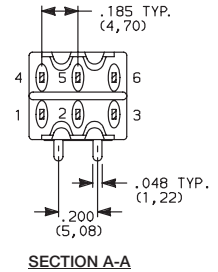
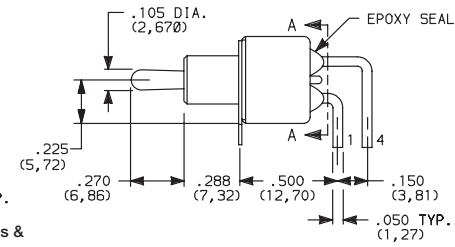
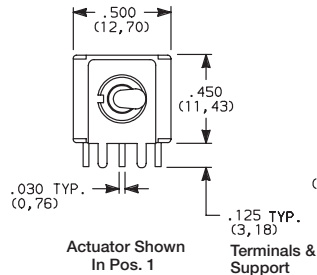
# 7000 Series Miniature Toggle Switches

## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE

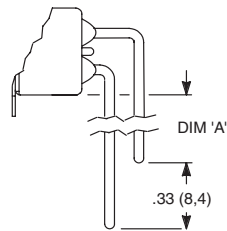
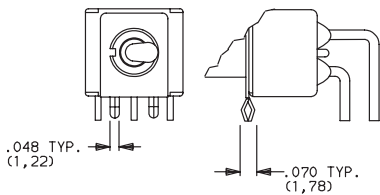


**7201MD9ABE**  
Horizontal Actuation  
**DPDT**



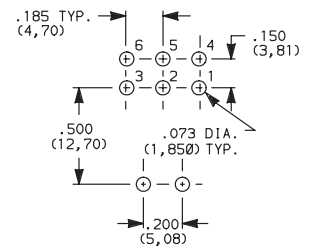
### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

### AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



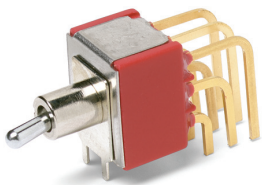
OPTION CODE	DIM 'A'
<b>AW1</b>	.40 (10,2)
<b>AW4</b>	.50 (12,7)

### PC MOUNTING

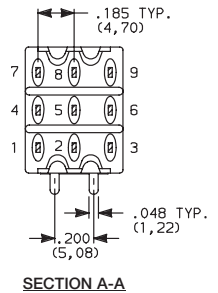
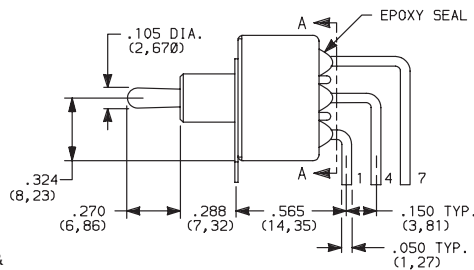
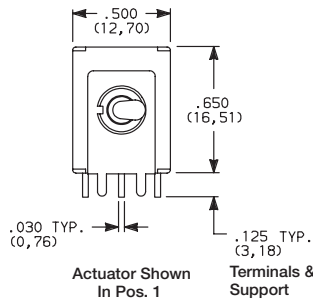


Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

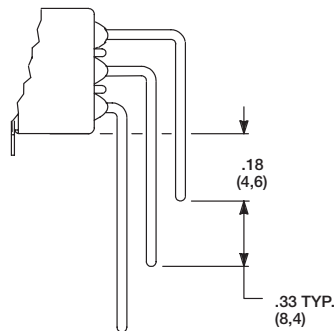
### A RIGHT ANGLE, PC THRU-HOLE



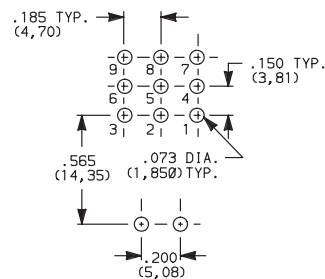
**7301MD9ABE**  
Horizontal Actuation  
**3PDT**



### AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



### PC MOUNTING



Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.



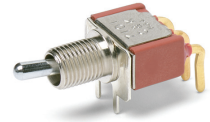
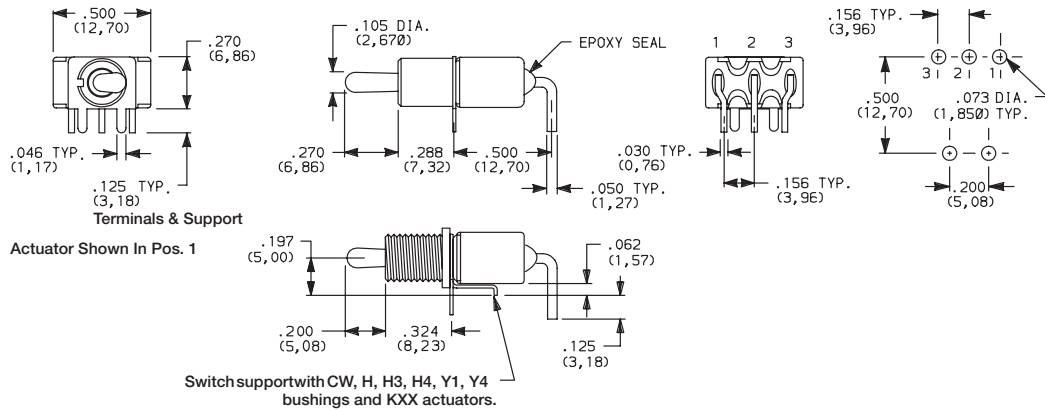
F

Toggle

# 7000 Series Miniature Toggle Switches

## TERMINATIONS

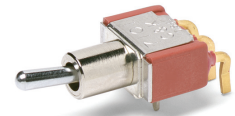
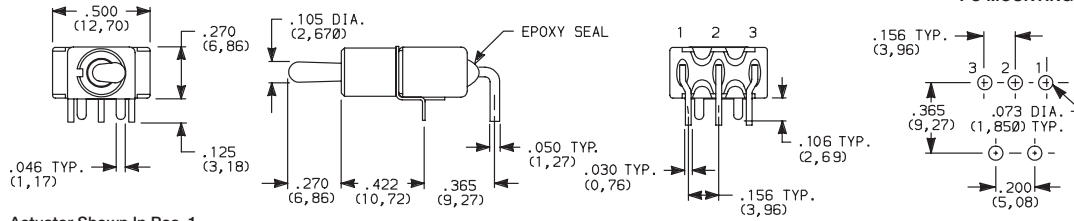
### A2 RIGHT ANGLE, PC THRU-HOLE, .156" PITCH



**7101MHA2BE**  
Horizontal Actuation  
**SPDT**

Not available with TXX actuators and I seal.  
Terminal bend radii and lead-in manufacturing option.

### A4 RIGHT ANGLE, PC THRU-HOLE .156" PITCH

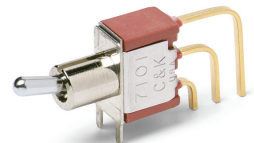
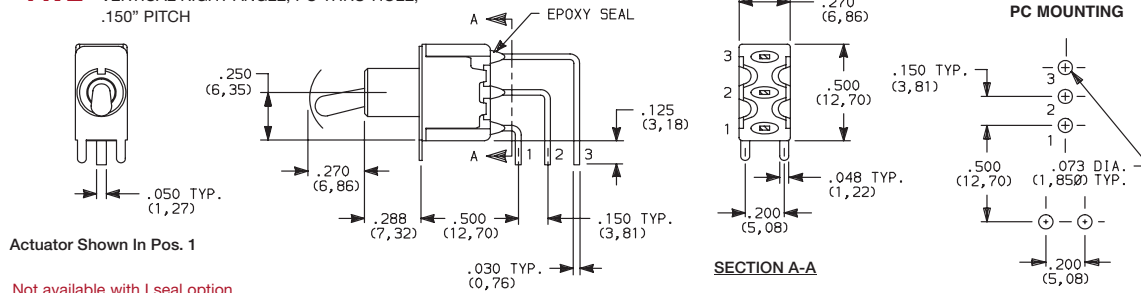


**7101MD9A4BE**  
Horizontal Actuation  
**SPDT**

Not available with KXX & TXX actuators, CW, H, H3, H4, Y1 & Y4 bushings, and I seal. Terminal bend radii and lead-in manufacturing option.

**NOTE:** The A4 option is available with any contact material and can be UL recognized and CSA certified. The PC pattern must clear switch support legs.

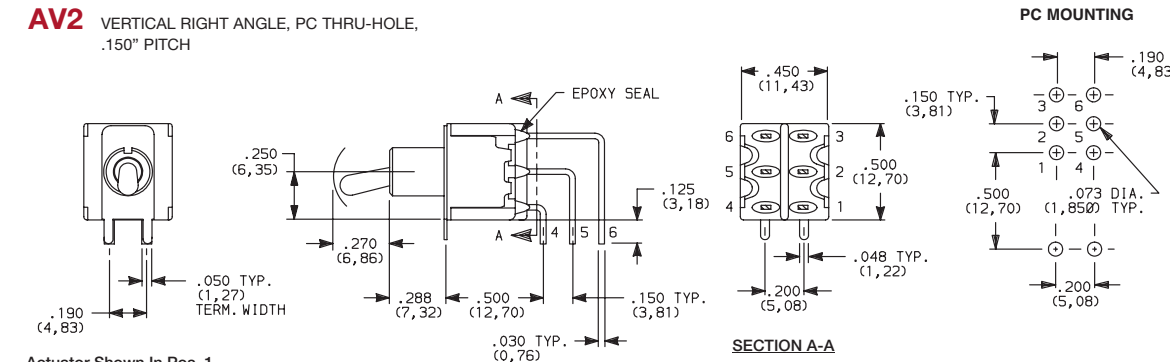
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**7101MD9AV2BE**  
Horizontal Actuation  
**SPDT**

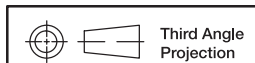
Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**7201MD9AV2BE**  
Vertical Actuation  
**DPDT**

Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

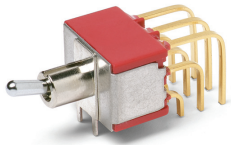


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

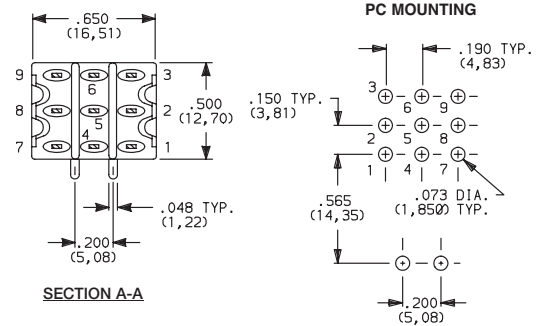
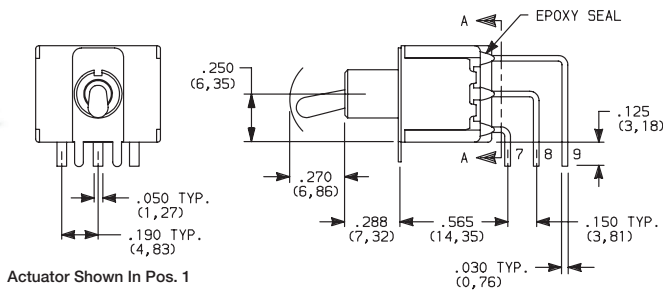
# 7000 Series Miniature Toggle Switches

## TERMINATIONS

**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE,  
.150" PITCH

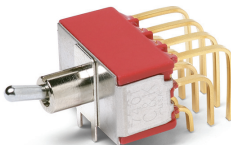


7301MD9AV2BE  
Vertical Actuation  
3PDT

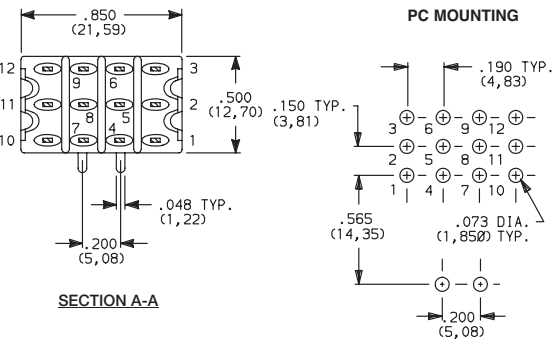
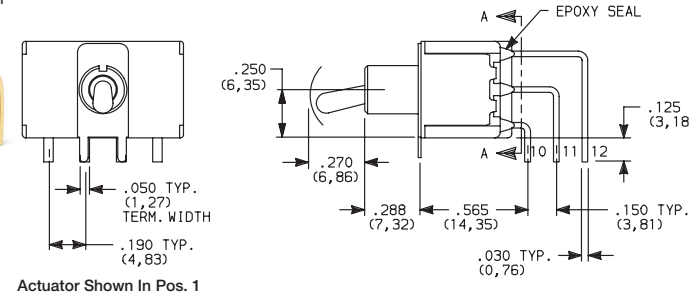


Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE,  
.150" PITCH



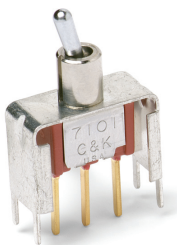
7401MD9AV2BE  
Vertical Actuation  
4PDT



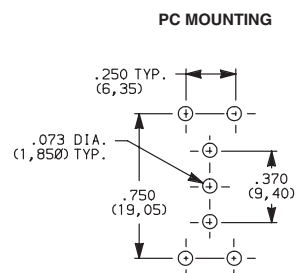
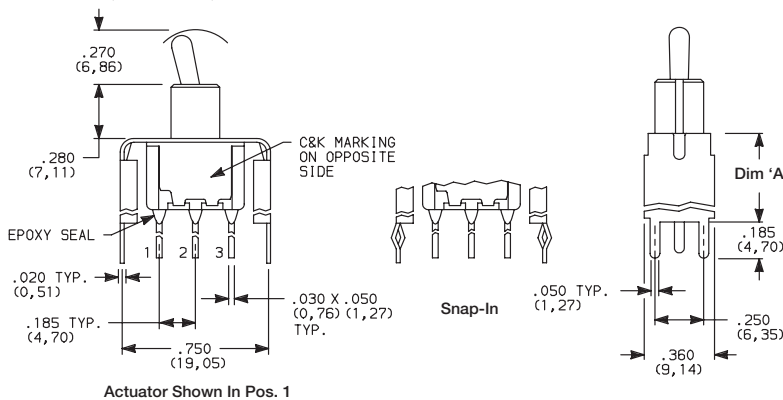
Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

**V2, V6, V7, V8** VERTICAL MOUNT, V-BRACKET

**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN



7101MD9\_BE  
SPDT



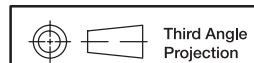
OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V6</b>	.460 (11,68)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)

Not available with I seal option.



F

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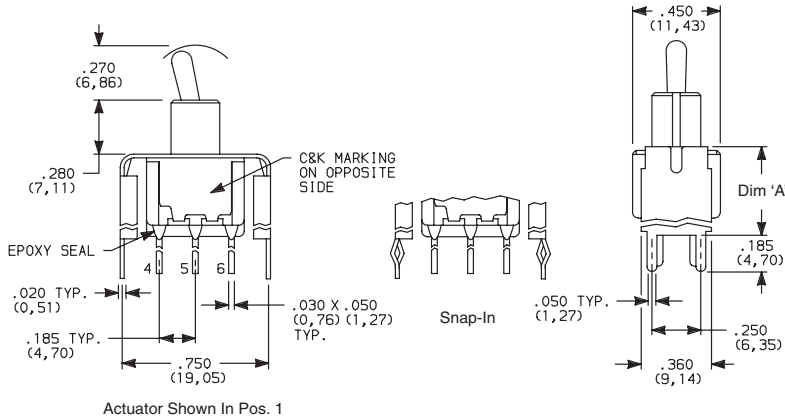
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# 7000 Series Miniature Toggle Switches

## TERMINATIONS

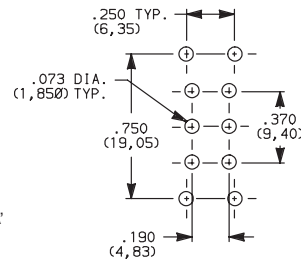
**V2, V6, V7, V8** VERTICAL MOUNT, V-BRACKET

**V21, V61, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN

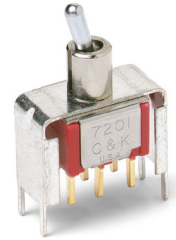


Not available with I seal option.

PC MOUNTING



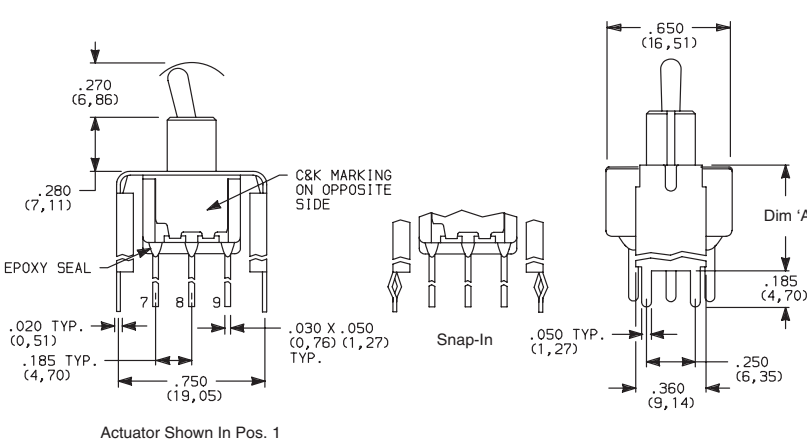
OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V6, V61</b>	.460 (11,68)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)



7201MD9\_BE  
DPDT

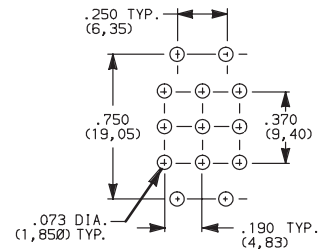
**V2, V7, V8** VERTICAL MOUNT, V-BRACKET

**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN

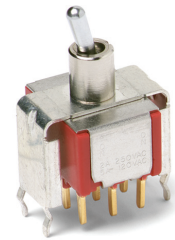


Not available with I seal option.

PC MOUNTING



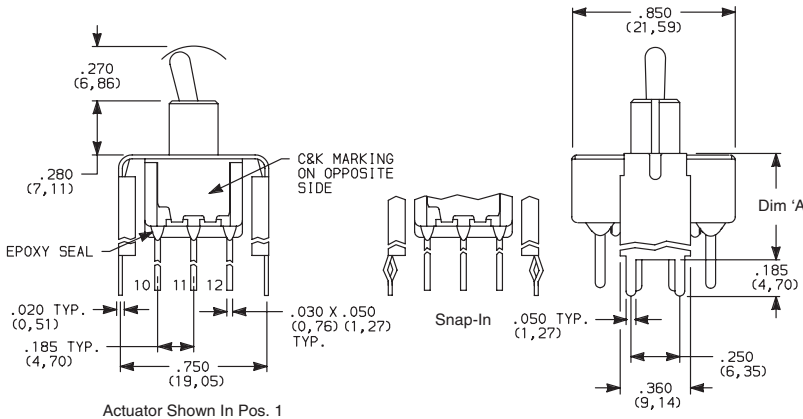
OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)



7301MD9\_BE  
3PDT

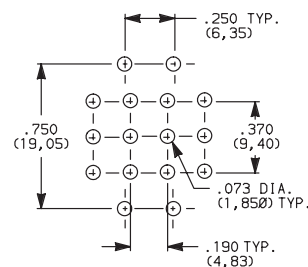
**V2, V7, V8** VERTICAL MOUNT, V-BRACKET

**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN

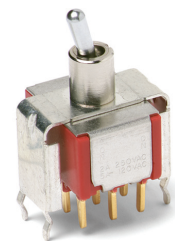


Not available with I seal option.

PC MOUNTING



OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)



7401MD9\_BE  
4PDT



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

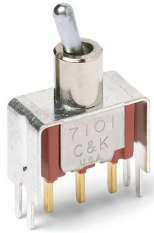
# 7000 Series Miniature Toggle Switches

## TERMINATIONS

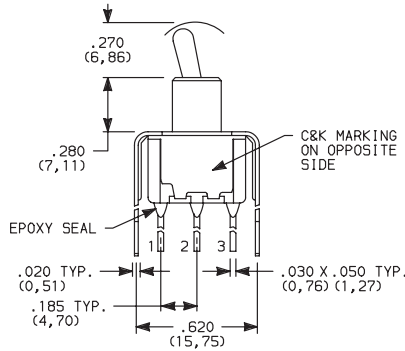


**V3, V4, V9** VERTICAL MOUNT, V-BRACKET

**V31, V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN

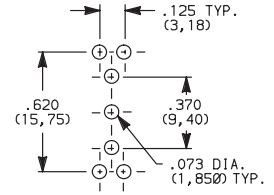


7101MD9\_BE  
SPDT



Actuator Shown In Pos. 1

### PC MOUNTING

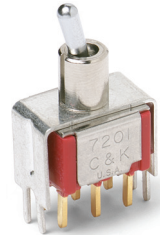


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

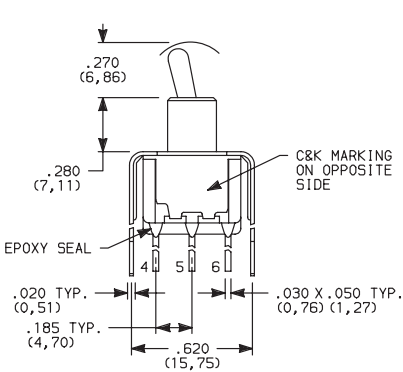
Not available with I seal option.

**V3, V4, V9** VERTICAL MOUNT, V-BRACKET

**V31, V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN

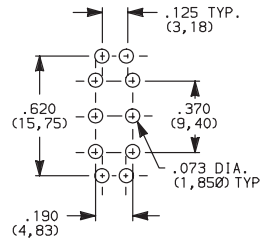


7201MD9\_BE  
DPDT



Actuator Shown In Pos. 1

### PC MOUNTING

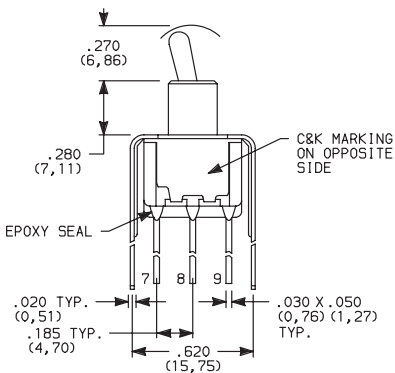


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

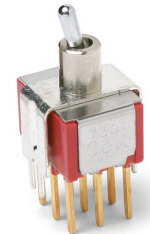
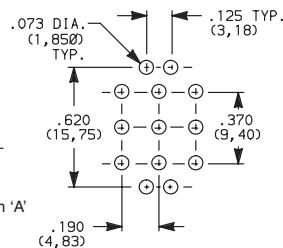
**V4, V9** VERTICAL MOUNT, V-BRACKET

**V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

### PC MOUNTING

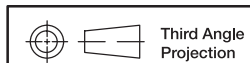


7301MD9\_BE  
3PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

Toggle F



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



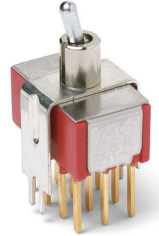
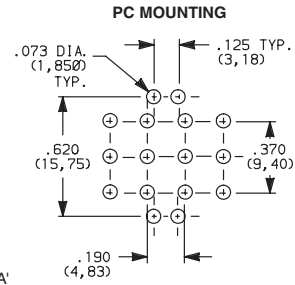
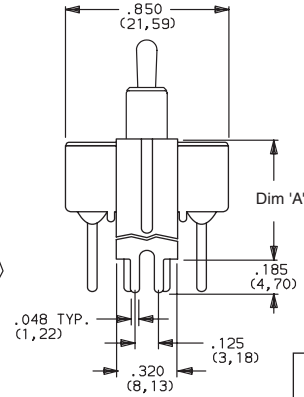
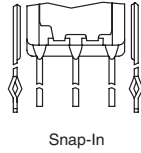
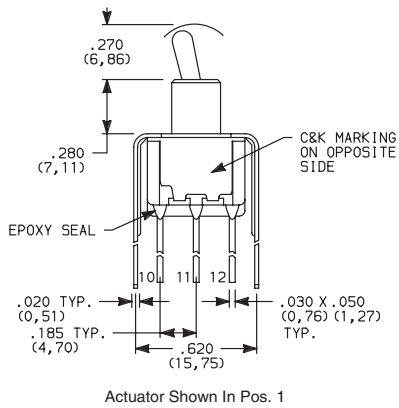
15 Jan 21

# 7000 Series Miniature Toggle Switches

## TERMINATIONS

**V4, V9** VERTICAL MOUNT, V-BRACKET

**V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN



7401MD9\_BE  
4PDT

OPTION CODE	DIM 'A'
<b>V4, V41</b>	.630 (16,00)
<b>V9</b>	1.150 (29,21)

Not available with I seal option.

## CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	GOLD <sup>1</sup>	GOLD <sup>1</sup>	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
<b>P</b>		MATTE-TIN <sup>6</sup>		
<b>Q</b>	SILVER <sup>4,5</sup>	SILVER <sup>5</sup>	POWER	5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
<b>S</b>		MATTE-TIN <sup>6</sup>		
<b>G</b>	GOLD OVER SILVER <sup>2,3</sup>	GOLD <sup>3</sup>	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
<b>R</b>		MATTE-TIN <sup>6</sup>		

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

<sup>1</sup> CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>2</sup> END CONTACTS: Coin silver, with gold plate over nickel plate.

<sup>3</sup> CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>4</sup> END CONTACTS: Coin silver, silver plated.

<sup>5</sup> CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

<sup>6</sup> TERMINALS: Copper alloy, with matte tin alloy nickel plate.

**NOTE:** Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

U11-U415 model numbers  with all options when ordered with G, S, R, or Q contact material.

B contact material standard with all terminations except C, Z & Z3.

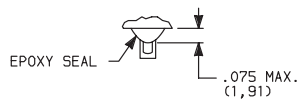
Q contact material standard with C, Z & Z3 terminations.

P, S & R contact materials not available with Z & Z3 terminations.

# 7000 Series Miniature Toggle Switches

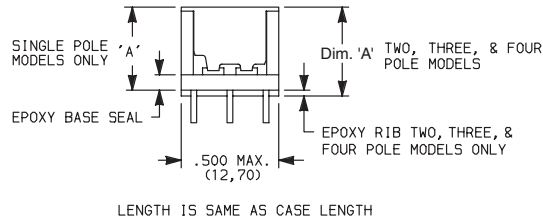
## SEAL

### E EPOXY SEAL



Compatible with "bottom-wash" PC board cleaning methods.

### I EPOXY POTTED BASE

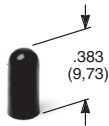


NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

Available with C, W-W5, Z & Z3 terminations only.

## AVAILABLE HARDWARE

### Cap

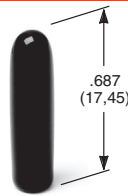


#### PART NO.

**896801000** WHITE  
**896802000** BLACK  
**896803000** RED

Material: Polyethylene  
Finish: Matte

### Cap

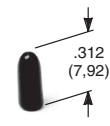


#### PART NO.

**763701000** WHITE  
**763702000** BLACK  
**763703000** RED

Material: Vinyl  
Finish: Matte

### Cap

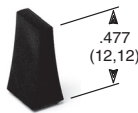


#### PART NO.

**706201000** WHITE  
**706202000** BLACK  
**706203000** RED

Material: Vinyl  
Finish: Matte

### L41 Lever handle

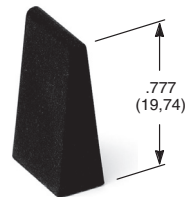


#### PART NO.

**481001000** WHITE  
**481002263** BLACK  
**481003000** RED

Material: Nylon  
Finish: Matte

### L42 Lever handle



#### PART NO.

**481101000** WHITE  
**481102263** BLACK  
**481103000** RED

Material: Nylon  
Finish: Matte

### Fits Z3 Termination female connector



#### PART NO.

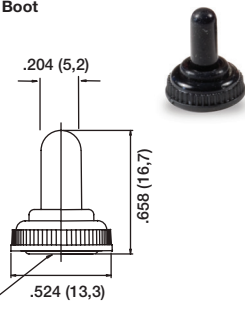
**530100000**

Available in loose pieces.

**NOTE:** Additional nuts, locking rings and lockwashers available separately.

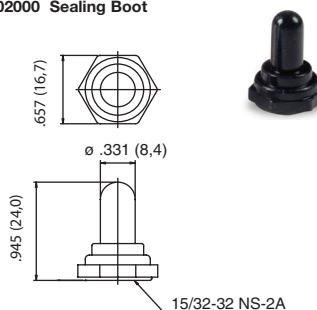
Other colors available, consult Customer Service Center.

### 759D02000 Sealing Boot



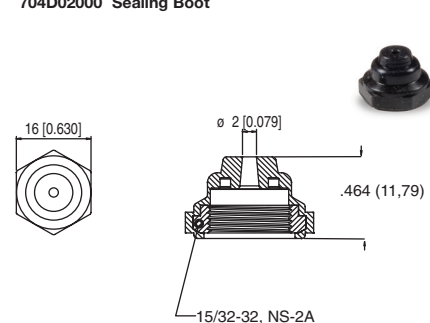
NOTE: For use with S actuator style when combined with D, H, H3, Y, and Y4 bushings

### 703D02000 Sealing Boot

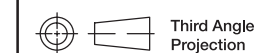


NOTE: For use with T and TP style actuators. **Cannot be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, 7407.**

### 704D02000 Sealing Boot



NOTE: For use with T, TP and T2P style actuators. **Cannot be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, and 7407.**



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches

## Features/Benefits

- Qualified to MIL-S-83731 Cage Code 63HW9
- 50  $\mu$  inch selective gold contact plating
- Epoxy sealed terminals for process compatibility
- Rated for logic level to 5 amp resistive loads and 2 amp inductive loads
- Flame retardant housing material
- RoHS compliant and compatible

Test Requirement	MIL-S-83731/9, 10, 13, 14, 15, 16
1. Strength of Terminal	1 lb. – solder lug
2. Strength of Actuating Lever Pivot and Stop	10 lbs. & 8 lbs. throughout range
3. Strength of Mounting Means	15 lbs. in. torque on bushing
4. Dielectric (Sea Level) Indication	1000 VAC Group B, 750 VAC after electrical endurance. 500 $\mu$ A max. leakage
5. Contact Voltage Drop	2.5 millivolt initial, 5.0 millivolt after mechanical endurance @ 2-6 VDC 0.1 amp
6. Temperature Rise	50° C rise max. @ rated resistive load after endurance test
7. Short Circuit	10 operations carry 100 amps resistive load @ lowest DC volts
8. Mechanical Life	20K operations at specified high and low temperatures
9. Electrical Endurance	10K operations at specified high and low temperatures
10. Overload	50 operations @ 150% of rated resistive load
11. Electrical Endurance at Sea Level	10K operations resistive load @ room temperature 10K operations inductive load @ room temperature 10K operations lamp load @ room temperature Performed on different test samples
12. Vibration	Method 204 of MIL-STD-202, test condition A .06 D. A. or 10 G's 10-500 Hz, 10 usec. max. chatter
13. Shock	Fuse-method 213 or MIL-STD-202, 10 usec. max. chatter
14. Salt Spray Test Upon Completion	48 hours – method 101 of MIL-STD-202, test condition B 10 operations resistive load (toggle sealed switches only)
15. Moisture Resistance Test Upon Completion	Method 106 of MIL-STD-202 100 VDC potential between current carrying parts and panel
16. Sand & Dust	Method 110 of MIL-STD-202, test condition B 6 hours @ 23°C 2.5K operations mechanical life (toggle sealed switches only)
17. Explosion	MIL-STD-202 method 109, maximum rated DC inductive load (toggle sealed switches only)
18. Sealing	Toggle seal – 5 operations under 0.5 inches of H <sub>2</sub> O above top of bushing
19. A.) Toggle Seal B.) Bushing Seal	(Toggle sealed switches only) (Panel sealed switches only)
20. Temperature Operation	Mechanical life, –25°C to +71°C
21. Life Low Cur. Level	No requirement
22. Fungus	No requirement
23. Intermediate Current	20K operations, 35/40 milliamps @ 5 VDC resistive load @ +71°C
24. Thermal Shock	Method 107 of MIL-STD-202 test condition A; 5 cycles @ –55°C/+85°C

## RATINGS

### CURRENT RATINGS – HIGH LEVEL

Current Capacity in Amperes – Per Pole		
28V dc	115V ac, 400 Hz	125V ac, 60 Hz
Lamp Load		
1	1	1
Resistive Load		
5	5	5
Inductive Load		
2	2	2

### CURRENT RATINGS – LOGIC LEVEL

0.5 Volt – Amp (VA) Max. @ 28 V Max. (AC or DC)
---

## MATERIALS

CASE: Diallyl phthalate (DAP) (UL 94 V-0).

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

ACTUATOR: Brass, chrome plated.

SWITCH SUPPORT: Brass, tin plated.

TERMINALS: Gold over nickel over copper alloy.

TERMINAL SEAL: Epoxy.

CONTACTS: Gold over nickel over silver over brass.

PANEL SEAL: Silicone rubber.

MOUNTING HARDWARE: Two hexagon nut, brass with nickel plating; one lockwasher, steel with nickel plating; one locking ring, brass with nickel plating.

**HOW TO ORDER:** Complete part numbers for MIL-S-83731 TOGGLE SWITCHES are shown on pages F–18 through F–21.



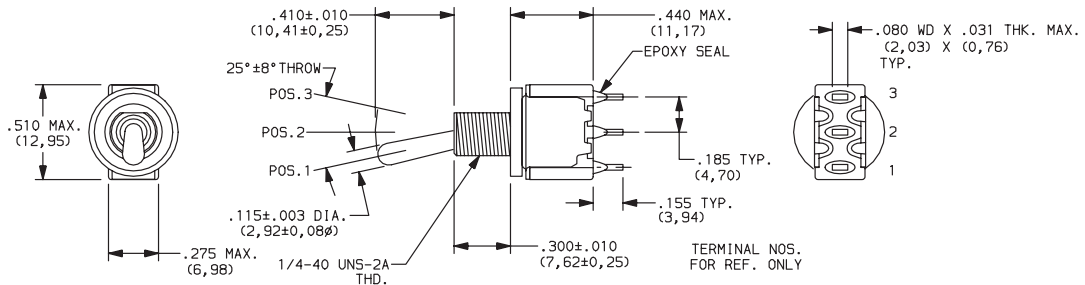
F

Toggle

# Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



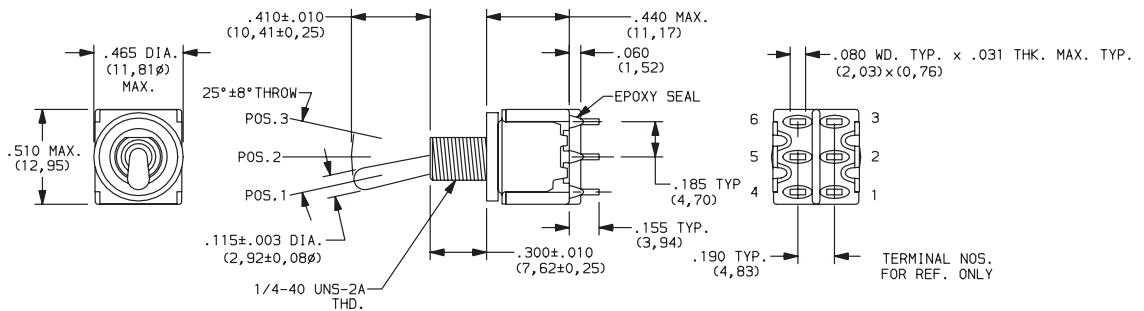
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/9-211	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/9-231	ON	NONE	ON		N/A		
	M83731/9-261	ON	NONE	MOM.				
	M83731/9-271	MOM.	OFF	MOM.				
	M83731/9-311	ON	OFF	MOM.				
	M83731/9-341	NONE	ON	MOM.		N/A		



SPDT

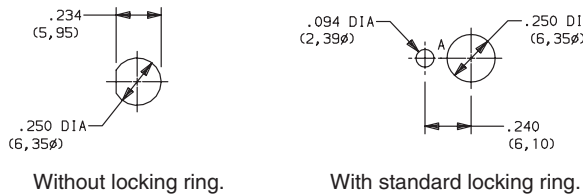


NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC		
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3			
DP	M83731/10-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT		
	M83731/10-231	ON	NONE	ON		N/A				
	M83731/10-261	ON	NONE	MOM.						
	M83731/10-271	MOM.	OFF	MOM.						
	M83731/10-311	ON	OFF	MOM.						
	M83731/10-321	ON	ON	ON						
	M83731/10-331	ON	ON	MOM.		2-3,5-6			2-3,5-4	2-1,5-4
	M83731/10-351	MOM.	ON	MOM.		N/A			2-3,5-6	2-1,5-4



DPDT

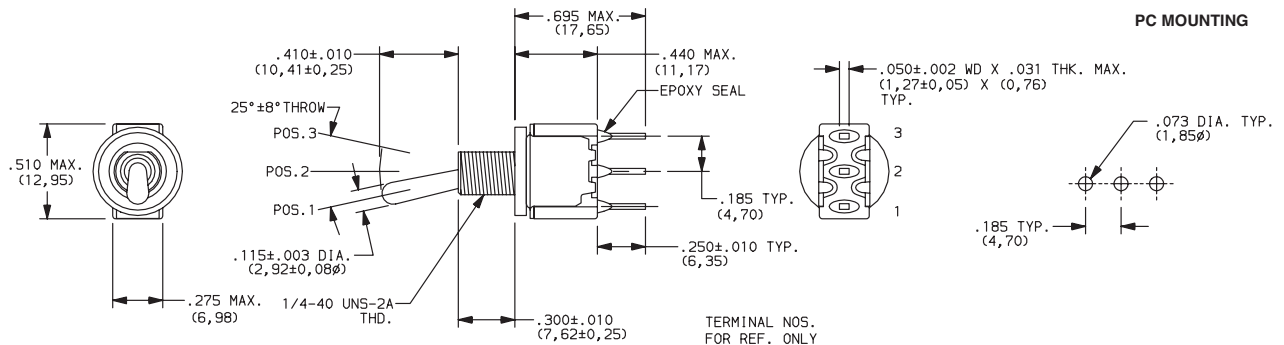
### PANEL MOUNTING



# Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



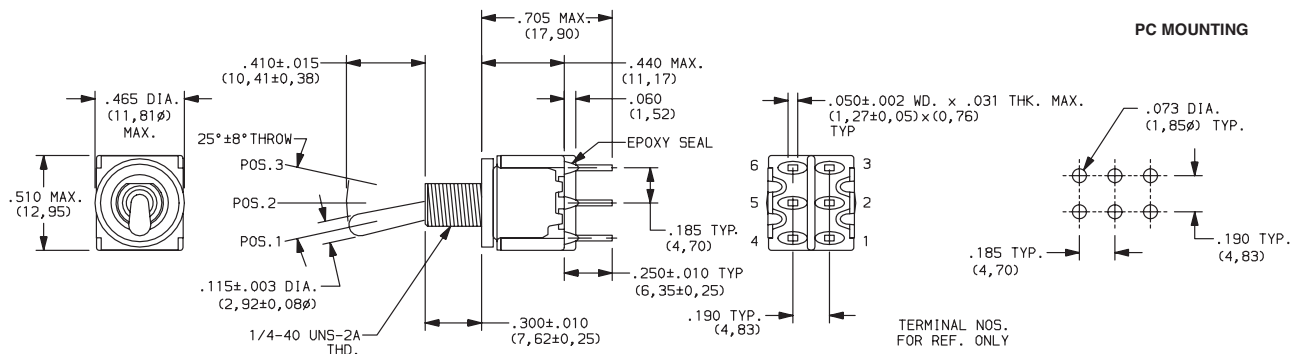
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/9-212	ON	OFF	ON	2-3	OPEN	2-1	
	M83731/9-232	ON	NONE	ON		N/A		
	M83731/9-262	ON	NONE	MOM.				
	M83731/9-272	MOM.	OFF	MOM.		OPEN		
	M83731/9-312	ON	OFF	MOM.				
	M83731/9-342	NONE	ON	MOM.	N/A	2-3	2-1	



SPDT



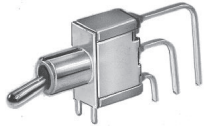
NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC		
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3			
DP	M83731/10-212	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4			
	M83731/10-232	ON	NONE	ON		N/A				
	M83731/10-262	ON	NONE	MOM.						
	M83731/10-272	MOM.	OFF	MOM.		OPEN				
	M83731/10-312	ON	OFF	MOM.						
	M83731/10-322	ON	ON	ON		2-3,5-6			2-3,5-4	2-1,5-4
	M83731/10-332	ON	ON	MOM.						
	M83731/10-342	NONE	ON	MOM.		N/A			2-3,5-6	2-1,5-4
	M83731/10-352	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4			



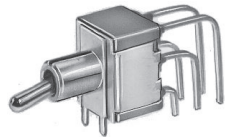
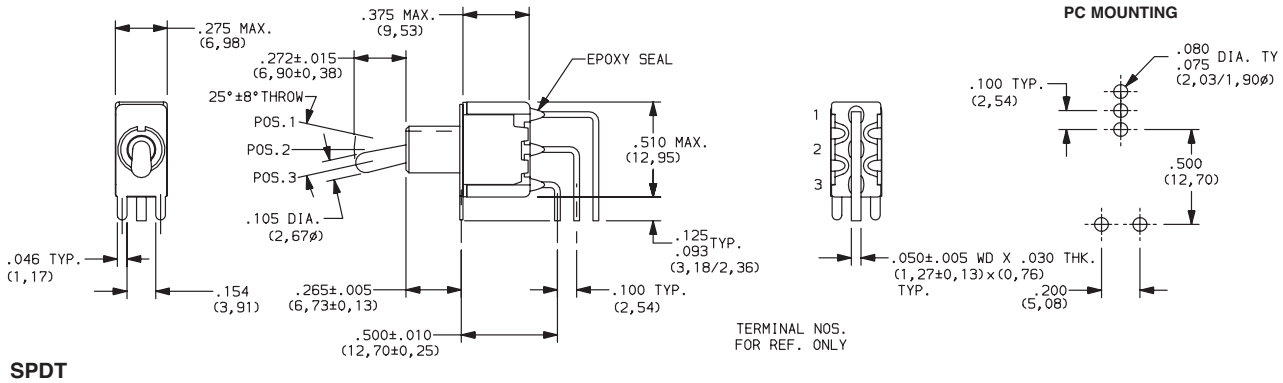
DPDT



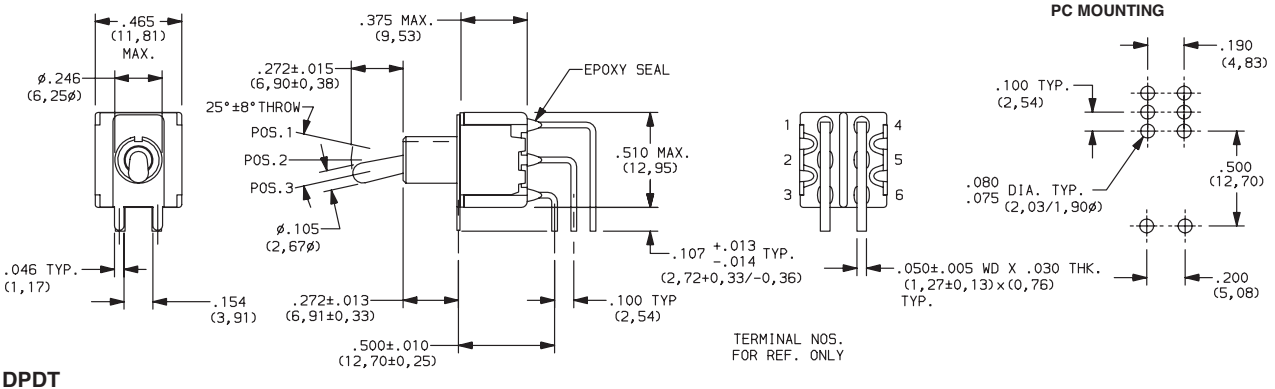
# Military/Aerospace/HI-REL MIL-S-83731 Toggle Switches



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/13-211	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/13-231	ON	NONE	ON				
	M83731/13-261	ON	NONE	MOM.				
	M83731/13-271	MOM.	OFF	MOM.				
	M83731/13-311	ON	OFF	MOM.				
	M83731/13-341	NONE	ON	MOM.				



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	M83731/14-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT
	M83731/14-231	ON	NONE	ON				
	M83731/14-261	ON	NONE	MOM.				
	M83731/14-271	MOM.	OFF	MOM.				
	M83731/14-311	ON	OFF	MOM.				
	M83731/14-321	ON	ON	ON				
	M83731/14-331	ON	ON	MOM.				
	M83731/14-341	NONE	ON	MOM.				
M83731/14-351	MOM.	ON	MOM.					



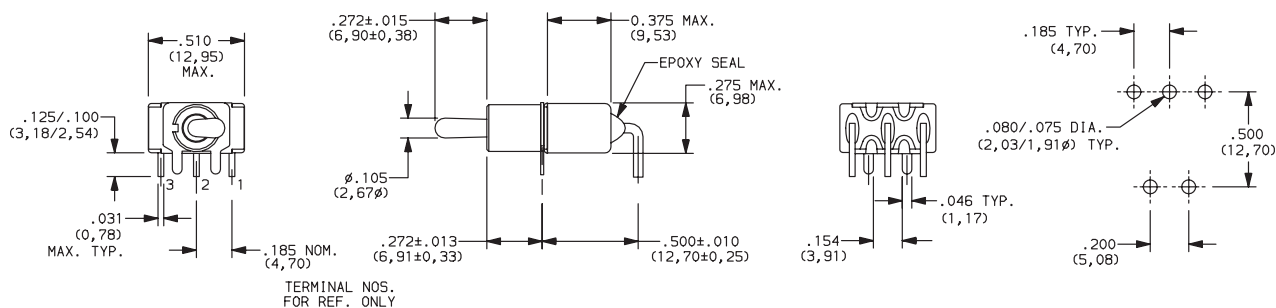
Toggle F

# Military/Aerospace/Hi-REL MIL-S-83731 Toggle Switches



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	M83731/15-211	ON	OFF	ON	2-3	OPEN	2-1	 SPDT
	M83731/15-231	ON	NONE	ON				
	M83731/15-261	ON	NONE	MOM.				
	M83731/15-271	MOM.	OFF	MOM.				
	M83731/15-311	ON	OFF	MOM.				
	M83731/15-341	NONE	ON	MOM.		N/A		

### PC MOUNTING

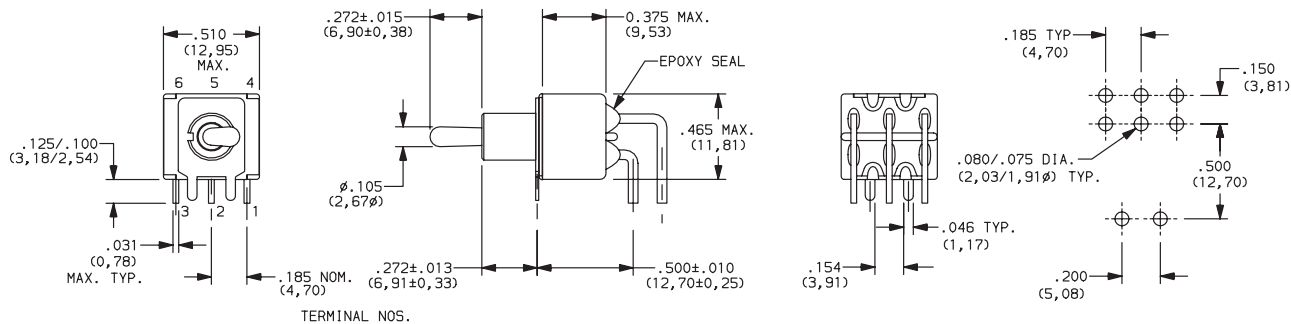


### SPDT



NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC		
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3			
DP	M83731/16-211	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	 DPDT		
	M83731/16-231	ON	NONE	ON						
	M83731/16-261	ON	NONE	MOM.						
	M83731/16-271	MOM.	OFF	MOM.						
	M83731/16-311	ON	OFF	MOM.						
	M83731/16-321	ON	ON	ON						
	M83731/16-331	ON	ON	MOM.		2-3,5-6			2-3,5-4	2-1,5-4
	M83731/16-341	NONE	ON	MOM.		N/A			2-3,5-6	2-1,5-4
M83731/16-351	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4				

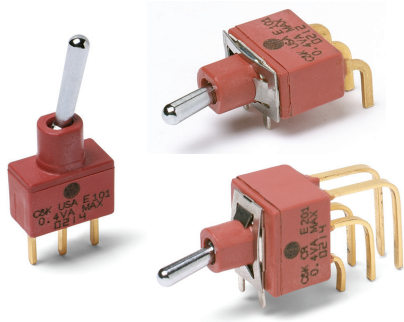
### PC MOUNTING



### DPDT



# E Series Sealed Miniature Toggle Switches



## Features/Benefits

- Sealed against solder and cleaning process contaminants
- UL 94V-0 Nylon case and bushing
- Multi-positions
- ESD protection available
- RoHS compliant models available

## Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



## Specifications

**CONTACT RATING:** B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-29 for additional ratings.

**ELECTRICAL LIFE:** E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

**CONTACT RESISTANCE:** Below 10 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

**INSULATION RESISTANCE:** 10<sup>9</sup> Ω min.

**ELECTROSTATIC DISCHARGE (ESD) OPTION:** F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

**DIELECTRIC STRENGTH:** 1000 Vrms min. @ sea level.

**OPERATING TEMPERATURE:** -30°C to 85°C.

**SOLDERABILITY:** Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

**DEGREE OF PROTECTION:** IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

## Materials

**CASE & BUSHING:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

**ACTUATOR:** Brass, chrome plated with internal o-ring seal standard.

**SWITCH SUPPORT:** Brass or steel, matte-tin plated.

**SWITCH SUPPORT RETAINER:** Stainless steel.

**CONTACTS & TERMINALS:** B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-29 for additional contact materials.

**TERMINAL SEAL:** Epoxy.

**HARDWARE:** Nut & Locking ring: Brass, nickel plated.  
Lockwasher: Steel, nickel plated.

**NOTE:** Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-23 thru F-29. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



### Switch Function

- E101** SP, On-None-On
- E103** SP, On-Off-On
- E105** SP, Mom.-Off-Mom.
- E107** SP, On-Off-Mom.
- E108** SP, On-None-Mom.
- E201** DP, On-None-On
- E203** DP, On-Off-On
- E205** DP, Mom.-Off-Mom.
- E207** DP, On-Off-Mom.
- E208** DP, On-None-Mom.
- E211** DP, On-On-On
- E213** DP, On-On-Mom.
- E215** DP, Mom.-On-Mom.
- \*\*E301** 3P, On-None-On

### Actuator

- M** .300" high
- S** .500" high
- L3** Plastic, .940" high

### Bushing

- D1** .250" high
- \*F1** Conductive, .250" high
- D9** .280" high
- \*\*Y** Threaded, .350" high

### Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- V3** .460" high, V-bracket
- Z** Solder lug
- A3** Right angle, PC thru-hole
- AV3** Vertical right angle, PC thru-hole
- V6** .460" high, V-bracket
- V9** 1.150" high, V-bracket
- V31** .460" high, snap-in V-bracket
- V61** .460" high, snap-in V-bracket
- W** .750" long, wire wrap
- Z3** Quick connect

### Contact Material

- B** Gold
- P** Gold, matte-tin
- Q** Silver
- S** Silver, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

### Seal

- E** Epoxy

\* F1 available with SP and DP versions only, please see page F-19

\*\* Y threaded bushing available for 1 & 2 pole only

Toggle F



15 Jan 21

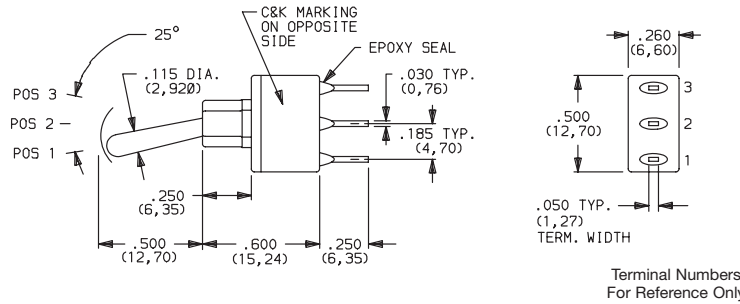
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# E Series Sealed Miniature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
		C&K marking on opposite side			C&K marking on opposite side			
SP	<b>E101</b>	ON	NONE	ON	2-3	N/A	2-1	
	<b>E103</b>	ON	OFF	ON	2-3	OPEN	2-1	
	<b>E105</b>	MOM.	OFF	MOM.				
	<b>E107</b>	ON	OFF	MOM.				
	<b>E108</b>	ON	NONE	MOM.				
SPDT								

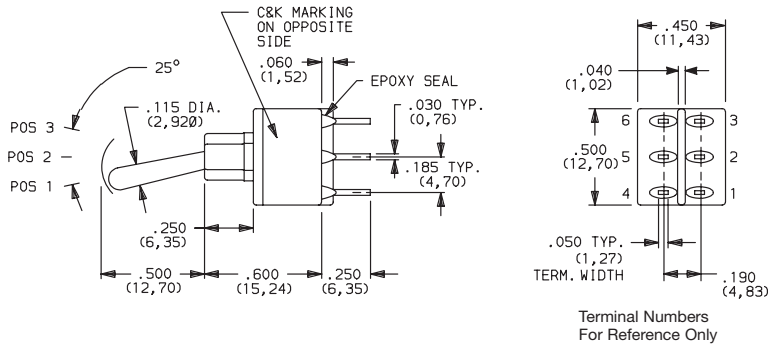
### SPDT



Part number shown: E101SD1CBE

DP	<b>E201</b>	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	<b>E203</b>	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	<b>E205</b>	MOM.	OFF	MOM.				
	<b>E207</b>	ON	OFF	MOM.				
	<b>E208</b>	ON	NONE	MOM.				
	<b>E211**</b>	ON	ON	ON				
	<b>E213**</b>	ON	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	
<b>E215**</b>	MOM.	ON	MOM.	DPDT				

### DPDT



Part number shown: E201SD1CBE

MOM. = Momentary

\*\* Wiring for 3-way switch

All models with all options when ordered with G,R, Q or S contact material except with F1 conductive bushing.



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# E Series Sealed Miniature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
3P	<b>E301</b>	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	

**3PDT**

Part number shown: E301SD1CBE

Terminal Nos. For Reference Only

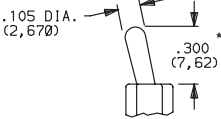
MOM. = Momentary

\*\* [Wiring for 3-way switch](#)

All models with all options when ordered with G, R, Q or S contact material except with F1 conductive bushing.

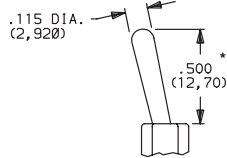
## ACTUATOR

**M** .300" HIGH



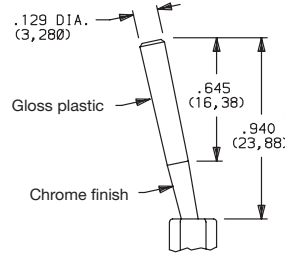
Standard when ordered with A, A3, AV2, AV3, V2-V61 terminations. Finish: Chrome.

**S** .500" HIGH



Standard when ordered with C, Z, Z3, W & W4 terminations. Finish: Chrome

**L3** PLASTIC, .940" HIGH



OPTION CODE	L3 ACTUATOR COLOR
<b>2</b>	BLACK

Other colors available, consult Customer Service Center. No color choice required for S & M actuators.

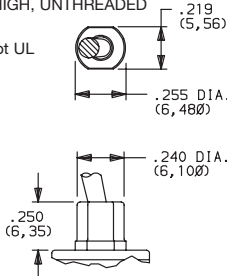
\* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

## BUSHING

**D1** .250" HIGH, UNTHREADED

**F1** ESD CONDUCTIVE BUSHING, .250" HIGH, UNTHREADED

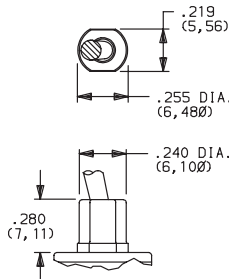
F1 bushing is not UL approved



ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

Available with M & S actuator options and A, A3, AV2, AV3, V3-V61 termination options.

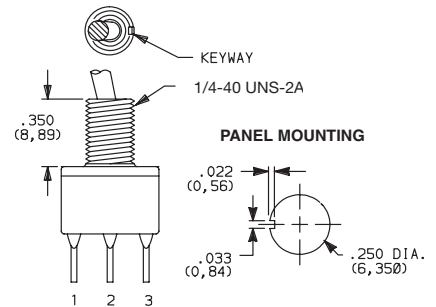
**D9** .280" HIGH, UNTHREADED



E3XX models not available with D9 bushing.

**NOTE:** Internal o-ring actuator seal standard for all bushing options.

**Y** THREADED, INSULATED, .350" HIGH WITH KEYWAY



Available only with C, Z, Z3, & W terminations. Available for 1&2 pole only.

Hardware: One dress nut part number 299D01201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard.

**Will withstand 4 in.-lbs. of torque with no distortion.**



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

Toggle



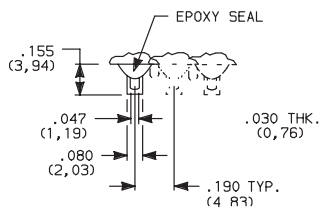
15 Jan 21



# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

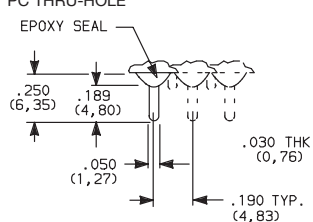
### Z SOLDER LUG



Not available with F1 conductive bushing or P, R or S contact material.

SPDT thru 3PDT

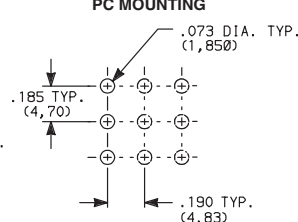
### C PC THRU-HOLE



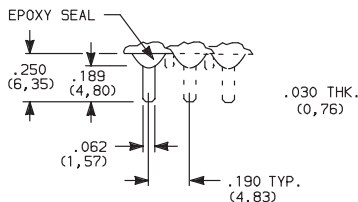
SPDT thru 3PDT

Not available with F1 conductive bushing.

### PC MOUNTING



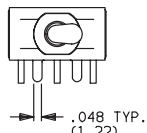
### Z3 QUICK CONNECT



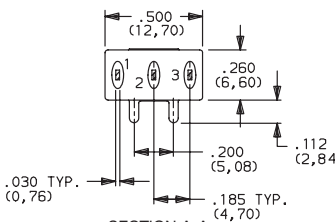
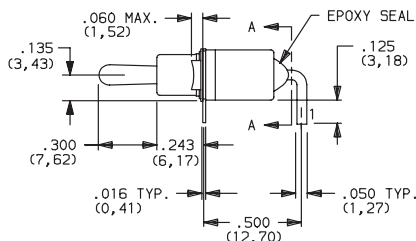
Not available with F1 conductive bushing or P, R or S contact material. Mating quick connector available; order part number 530100000, page F-16.

SPDT thru 3PDT

### A RIGHT ANGLE, PC THRU-HOLE



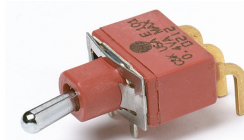
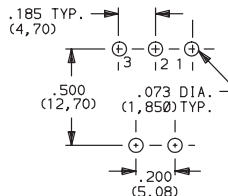
Actuator Shown In Pos. 1



SECTION A-A

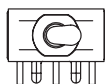
Terminal Nos. For Reference Only

PC MOUNTING

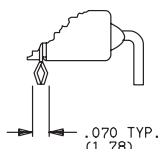


E101MD1ABE  
Horizontal Actuation  
SPDT

### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

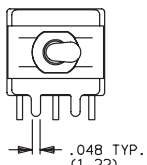


.048 TYP. (1,22)

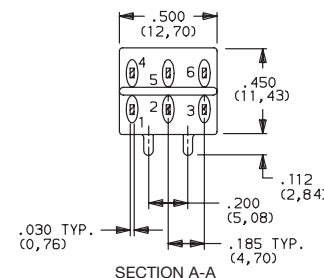
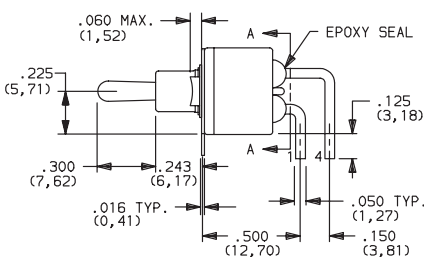


Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

### A RIGHT ANGLE, PC THRU-HOLE



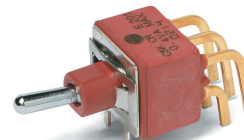
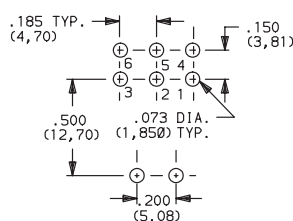
Actuator Shown In Pos. 1



SECTION A-A

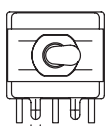
Terminal Nos. For Reference Only

PC MOUNTING

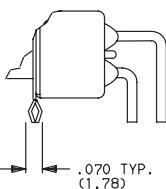


E201MD1ABE  
Horizontal Actuation  
DPDT

### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



.048 TYP. (1,22)



Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

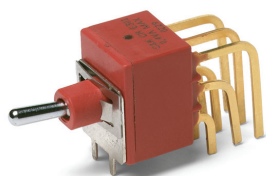


Third Angle Projection  
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

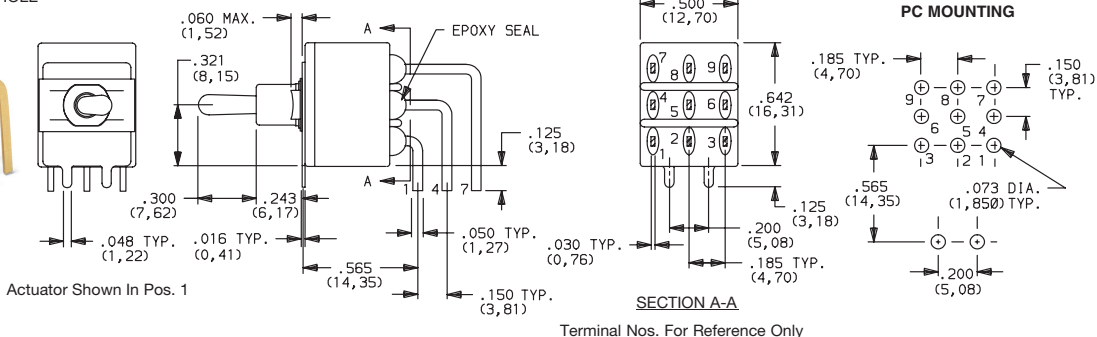
# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

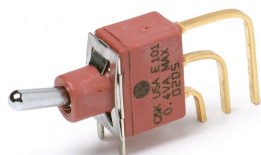
### A RIGHT ANGLE, PC THRU-HOLE



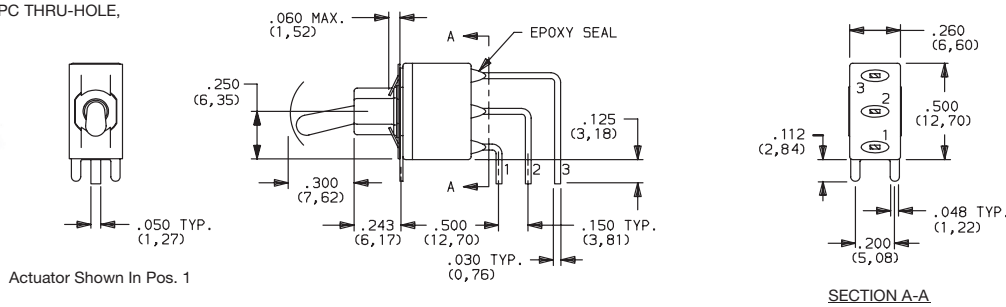
**E301MD1ABE**  
Horizontal Actuation  
**3PDT**



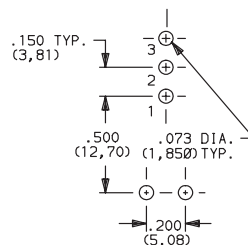
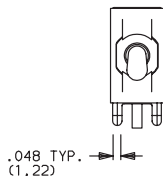
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**E101MD1AV2BE**  
Vertical Actuation  
**SPDT**

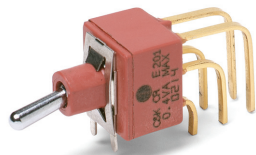


### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH

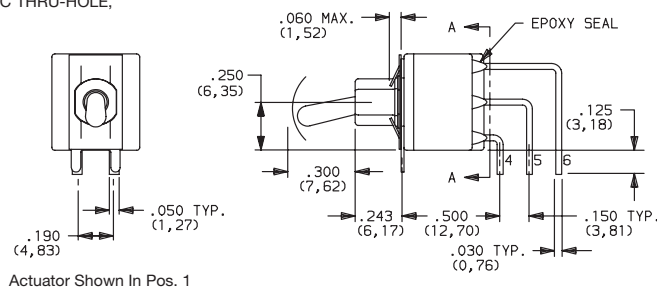


Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

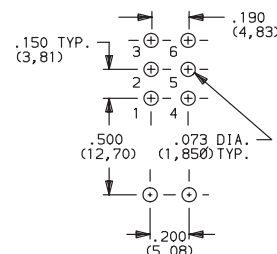
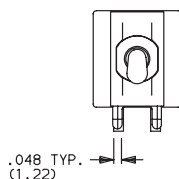
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



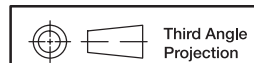
**E201MD1AV2BE**  
Vertical Actuation  
**DPDT**



### A3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.



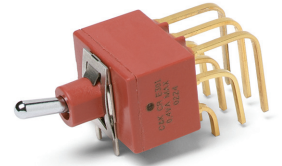
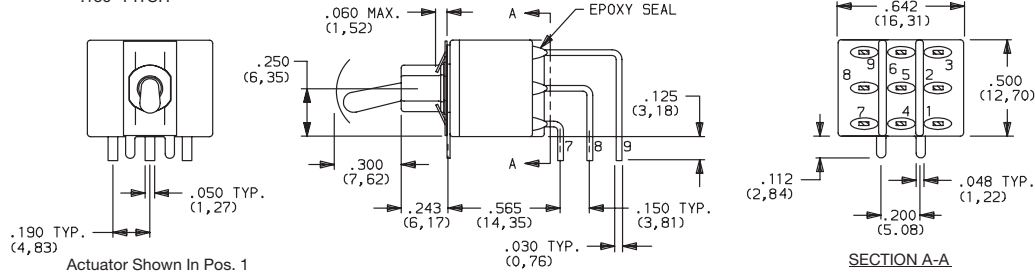
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

Toggle F

# E Series Sealed Miniature Toggle Switches

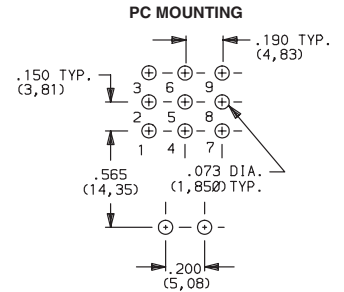
## TERMINATIONS

**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**E301MD1AV2BE**  
Vertical Actuation  
**3PDT**

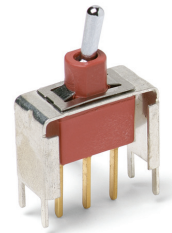
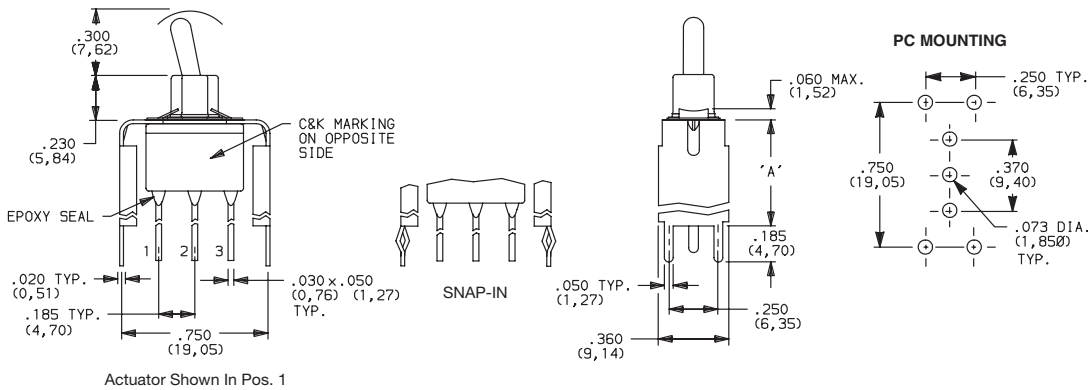
**AV3** VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



Not available with D9 & Y bushings.  
Terminal bend radii and lead-in manufacturing option.

**V6** VERTICAL MOUNT, V-BRACKET

**V61** VERTICAL MOUNT, V-BRACKET, SNAP-IN



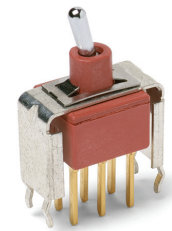
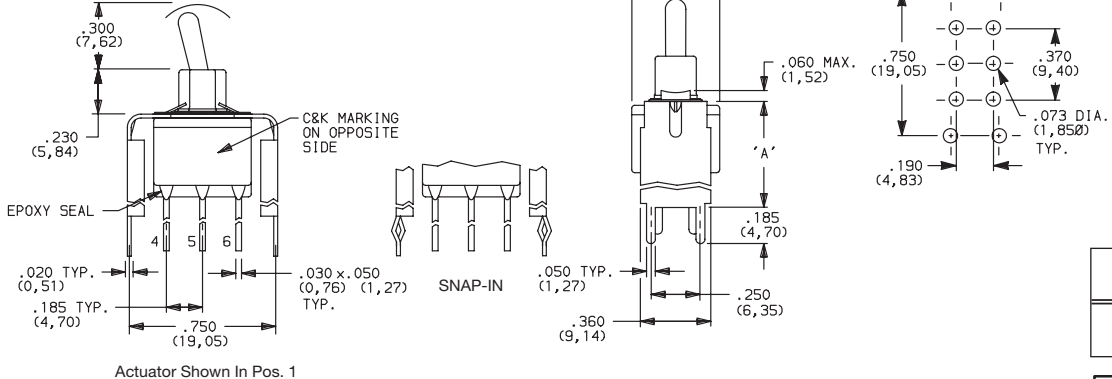
**E101MD1\_BE**  
**SPDT**

OPTION CODE	DIM 'A'
<b>V6, V61</b>	.460 (11,68)

Not available with Y bushing.

**V6** VERTICAL MOUNT, V-BRACKET

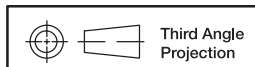
**V61** VERTICAL MOUNT, V-BRACKET, SNAP-IN



**E201MD1\_BE**  
**DPDT**

OPTION CODE	DIM 'A'
<b>V6, V61</b>	.460 (11,68)

Not available with Y bushing.



15 Jan 21

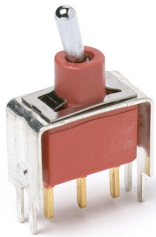
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# E Series Sealed Miniature Toggle Switches

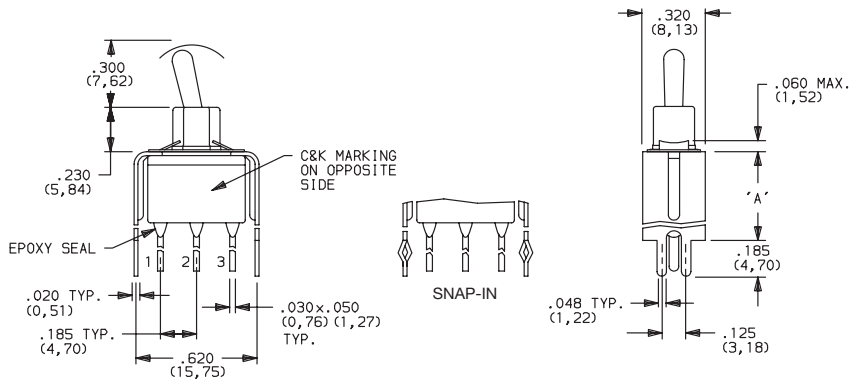
## TERMINATIONS

**V3, V9** VERTICAL MOUNT, V-BRACKET

**V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN

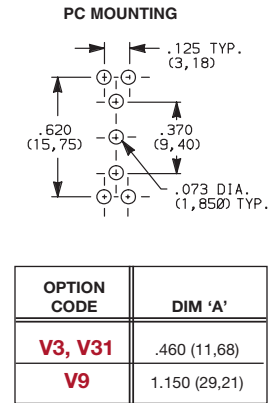


**E101MD1\_BE**  
**SPDT**



Actuator Shown In Pos. 1

Not available with Y bushing.

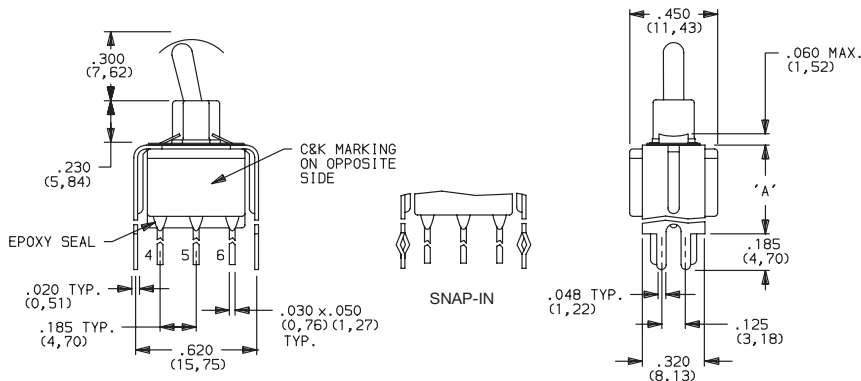


**V3, V9** VERTICAL MOUNT, V-BRACKET

**V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN

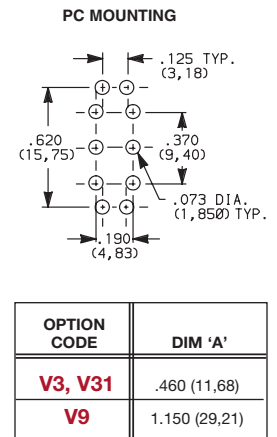


**E201MD1\_BE**  
**DPDT**

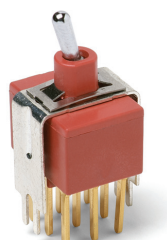


Actuator Shown In Pos. 1

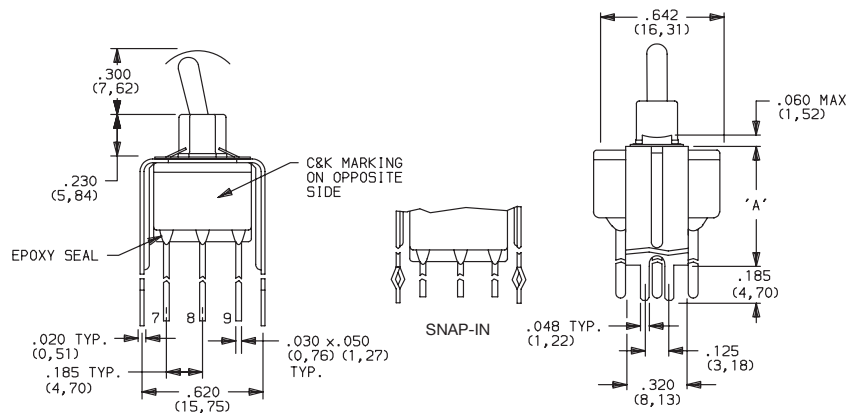
Not available with Y bushing.



**V9** VERTICAL MOUNT, V-BRACKET

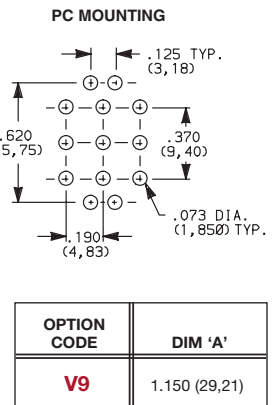


**E301MD1\_BE**  
**3PDT**

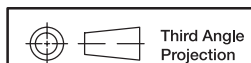


Actuator Shown In Pos. 1

Not available with D9 & Y bushings.



Toggle



# E Series Sealed Miniature Toggle Switches

## CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	GOLD <sup>1</sup>	GOLD <sup>1</sup>	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
<b>P</b>		MATTE-TIN <sup>6</sup>		
<b>Q</b>	SILVER <sup>4,5</sup>	SILVER <sup>5</sup>	POWER	E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
<b>S</b>		MATTE-TIN <sup>6</sup>		
<b>G</b>	GOLD OVER SILVER <sup>2,3</sup>	GOLD <sup>3</sup>	LOW LEVEL/DRY CIRCUIT OR POWER	E1XX AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 7.5 AMPS @125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. DC E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
<b>R</b>		MATTE-TIN <sup>6</sup>		

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

<sup>1</sup> CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>2</sup> END CONTACTS: Coin silver, with gold plate over nickel plate.

<sup>3</sup> CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>4</sup> END CONTACTS: Coin silver, silver plated.

<sup>5</sup> CENTER CONTACT & ALL TERMINALS: Copper alloy, with gold flash over silver plate. Or copper alloy, silver plated.

<sup>6</sup> TERMINALS: Copper alloy, with matte-tin over nickel plate.

**NOTE:** Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

All models with all options when ordered with S, R, G, or Q contact material except with F1 conductive bushing.

B contact material standard with all terminations.

P, S & R contact materials not available with Z & Z3 terminations.



Third Angle  
Projection

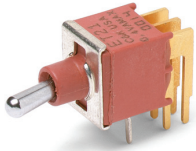
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



**F**

**Toggle**

# ET Series Sealed Subminiature Toggle Switches

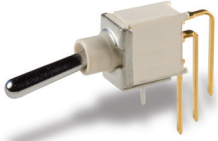


## Features/Benefits

- Sealed against solder and cleaning process contaminants
- ESD protection available
- Thru-hole and surface mount models
- Compact size and small footprint save PCB space
- RoHS compliant models available

## Typical Applications

- Hand-held telecommunications
- Instrumentation
- Medical equipment



## Specifications

**CONTACT RATING:** B contact material: 0.4 VA max. @ 20 V AC or DC max. See page F-35 for additional ratings.

**ELECTRICAL LIFE:** ETX1 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

**CONTACT RESISTANCE:** Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

**INSULATION RESISTANCE:** 10<sup>9</sup> Ω min.

**ELECTROSTATIC DISCHARGE (ESD) RESISTANT OPTION:** M3 & S3 insulating actuator only: 9,000 V DC min. @ sea level, actuator to terminals. F1 conductive bushing only: Dissipates up to 20,000 V DC from actuator to ground. M3 & S3 actuator and F1 bushing options are not recommended for use together.

**DIELECTRIC STRENGTH:** 1000 Vrms min. @ sea level.

**OPERATING TEMPERATURE:** -30°C to 85°C.

**SOLDERABILITY:** Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

**DEGREE OF PROTECTION:** IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

**PACKAGING:** Surface mount switches are shipped in tape and reel packaging, see page F-36 for drawings and reel information.

## Materials

**CASE & BUSHING:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) or glass filled 4/6 nylon, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

**ACTUATOR:** M3 & S3 anti-static actuator: Nylon 4/6, black standard (UL 94V-0). All other actuators: Brass, chrome plated. Internal o-ring seal standard with all actuators.

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

**CONTACTS & TERMINALS:** B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See F-35 for additional contact materials.

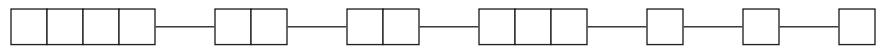
**TERMINAL SEAL:** Epoxy.

**NOTE:** Any models supplied with Q, B, G, P or R contact material are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-31 thru F-36. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



### Switch Function

- ET01** SP, On-None-On
- ET02** SPST, Off-None-On
- ET03** SP, On-Off-On
- ET05** SP, Mom.-Off-Mom.
- ET07** SP, On-Off-Mom.
- ET08** SP, On-None-Mom.
- ET21** DP, On-None-On
- ET23** DP, On-Off-On
- ET24** DP, On-On-On
- ET25** DP, Mom.-Off-Mom.
- ET27** DP, On-Off-Mom.
- ET28** DP, On-None-Mom.

### Actuator

- M** .240" high
- M3** Plastic, anti-static, .240" high
- S** .400" high
- L** .320" high
- S1** .550" high

### Bushing

- D1** .177" High, Unthreaded
- F1** .177" high, unthreaded, ESD conductive

### Terminations

- A** Right angle, PC thru-hole
- AV** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- SA** Right angle, surface mount
- SA1** Right angle, surface mount rear-facing
- V3** Vertical mount, V-bracket
- AV3** Vertical right angle, snap-in, PC thru-hole
- V31** Vertical mount, V-bracket, snap-in
- W** Wire wrap

### Contact Material

- B** Gold
- P** Gold, matte tin
- Q** Silver
- S** Silver/matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

### Seal

- E** Epoxy

### Plastic Actuator Color

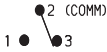

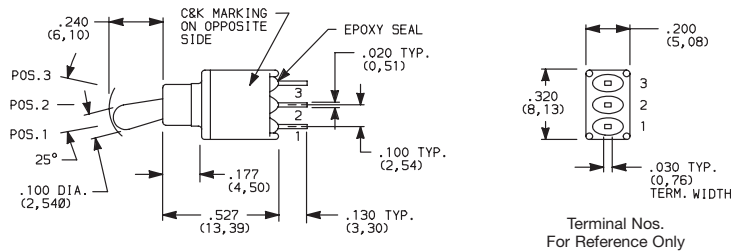
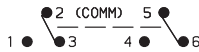
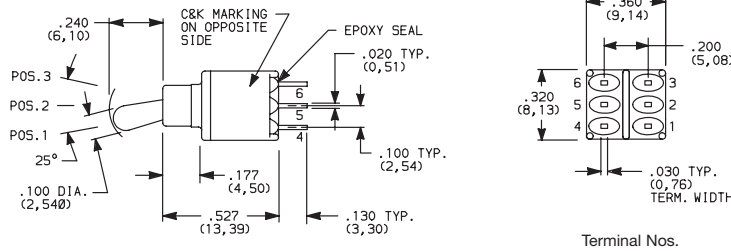
- NONE** No actuator color
- 1** White

Toggle




# ET Series Sealed Subminiature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
		C&K marking on opposite side			C&K marking on opposite side			
SP	<b>ET01</b>	ON	NONE	ON	2-3	N/A	2-1	
	<b>ET03</b>	ON	OFF	ON	2-3	OPEN	2-1	
	<b>ET05</b>	MOM.	OFF	MOM.				
	<b>ET07</b>	ON	OFF	MOM.				
	<b>ET08</b>	ON	NONE	MOM.				
	<b>ET02</b>	OFF	NONE	ON	OPEN	N/A	3-1	
<p><b>SPDT</b></p>  <p>Part number shown: ET01MD1CBE      ET02 Models: Omit terminal 2</p>								
DP	<b>ET21</b>	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	<b>ET23</b>	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	<b>ET25</b>	MOM.	OFF	MOM.				
	<b>ET27</b>	ON	OFF	MOM.				
	<b>ET28</b>	ON	NONE	MOM.				
	<b>ET24**</b>	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	
<p><b>DPDT</b></p>  <p>Part number shown: ET21MD1CBE</p>								

MOM. = Momentary

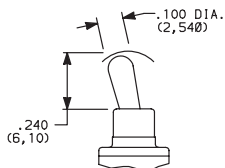
\*\* [Wiring for 3-way switch](#)

All models  with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

# ET Series Sealed Subminiature Toggle Switches

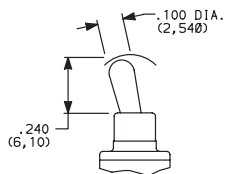
## ACTUATOR

**M** .240" HIGH



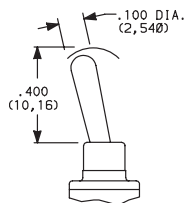
Standard with A, AV, V3 & V31 terminations.

**M3** PLASTIC, ANTISTATIC,  
.240" HIGH



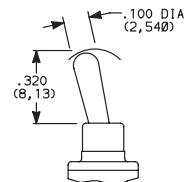
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not available with F1 conductive bushing option. Not UL approved.

**S** .400" HIGH

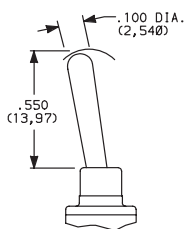


Standard with C or W terminations.

**L** .320" HIGH



**S1** .550" HIGH



OPTION CODE	PLASTIC ACTUATOR COLOR
(NONE)	BLACK (M3 only)
1	WHITE (M3 only)

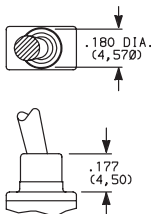
**NOTE:** All actuators have chrome finish (except M3 & S3).

## BUSHING

**D1** .177" HIGH, UNTHREADED

**F1** ESD, CONDUCTIVE BUSHING  
UNTHREADED, .177" HIGH

F1 bushing is not UL approved



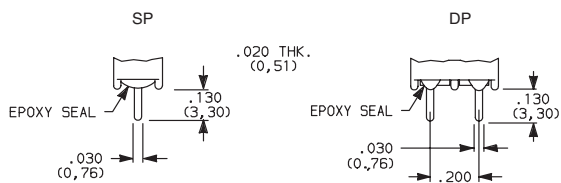
**NOTE:** ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

Available with all metal actuator options and A, AV, AV3, V3 and V31 termination options only.

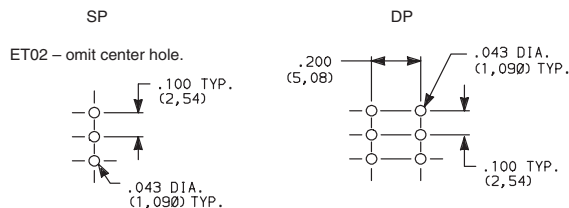
Internal actuator o-ring seal standard.

## TERMINATIONS

**C** PC THRU-HOLE



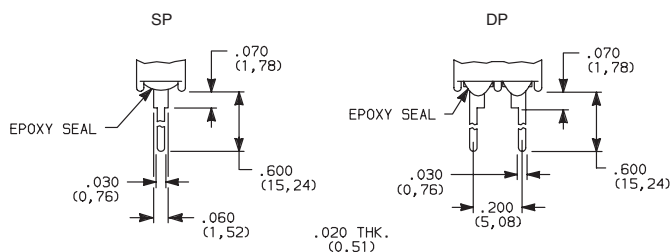
PC MOUNTING



SP and DP

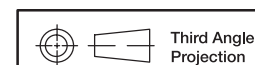
Not available with F1 conductive bushing.

**W** WIRE WRAP



SP and DP

Not available with F1 conductive bushing.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

Toggle

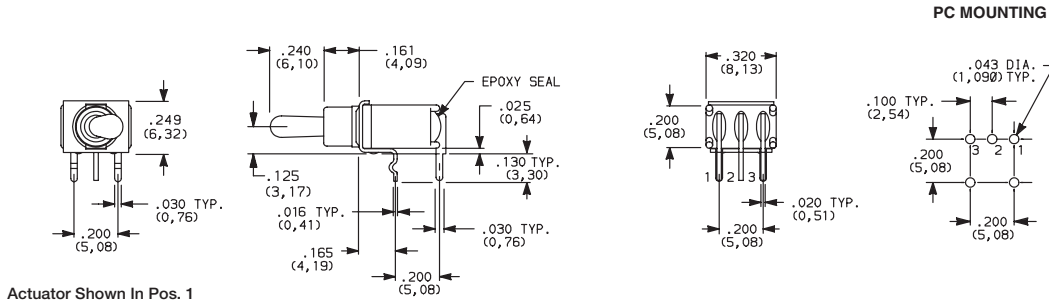


# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

**A** RIGHT ANGLE, PC THRU-HOLE

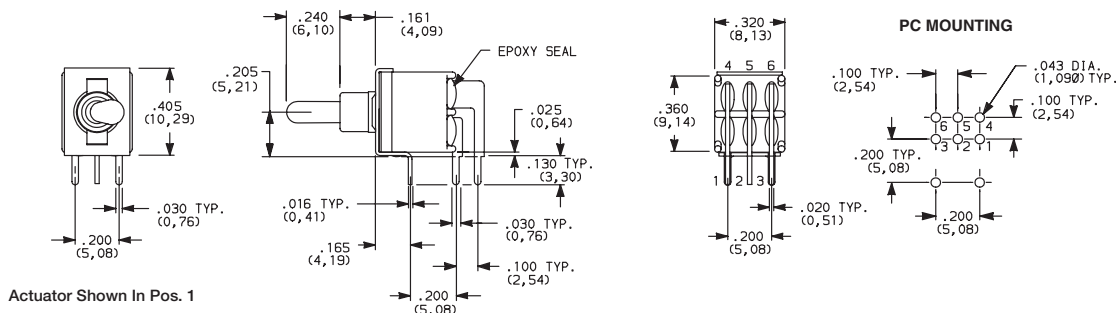
**ET01MD1ABE**  
Horizontal Actuation  
**SPDT**



Not available with ET02 model.

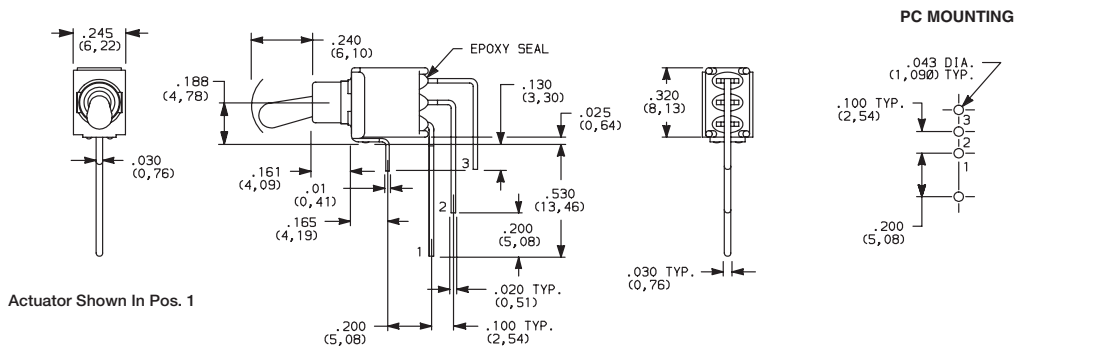
**A** RIGHT ANGLE, PC THRU-HOLE

**ET21MD1ABE**  
Horizontal Actuation  
**DPDT**



**AV** VERTICAL RIGHT ANGLE, PC THRU-HOLE

**ET01MD1AVBE**  
Vertical Actuation  
**SPDT**

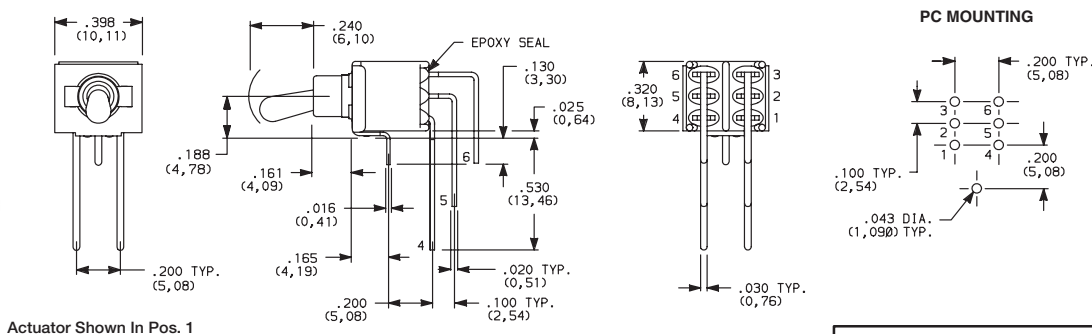


ET02 - omit terminal 2.

NOTE: Terminal bend radii and lead-in manufacturing option.

**AV** VERTICAL RIGHT ANGLE, PC THRU-HOLE

**ET21MD1AVBE**  
Vertical Actuation  
**DPDT**



NOTE: Terminal bend radii and lead-in manufacturing option.

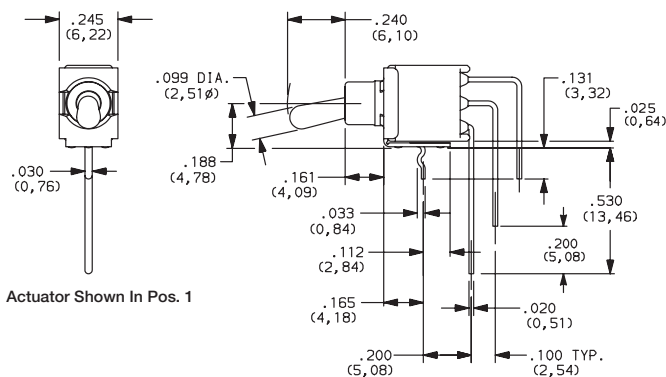


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

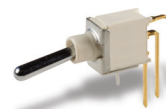
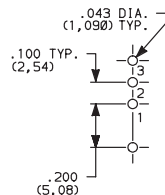
# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

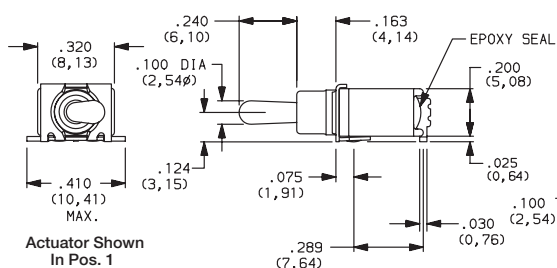


### PC MOUNTING

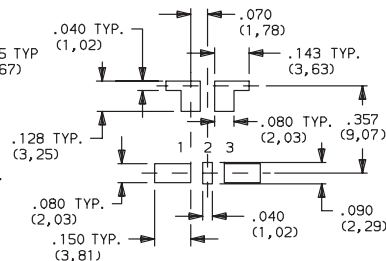


ET01SD1AV2BE  
Vertical Actuation  
SPDT

### SA RIGHT ANGLE, SURFACE MOUNT



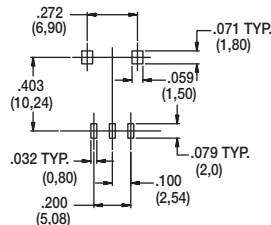
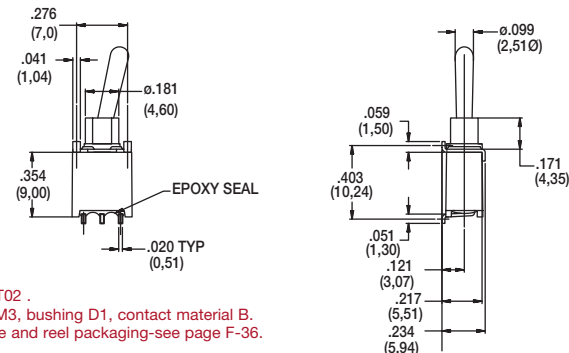
### PC MOUNTING



ET01M3D1SAPE  
Horizontal Actuation  
SPDT Only

Not available with S and S1 actuators. Standard with tape & reel packaging. See page F-36.

### SA1 RIGHT ANGLE, SURFACE MOUNT

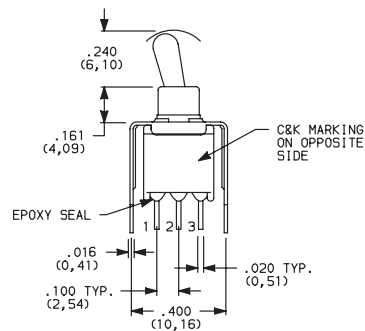


ET01M3D1SA1BE  
Horizontal Actuation  
SPDT Only

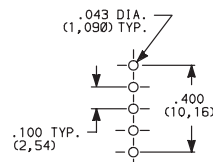
Not available in ET02.  
Actuators M and M3, bushing D1, contact material B.  
Standard with tape and reel packaging-see page F-36.

### V3 VERTICAL MOUNT, V-BRACKET

### V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



### PC MOUNTING



ET02 Models: Omit center hole

ET01MD1V3BE  
SPDT

Toggle  
F

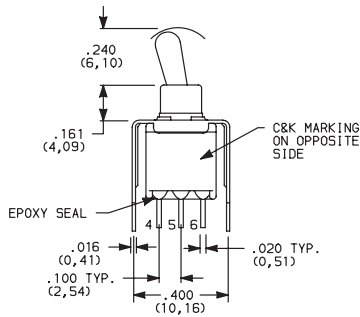


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

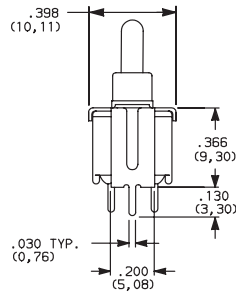
# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

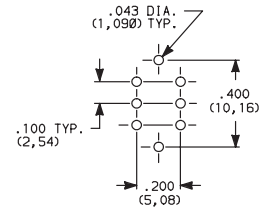
### V3 VERTICAL MOUNT, V-BRACKET



Actuator Shown In Pos. 1



### PC MOUNTING



ET21MD1V3BE  
DPDT


## CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	GOLD 1	GOLD 1	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
<b>P</b>		MATTE-TIN 6		
<b>Q</b>	SILVER 4,5	SILVER 5	POWER	ETX1 MODELS: 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC
<b>S</b>		MATTE-TIN 6		
<b>G</b>	GOLD OVER SILVER 2,3	GOLD 3	LOW LEVEL/DRY CIRCUIT OR POWER	ETX1 MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC
<b>R</b>		MATTE-TIN 6		

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

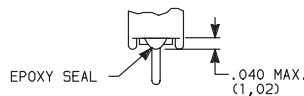
- CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, with gold plate over nickel plate.
- CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- END CONTACTS: Coin silver, silver plated.
- CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
- TERMINALS: Copper alloy, with matte tin over nickel plate.

**NOTE:** Any models supplied with Q, B, G, P or R contact material are RoHS compliant.

All models  with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

## SEAL

### E EPOXY SEAL

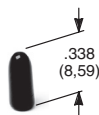


## AVAILABLE HARDWARE

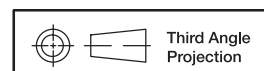
### Cap

**PART NO.**  
**706201000** WHITE  
**706202000** BLACK  
**706203000** RED

Material: Vinyl  
 Finish: Matte



**NOTE:** Other colors available, consult Customer Service Center.



Dimensions are shown: Inches (mm)  
 Specifications and dimensions subject to change



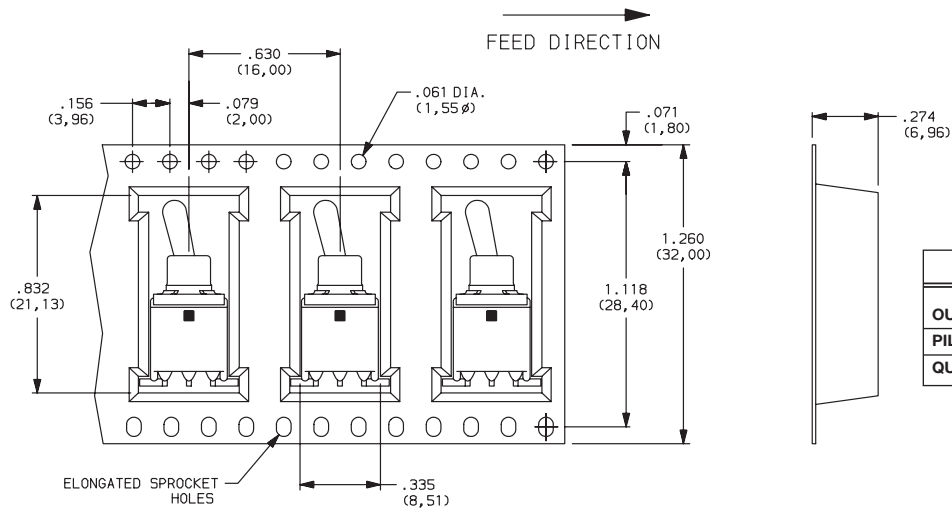
F

Toggle

# ET Series Sealed Subminiature Toggle Switches

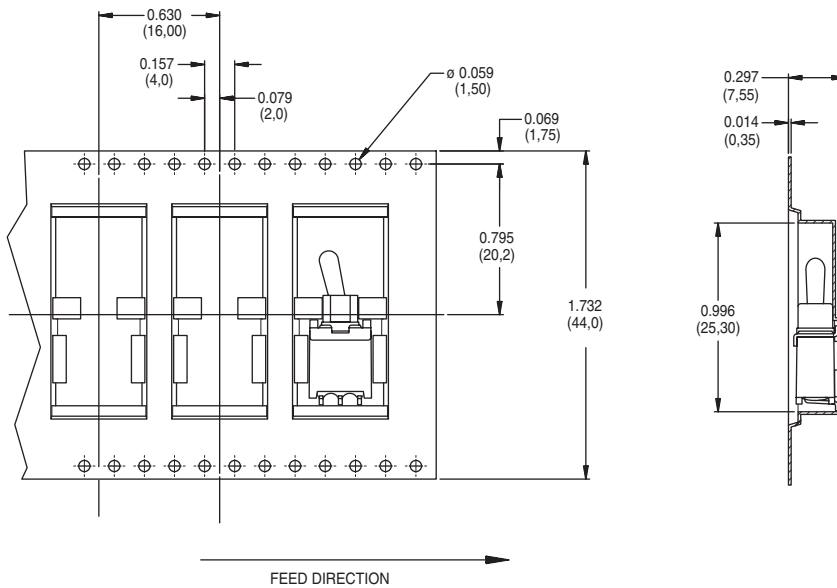
## TAPE & REEL

For part number ET01M3D1SAPE



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part number ET01M3D1SA1BE



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.795 (20,20)
QUANTITY PER REEL	500



T

Toggle



26 Mar 21



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

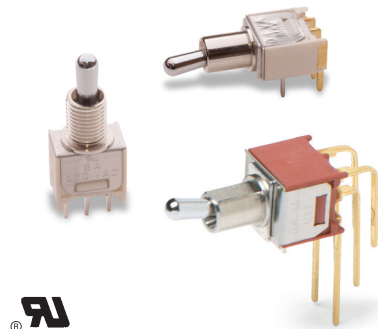
# T Series Subminiature Toggle Switches

## Features/Benefits

- Compact size—small footprint
- Single and double pole models
- PC and panel mount options available
- RoHS compliant models available

## Typical Applications

- Hand-held telecommunications
- Instrumentation
- Medical equipment



## Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material (TX01 models): 3 AMPS @ 120 V AC or 28 V DC. All other models: 2 AMPS @ 120 V AC or 28 V DC. See page F-42 for additional ratings.

ELECTRICAL LIFE: TX01 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

**NOTE:** Any models supplied with P, R, Q, B or G contact material are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0) or glass filled nylon 4/6, flame retardant, heat stabilized.

ACTUATOR: Brass, chrome plated.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See above for additional contact materials.

CENTER CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-42 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking Ring: Brass, nickel plated.

Lockwasher: Steel, nickel plated. Additional hardware available separately, see Section N.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-38 thru F-42. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.

### Switch Function

- T101** SPDT On-None-On
- T102** SPDT Off-None-On
- T103** SPDT On-Off-On
- T105** SPDT Mom.-Off-Mom.
- T107** SPDT On-Off-Mom.
- T108** SPDT On-None-Mom.
- T201** DPDT On-None-On
- T203** DPDT On-Off-On
- T205** DPDT Mom.-Off-Mom.
- T207** DPDT On-Off-Mom.
- T208** DPDT On-None-Mom.
- T211** DPDT On-On-On.

### Actuator

- P3** Flatted, anti-rotation, .490" high
- S** .370" high
- K** Locking lever, round tip
- L1** .640" high
- M1** .220" high
- S1** .410" high
- M** .210" high
- L** .290" high

### Bushing

- H** .220" high, threaded, flat
- H9** .220" high, unthreaded, flat
- CF** Splashproof, .310" high, threaded, flat
- D9** .260" high, unthreaded, keyway
- T** .310" high, threaded, flat
- T9** .310" high, unthreaded, flat
- TD** .260" high, threaded, keyway
- TK** .310" high, threaded, keyway
- Y** .220" high, threaded, keyway
- Y9** .220" high, unthreaded, keyway

### Terminations

- A** Right angle, PC thru-hole
- AV** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- V3** Vertical mount V-bracket
- Z** Solder lug
- W** Wire wrap

### Seal

- E** Epoxy

### Contact Material

- B** Gold
- P** Gold, matte tin
- Q** Silver
- G** Gold over silver
- R** Gold over silver, matte-tin

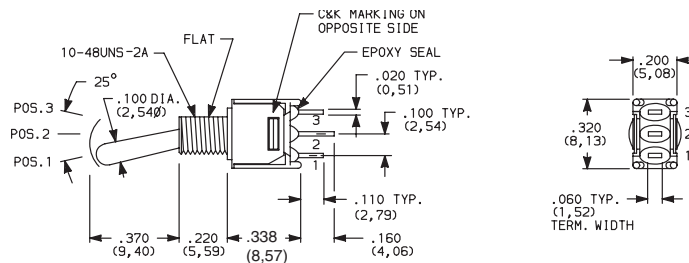


# T Series Subminiature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	<b>T101</b>	ON	NONE	ON	2-3	N/A	2-1	
	<b>T103</b>	ON	OFF	ON	2-3	OPEN	2-1	
	<b>T105</b>	MOM.	OFF	MOM.				
	<b>T107</b>	ON	OFF	MOM.				
	<b>T108</b>	ON	NONE	MOM.	2-3	NA	2-1	
<b>T102</b>	OFF	NONE	ON	OPEN	N/A	3-1		

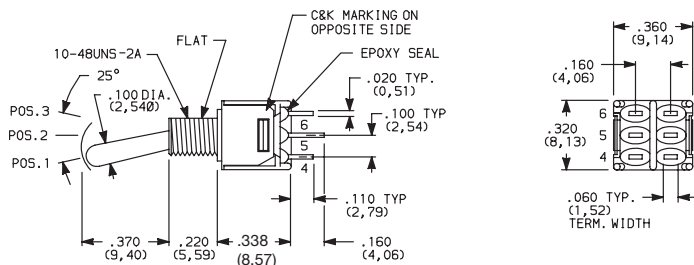
### SPDT



Part number shown: T101SHZQE

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	<b>T201</b>	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	<b>T203</b>	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	<b>T205</b>	MOM.	OFF	MOM.				
	<b>T208</b>	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	<b>T211*</b>	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	

### DPDT

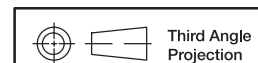


Terminal Nos.  
For Reference Only

Part number shown: T201SHZQE

MOM. = Momentary  
\* Wiring for 3-way switch

All models with all options when ordered with G, L, R or Q contact material.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

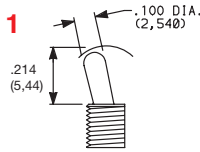


15 Jan 21

# T Series Subminiature Toggle Switches

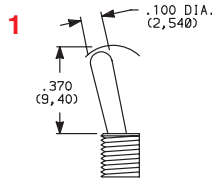
## ACTUATOR

**M** .210" HIGH



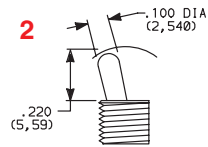
Standard with A, AV or V3 terminations.

**S** .370" HIGH

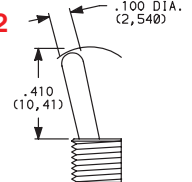


Standard with Z, C or W terminations.

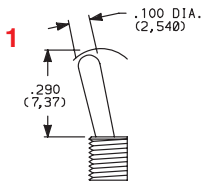
**M1** .220" HIGH  
(with "T" bushing)



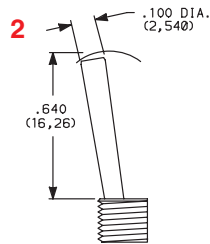
**S1** .410" HIGH  
(with "T" bushing)



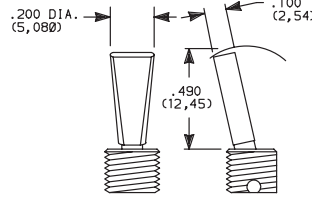
**L** .290" HIGH



**L1** .640" HIGH



**P3** ANTI-ROTATION, FLATTED,  
.450" HIGH



Available with T & T9 bushings only.  
Dress nut part number 709901201  
supplied standard with threaded bushing.

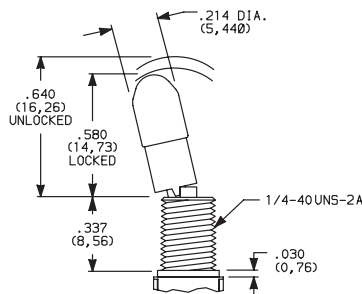
<sup>1</sup> Actuator shown with standard H bushing. Subtract .040 (1.02) for TD and D9 bushings, subtract .090 (2.29) for T, T9, TK, K9 & CF bushings.

<sup>2</sup> Actuators shown with T, T9, TK & CF bushings, add .050 (1.27) for TD and D9 bushings, add .090 (2.29) for H, H9, Y & Y9 bushings.

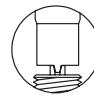
All actuators have chrome finish (except K).

## K LOCKING LEVER

### Locking Positions



-01 & -02 Models  
2 Position lock



-03 & -11 Models  
3 Position lock



-08 Models  
1 Position lock

K actuators have natural aluminum finish.

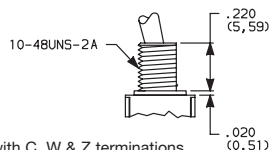
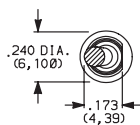
Keyway on right side. To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Overtightening mounting nut may cause actuator to bind.

Not available with CF bushing option.

Bushing option code not required. Not available with TX05 & TX07 models.

## BUSHING

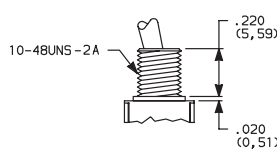
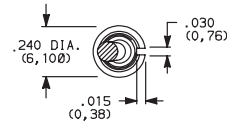
**H** .220" HIGH THREADED, FLAT



H standard with C, W & Z terminations.

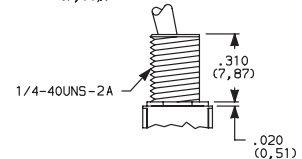
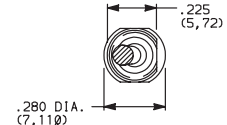
H9 standard with A, AV & V3 terminations.

**Y** .220" HIGH THREADED, KEYWAY

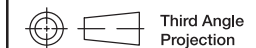


**Y9** .220" HIGH UNTHREADED, KEYWAY

**T** .310" HIGH THREADED, FLAT



**T9** .310" HIGH UNTHREADED, FLAT

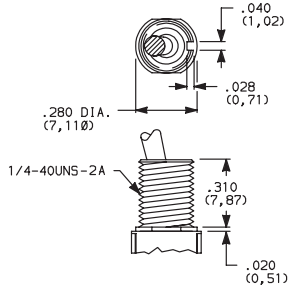


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

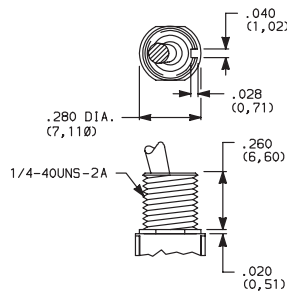
# T Series Subminiature Toggle Switches

## BUSHING

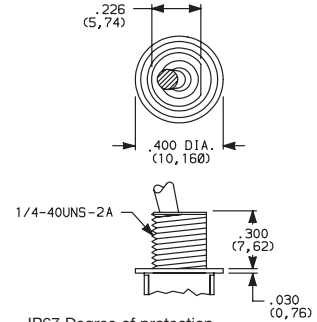
**TK** .310" HIGH THREADED, KEYWAY



**TD** .260" HIGH THREADED, KEYWAY



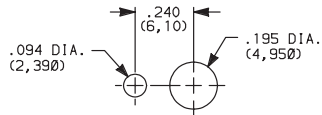
**CF** SPLASHPROOF, .310" HIGH THREADED, FLAT



IP67 Degree of protection.  
Internal o-ring actuator seal and  
external bushing seal washer standard.

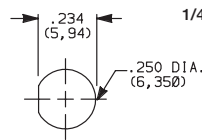
Not available with K locking lever option.

### 10-48 BUSHING



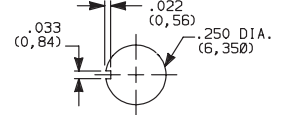
With Standard Locking Ring

### PANEL MOUNTING

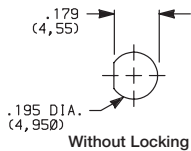


Without Locking Ring

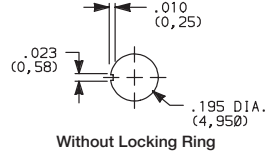
### 1/4 IN. BUSHING



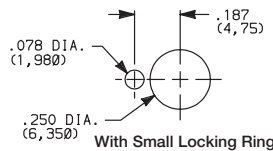
Without Locking Ring



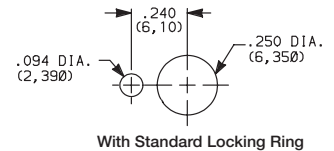
Without Locking Ring



Without Locking Ring



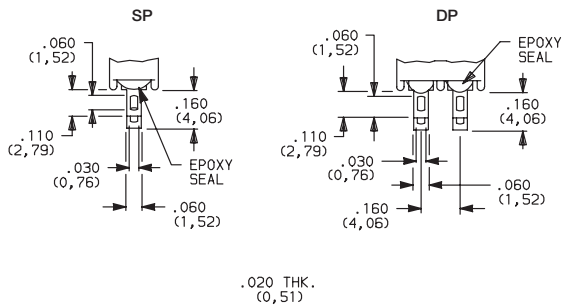
With Small Locking Ring



With Standard Locking Ring

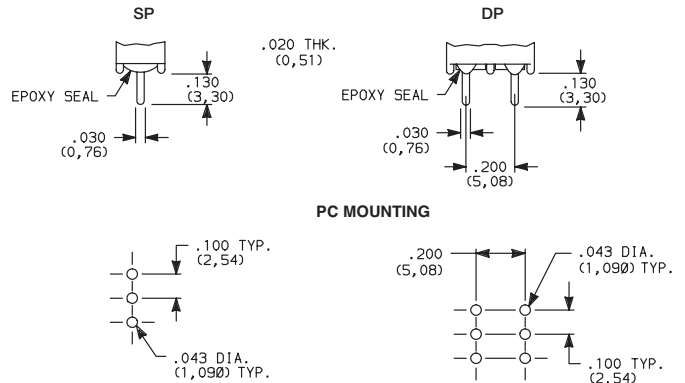
## TERMINATIONS

**Z** SOLDER LUG



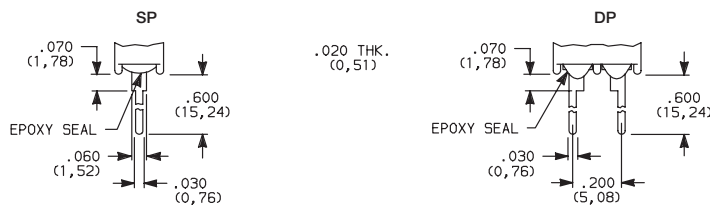
Not available with P or R contact materials.

**C** PC THRU-HOLE



T102 - omit center hole.

**W** WIRE WRAP



T

Toggle



Third Angle  
Projection

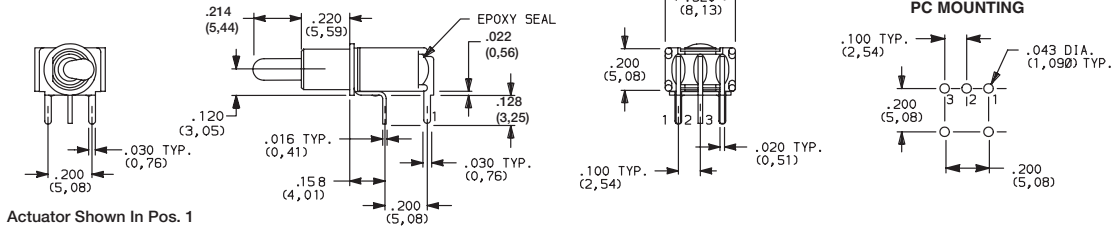
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# T Series Subminiature Toggle Switches

## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE



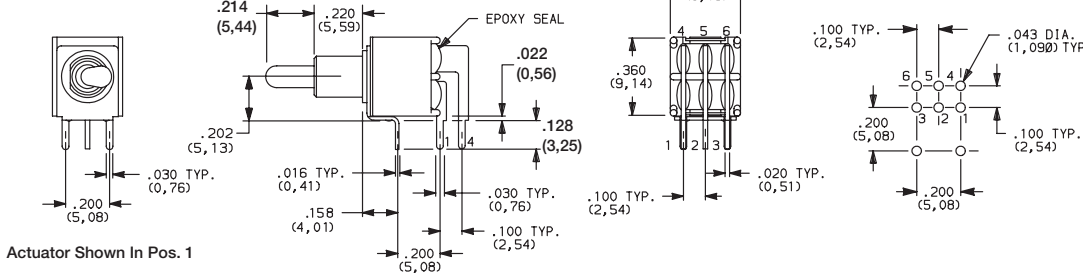
Actuator Shown In Pos. 1

Not available with T102 model.

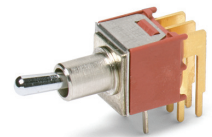


T101MH9ABE  
Horizontal Actuation  
SPDT

### A RIGHT ANGLE, PC THRU-HOLE

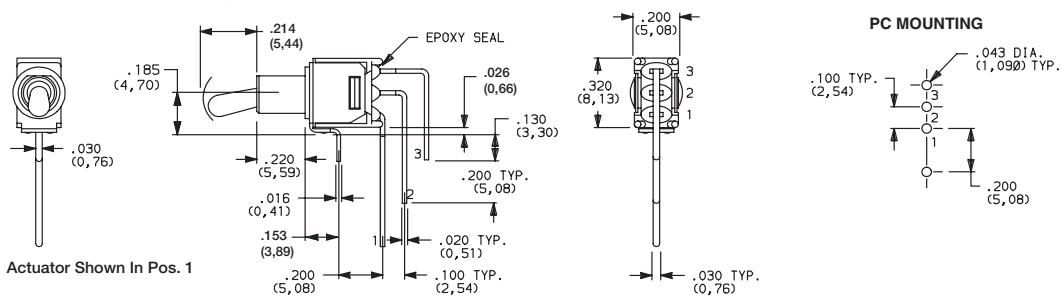


Actuator Shown In Pos. 1



T201MH9ABE  
Horizontal Actuation  
DPDT

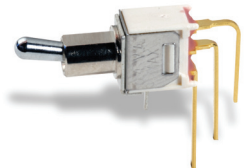
### AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1

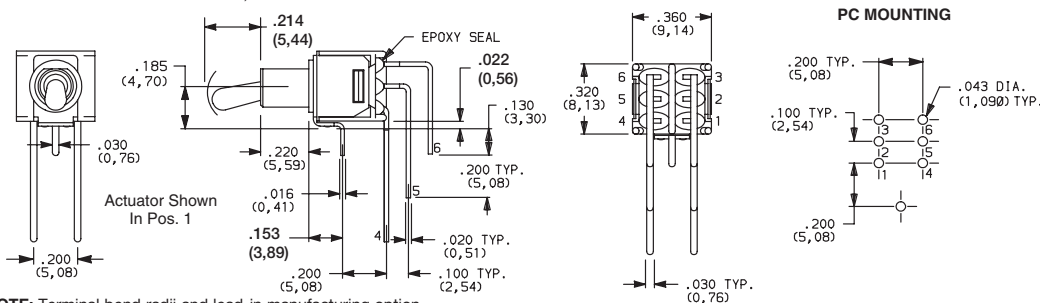
T102 Models: Omit terminal 2

NOTE: Terminal bend radii and lead-in manufacturing option.



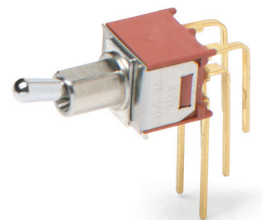
T101MH9ABVE  
Vertical Actuation  
SPDT

### AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



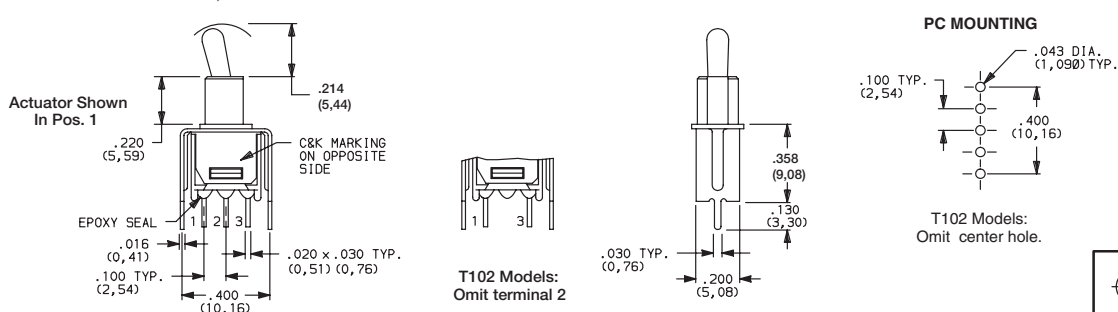
Actuator Shown In Pos. 1

NOTE: Terminal bend radii and lead-in manufacturing option.



T201MH9ABVE  
Vertical Actuation  
DPDT

### V3 VERTICAL MOUNT, V-BRACKET



Actuator Shown In Pos. 1

C&K MARKING ON OPPOSITE SIDE

EPOXY SEAL

.016 (0,41)

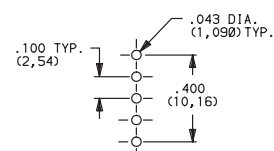
.100 TYP. (2,54)

.400 (10,16)

.020 x .030 TYP. (0,51) (0,76)

T102 Models: Omit terminal 2

PC MOUNTING



T102 Models: Omit center hole.



T101MH9V3BE  
SPDT



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



15 Jan 21



F

Toggle

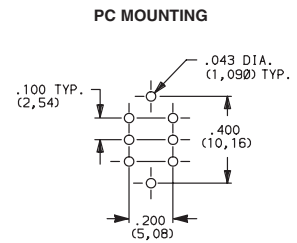
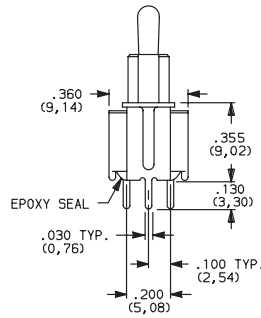
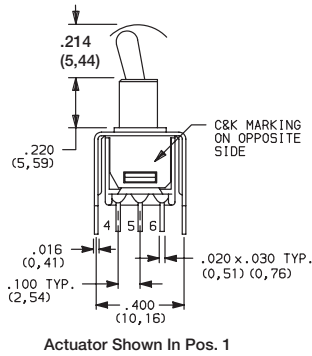
# T Series Subminiature Toggle Switches

## TERMINATIONS

**V3** VERTICAL MOUNT, V-BRACKET



T201MH9V3BE  
DPDT



## CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	GOLD 1	GOLD 1	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
<b>P</b>		MATTE-TIN 6		
<b>Q</b>	SILVER 4,5	SILVER 5	POWER	TX01 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC.
<b>G</b>	GOLD OVER SILVER 2,3	GOLD 3	LOW LEVEL/DRY CIRCUIT OR POWER	TX01 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC.
<b>R</b>		MATTE-TIN 6		

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

1 CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

2 END CONTACTS: Coin silver, with gold plate over nickel plate.

3 CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

4 END CONTACTS: Coin silver, silver plated.

5 CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

6 TERMINALS: Copper alloy, with matte-tin over nickel plate.

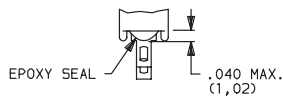
All models with all options when ordered with R, G, or Q contact material.

B contact material standard with A, AV, V3 & W terminations.

Q contact material standard with C & Z terminations.

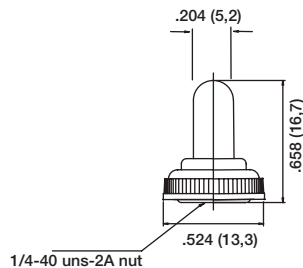
## SEAL

**E** EPOXY SEAL

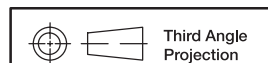


## AVAILABLE HARDWARE

**759D02000** SEALING BOOT



\* Note: For use with S1 actuator style when combined with T, TK, and CF bushings.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

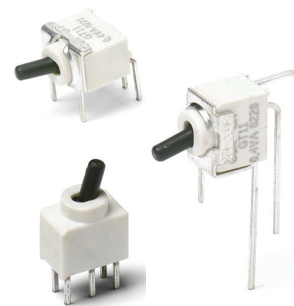
# GT Series Sealed Ultraminiature Toggle Switches

## Features/Benefits

- Sealed against solder and cleaning process contaminants
- Ultraminiature size, smallest footprint available
- Thru-hole and surface mount models
- High temperature materials (UL 94V-0)
- RoHS compliant and compatible

## Typical Applications

- Hand-held telecommunications
- Small instrumentation



## Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.  
 MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.  
 CONTACT RESISTANCE: Below 50 m Ω typ. initial @ 2-4 V DC, 100 mA.  
 INSULATION RESISTANCE: 10<sup>9</sup> Ω min.  
 DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.  
 OPERATING TEMPERATURE: -30°C to 85°C.  
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).  
 PACKAGING: Surface mount switches shipped in anti-static tape and reel packaging per EIA 481-3, see page F-47 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

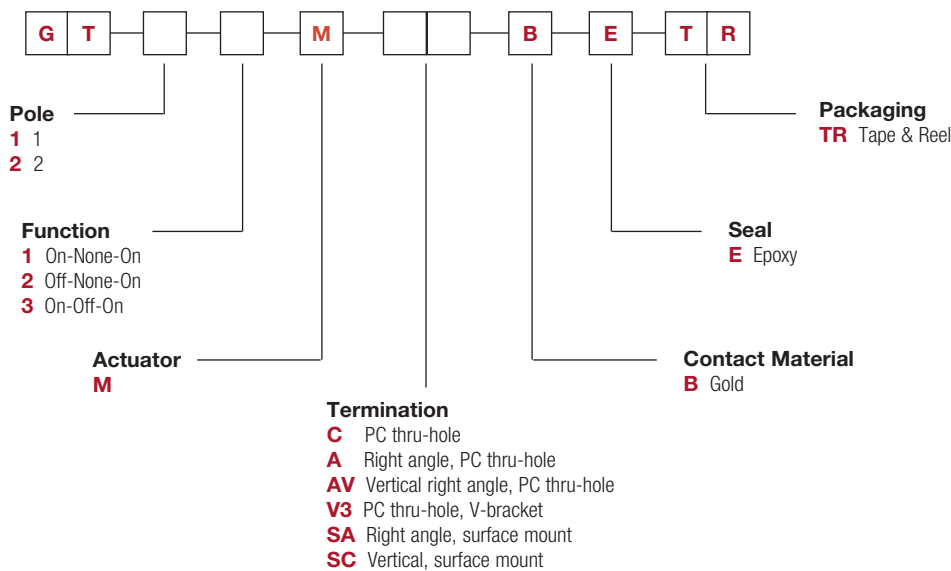
## Materials

HOUSING AND BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).  
 ACTUATOR: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0), with standard internal o-ring seal.  
 SWITCH SUPPORT: Brass, tin plated.  
 MOVABLE CONTACTS: Copper alloy, with gold plate over nickel plate.  
 STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.  
 TERMINALS: Gold.  
 TERMINAL SEAL: Epoxy. All terminals insert molded.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

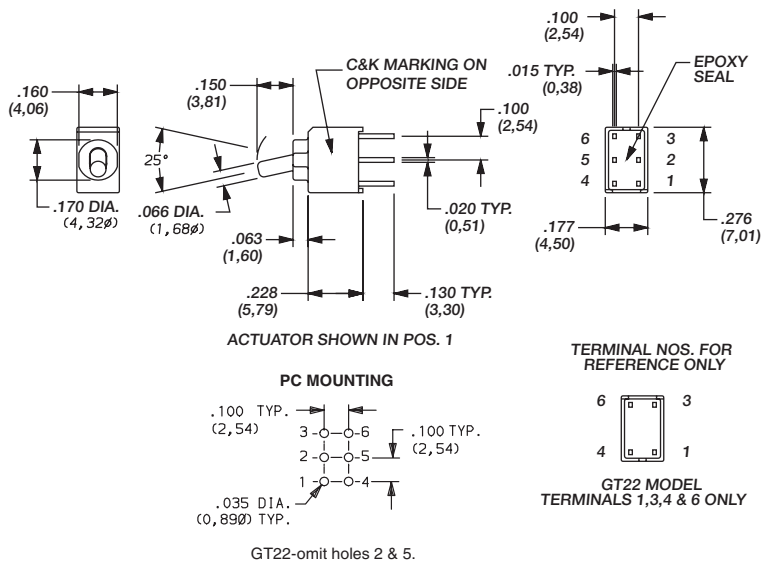
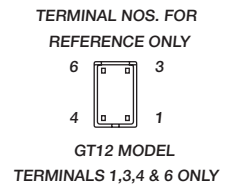
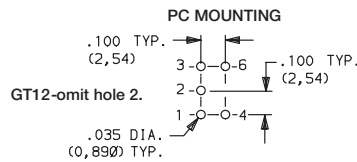
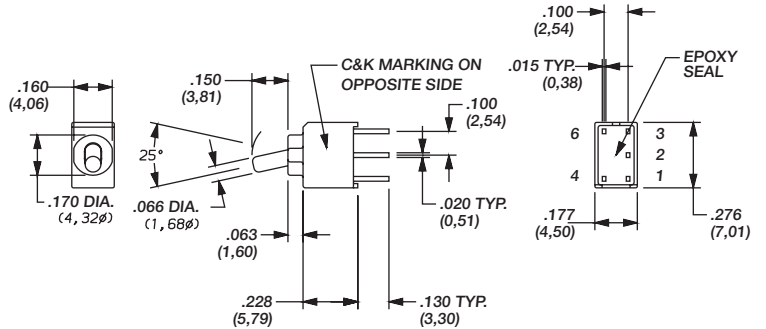


# GT Series Sealed Ultraminiature Toggle Switches

Complete part numbers for GT Series Sealed Ultraminiature Toggle Switches are shown on following pages.



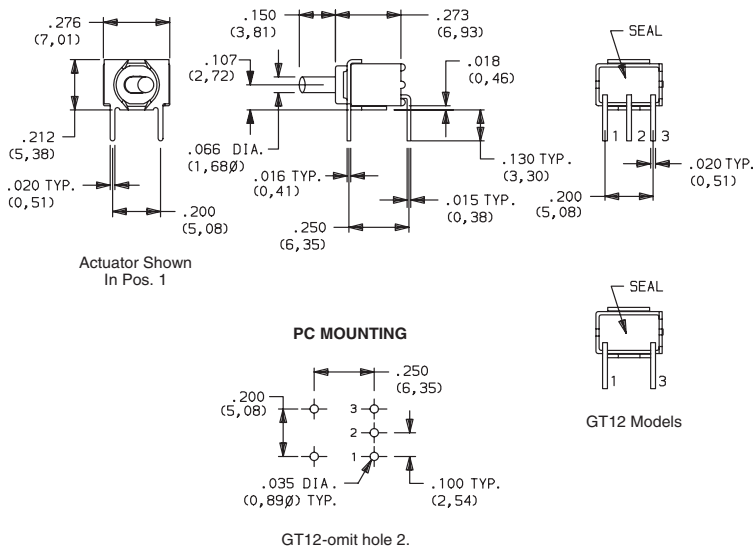
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT11MCBE</b>	ON	NONE	ON
<b>GT13MCBE</b>	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
<b>GT12MCBE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT21MCBE</b>	ON	NONE	ON
<b>GT23MCBE</b>	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MCBE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



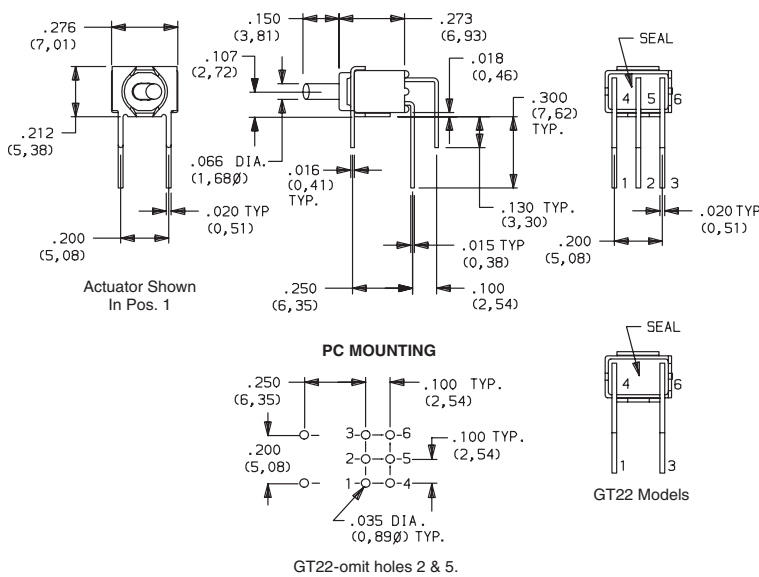
# GT Series Sealed Ultraminiature Toggle Switches



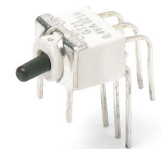
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT11MABE</b>	ON	NONE	ON
<b>GT13MABE</b>	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
<b>GT12MABE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			



**GT11MABE**  
Horizontal  
Actuation  
**SPDT**



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT21MABE</b>	ON	NONE	ON
<b>GT23MABE</b>	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MABE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



**GT21MABE**  
Horizontal  
Actuation  
**DPDT**



F

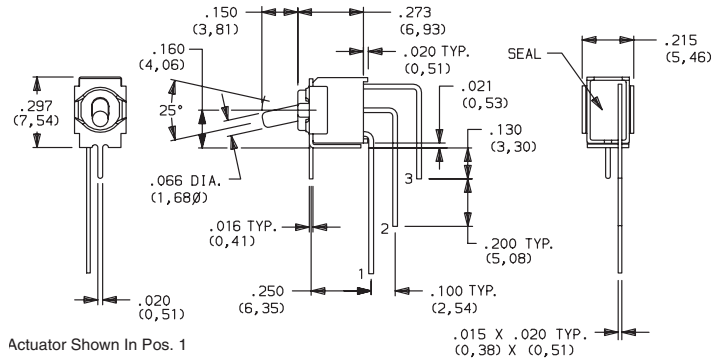
Toggle

# GT Series Sealed Ultraminiature Toggle Switches

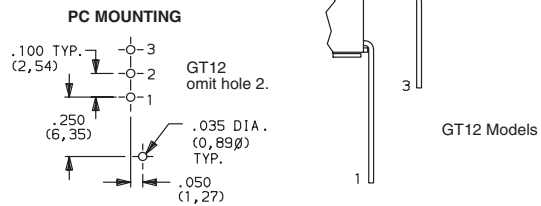


GT11MAVBE  
Vertical  
Actuation  
SPDT

PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT11MAVBE</b>	ON	NONE	ON
<b>GT13MAVBE</b>	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
<b>GT12MAVBE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			

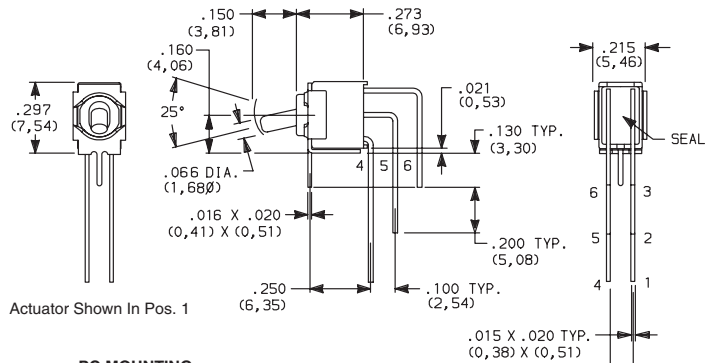


Actuator Shown In Pos. 1

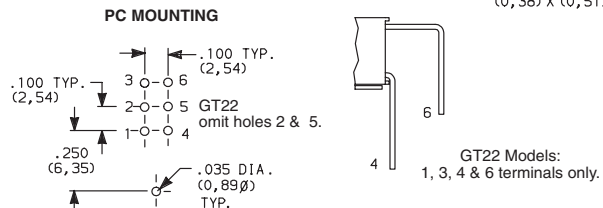


GT21MAVBE  
Vertical  
Actuation  
DPDT

PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT21MAVBE</b>	ON	NONE	ON
<b>GT23MAVBE</b>	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MAVBE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



Actuator Shown In Pos. 1

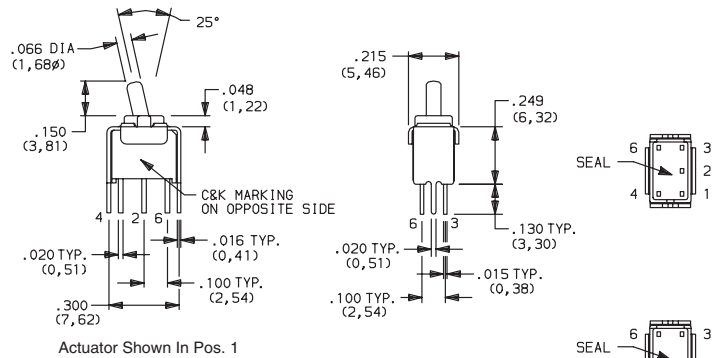


GT22 Models:  
1, 3, 4 & 6 terminals only.

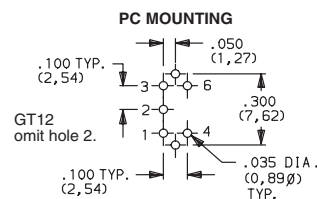


GT11MV3BE  
SPDT

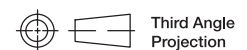
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT11MV3BE</b>	ON	NONE	ON
<b>GT13MV3BE</b>	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
<b>GT12MV3BE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



Actuator Shown In Pos. 1



GT12 Models



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



4 Mar 22

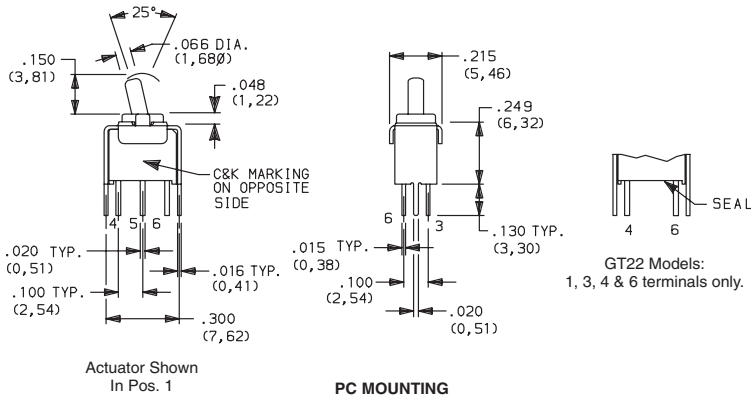


F

Toggle

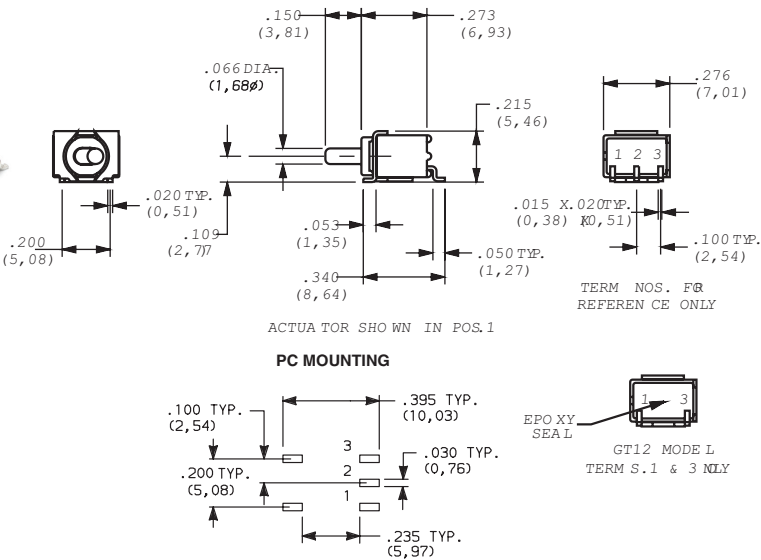
# GT Series Sealed Ultraminiature Toggle Switches

GT21MV3BE  
DPDT



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MV3BE	ON	NONE	ON
GT23MV3BE	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			

GT11MSABE  
Horizontal  
Actuation  
SPDT

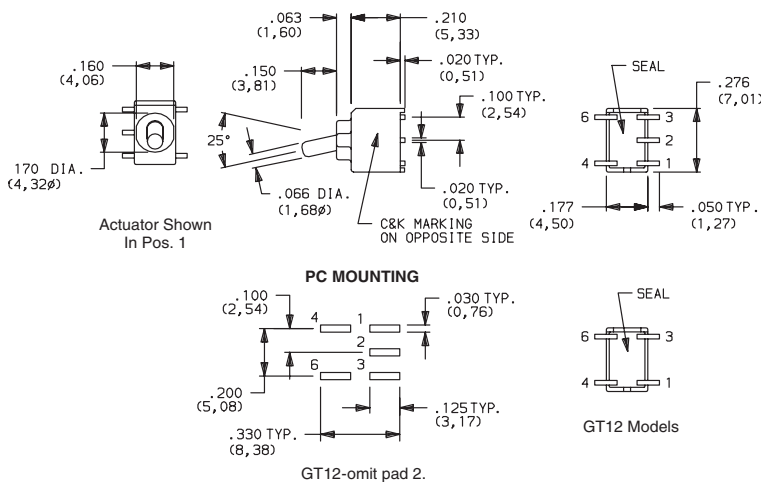


PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT11MSABETR	ON	NONE	ON
GT13MSABETR	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12MSABETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			

Standard with tape & reel packaging, see page F-47.

GT12-omit pad 2.

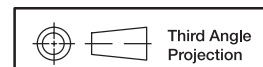
GT11MSCBE  
SPDT



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT11MSCBETR	ON	NONE	ON
GT13MSCBETR	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		

Standard with tape & reel packaging, see page F-47.

GT12-omit pad 2.



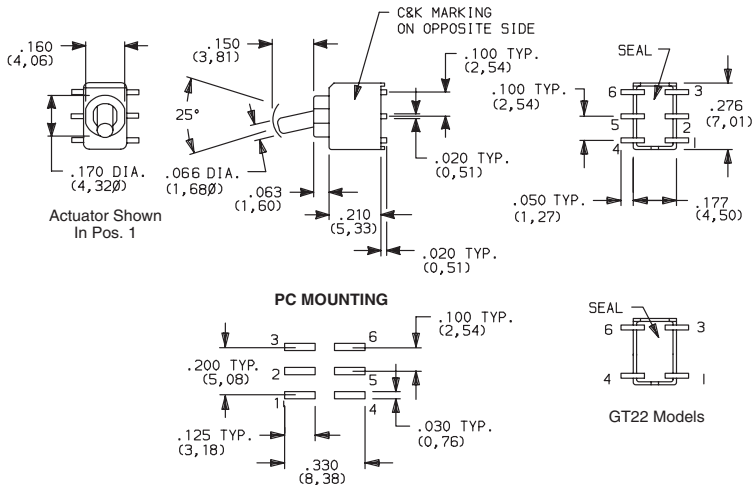
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# GT Series Sealed Ultraminiature Toggle Switches



GT21MSCBE  
DPDT

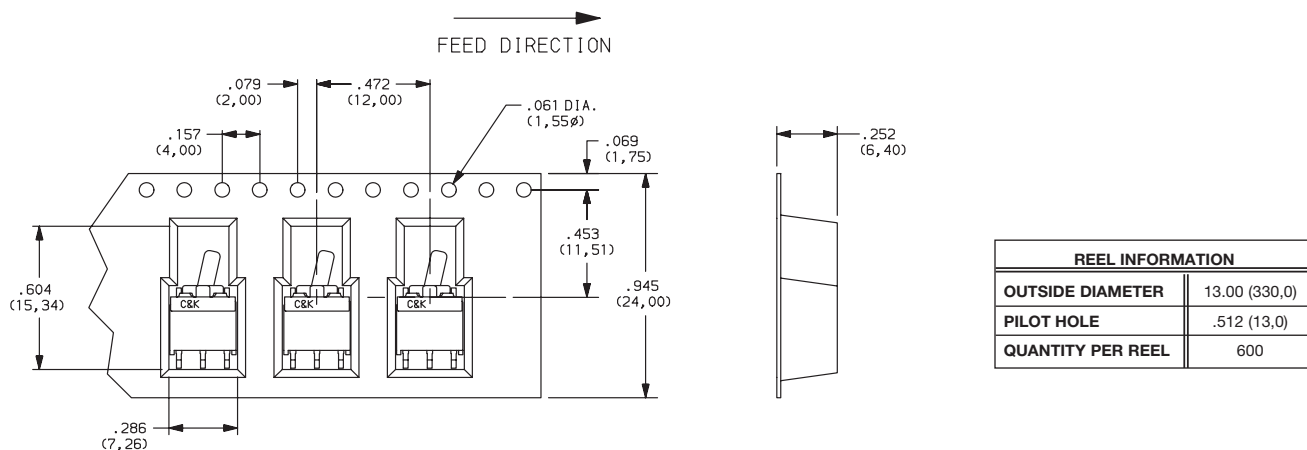
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT21MSCBETR</b>	ON	NONE	ON
<b>GT23MSCBETR</b>	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MSCBETR</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



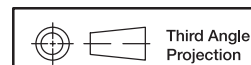
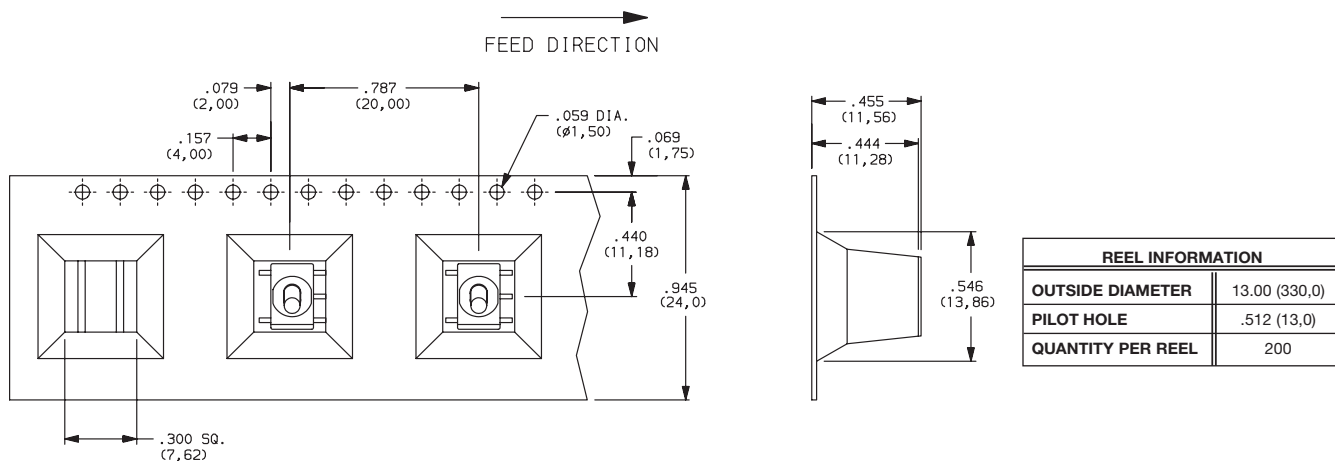
GT22-omit pads 2 & 5.  
Standard with tape & reel packaging

## TAPE & REEL

For part numbers GT11MSABE, GT12MSABE, GT13MSABE



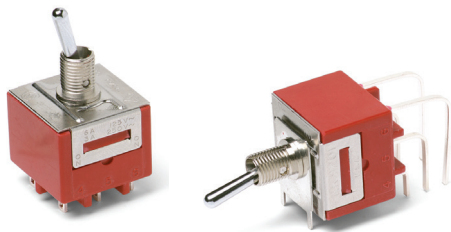
For part numbers GT11MSCBE, GT12MSCBE, GT13MSCBE, GT21MSCBE, GT22MSCBE, GT23MSCBE,



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# 9000 Series Power Toggle Switches



## Features/Benefits

- Power ratings up to 10 AMPS
- Double pole models
- Locking lever options available
- Wide variety of actuator styles
- RoHS compliant and compatible

## Typical Applications

- Shut-off switch
- Small equipment



UL 61058-1

## Specifications

### CONTACT RATING:

#### 9201 Model

- GP (general purpose)
- 6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3)
- 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
- 6 AMPS 30 VDC T85 10,000 cycles

#### 9221 Model:

- GP (general purpose)
- 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles
- 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles
- R (resistive)
- 10 AMPS 30 VDC T85 10,000 cycles

ELECTRICAL LIFE: 25,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 2,500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

## Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: 9201 Model: Coin silver, silver plated.

9221 Model: Silver cadmium oxide.

CENTER CONTACTS: Copper alloy, silver plated

ALL TERMINALS: 9201 Model: Copper alloy, silver plated.

9221 Model: Copper alloy, matte-tin plated.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking ring: Brass, nickel plated.

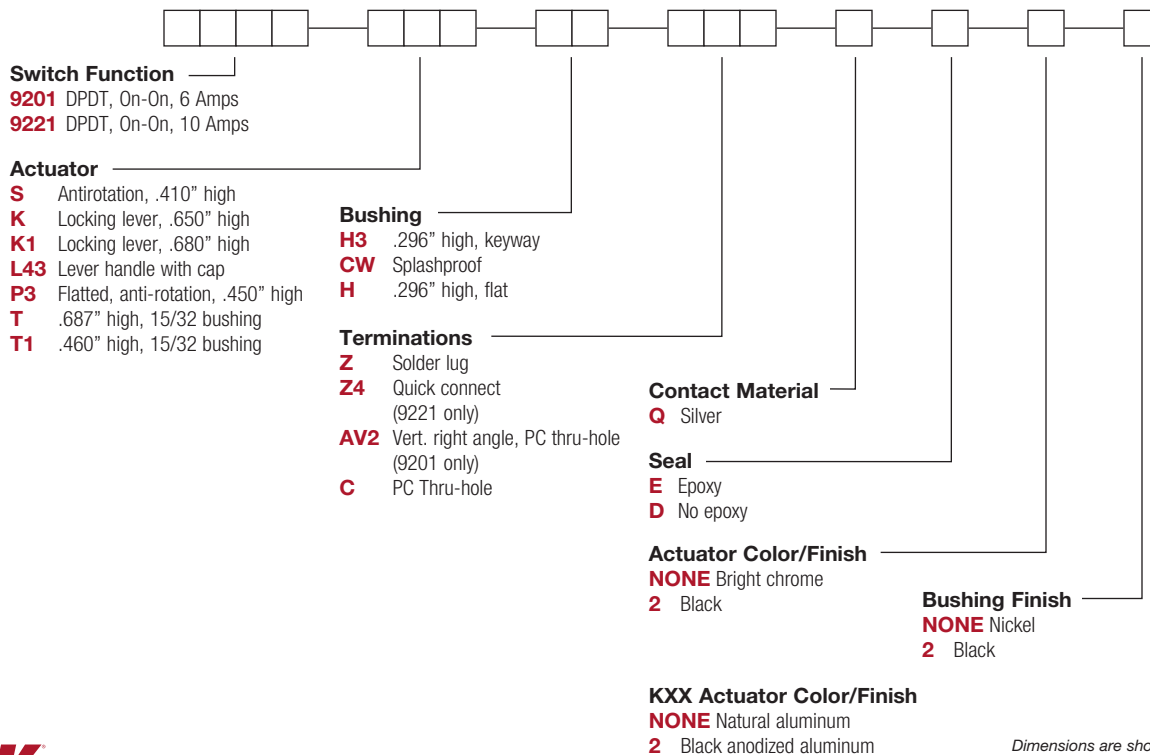
Lockwasher: Steel, nickel plated.

**NOTE:** Any models supplied with Q contact material are RoHS compliant and compatible.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-49 thru F-52. For additional options not shown in catalog, consult Customer Service Center.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

## SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING*	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1 KEYWAY	POS. 2 KEYWAY	POS. 1 KEYWAY	POS. 2 KEYWAY	
DP	9201	6 AMPS	ON	ON	2-3,5-6	2-1,5-4	
	9221	10 AMPS	ON	ON			

**DPDT**

Part number shown: 9201SH3ZQE

Terminal Nos.  
Molded On Side Of Case

\* See CONTACT MATERIAL, page F-52, for complete ratings.

All 9000 Series models meet international dimensional and electrical requirements.

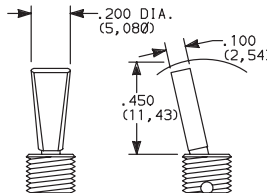
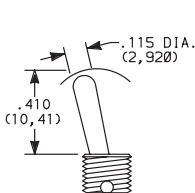


9221 model must be ordered with Z4 terminations and D seal option.

## ACTUATOR

**S** ANTIROTATION, .410" HIGH

**P3** FLATTED, ANTIROTATION, .450" HIGH



OPTION CODE	ACTUATOR FINISH
<b>NONE</b>	NATURAL ALUMINUM—With Nickel Plated Bushing
<b>2</b>	BLACK

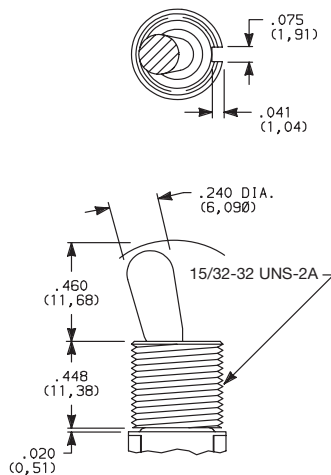
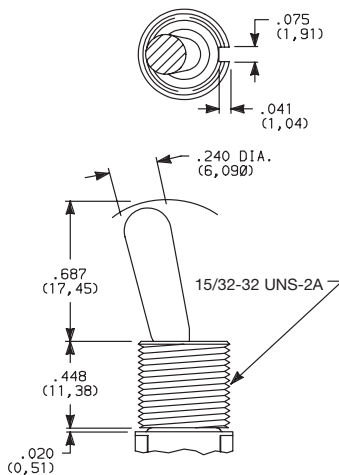
**NOTE:** Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

Antirotation is standard on all actuators, provides 'anti-push-in' feature on actuator.

Dress nut part number: 709901201 supplied standard with P3 actuator.

**T** .687" HIGH, 15/32 BUSHING

**T1** .460" HIGH, 15/32 BUSHING

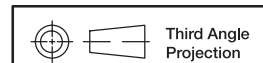


OPTION CODE	ACTUATOR FINISH
<b>NONE</b>	BRIGHT CHROME—With Nickel Plated Bushing
<b>2</b>	BLACK

**NOTE:** Bushing option code not required for T & T1 actuators unless CW splashproof bushing ordered.

Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

Antirotation is standard on all actuators except T & T1, provides 'anti-push-in' feature on actuator.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



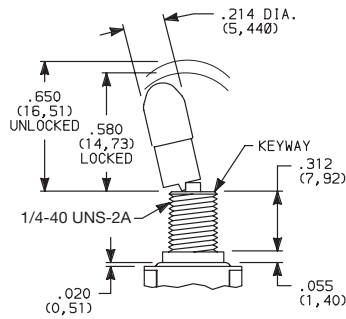
# 9000 Series Power Toggle Switches

ACTUATOR FINISH

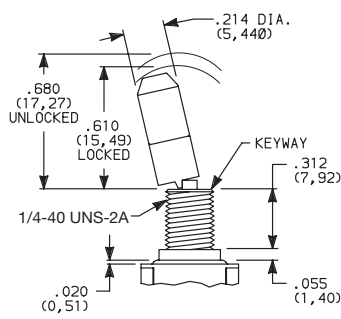
## ACTUATOR



**K** LOCKING LEVER, .650" HIGH, THREADED



**K1** LOCKING LEVER, .680" HIGH, THREADED



### Locking Positions

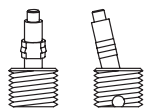


2 Position Lock

**NOTE:** To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Bushing option code not required. Overtightening mounting nut may cause actuator to bind.

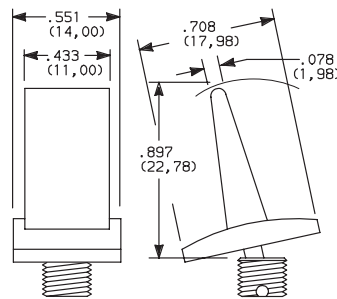
OPTION CODE	ACTUATOR CAP FINISH
<b>NONE</b>	NATURAL ALUMINUM-With Nickel Plated Bushing
<b>2</b>	BLACK ANODIZED ALUMINUM

**L40** LEVER HANDLE WITHOUT CAP



No color choice required.

**L43** PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4812



Finish: Matte

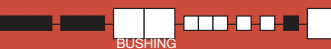
OPTION CODE	ACTUATOR CAP COLOR
<b>2</b>	BLACK
<b>NONE</b>	No Actuator Color (L40 option)

Other colors available, consult Customer Service Center.

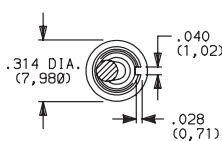
**NOTE:** Lever handle actuator L43 supplied, but not installed. For interchangeability, order L40 actuator option and order lever handles separately, see page F-52. Antirotation is standard on all actuators, provides 'anti-push-in' feature.

## BUSHING

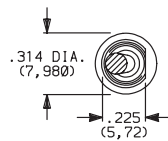
BUSHING FINISH



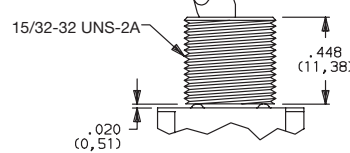
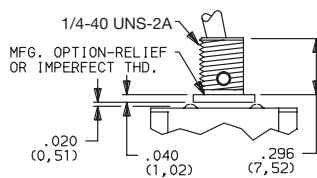
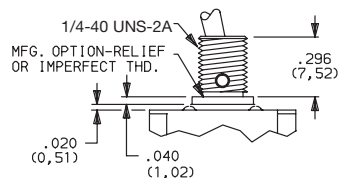
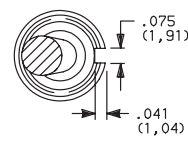
**H3** .296" HIGH, THREADED, KEYWAY



**H** .296" HIGH, THREADED, FLAT



**CW** SPLASHPROOF, 15/32 BUSHING



OPTION CODE	BUSHING FINISH
<b>NONE</b>	NICKEL
<b>2</b>	BLACK

Will withstand 12 in./lbs. of torque with no distortion.

For T & T1 actuators only.

**NOTE:** Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.



Third Angle Projection

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change



# 9000 Series Power Toggle Switches

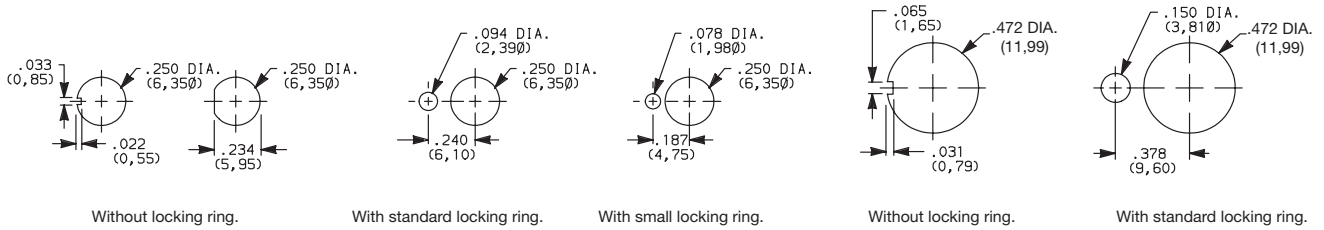
## BUSHING



### PANEL MOUNTING

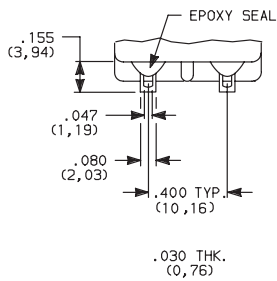
1/4-40 UNS-2A

15/32-32 UNS-2A



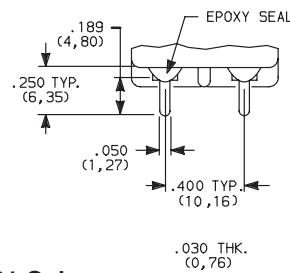
## TERMINATIONS

### Z SOLDER LUG



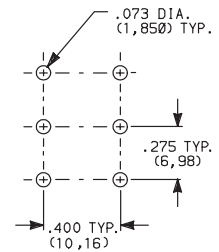
9201 Only

### C PC THRU-HOLE



9201 Only

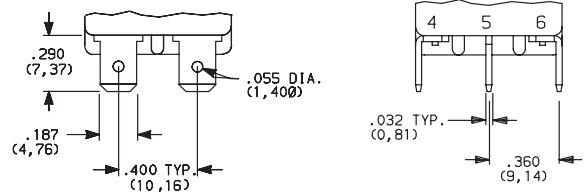
### PC MOUNTING



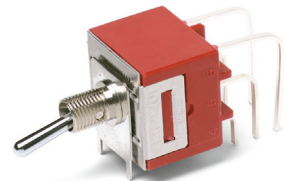
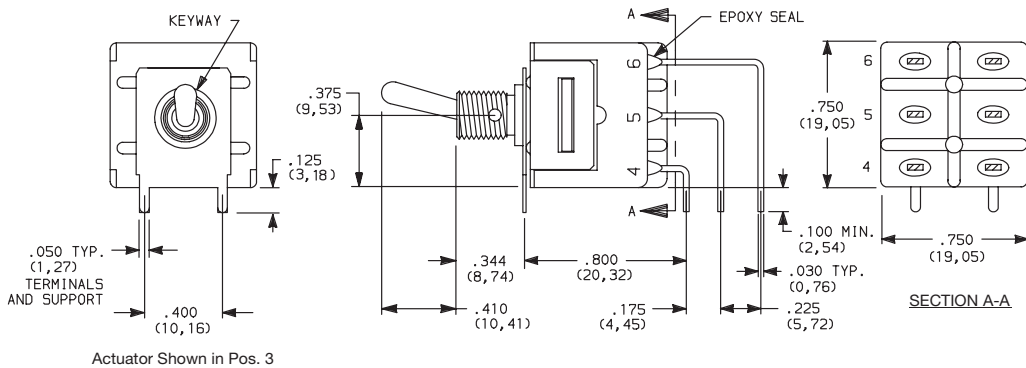
### Z4 .187" QUICK CONNECT

9221 Only

**NOTE:** Only termination available with 9221 model. Must be ordered with D seal option. Mates with standard .187 Nema female connector.

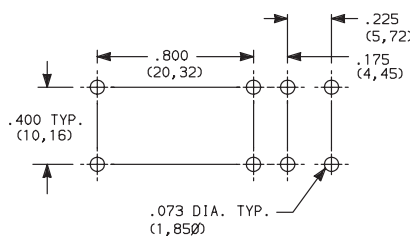


### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE



9201SH3AV2QE  
Vertical Actuation  
DPDT

### PC MOUNTING



Terminal Nos.  
For Reference Only

9201 Only

**NOTE:** Terminal bend radii and lead-in manufacturing option. Terminal spacing greater than 3mm at all points.



Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# 9000 Series Power Toggle Switches

## CONTACT MATERIAL

OPTION CODE	MODEL	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	9201	SILVER 1,2	SILVER OR TIN 2,5	GP (general purpose) 6 AMPS 125 VAC 50/60 Hz T85 10,000 cycles (10E3) 3 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 6 AMPS 30 VDC T85 10,000 cycles
	9221	SILVER CADMIUM OXIDE 3,4,6	TIN 5	GP (general purpose) 10 AMPS 125 VAC 50/60 Hz T85 10,000 cycles 5 AMPS 250 VAC 50/60 Hz T85 10,000 cycles R (resistive) 10 AMPS 30 VDC T85 10,000 cycles

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

1 END CONTACTS: Coin silver, silver plated.

2 CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

3 END CONTACTS: Silver cadmium oxide.

4 CENTER CONTACTS: Copper alloy, silver plated.

5 Z4 TERMINALS ONLY: Copper alloy, matte-tin plated.

6 Cadmium in electrical switch contacts is exempt from RoHS.

**NOTE:** Any models supplied with Q contact material are RoHS compliant.

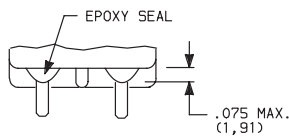
All 9000 Series models meet international dimensional and electrical requirements.

9221 model must be ordered with Z4 terminations and D seal option.



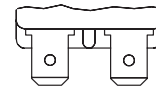
## SEAL

**E** EPOXY SEAL



Not available with 9221 model or Z4 terminations.

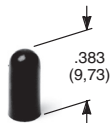
**D** NO EPOXY SEAL



Must be ordered with 9221 model and Z4 termination.

## AVAILABLE HARDWARE

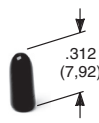
**Cap**  
Compatible with S actuator



**PART NO.**  
**896801000** WHITE  
**896802000** BLACK  
**896803000** RED

Material: Polyethylene  
Finish: Matte

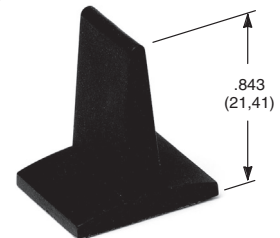
**Cap**  
Compatible with S actuator



**PART NO.**  
**706201000** WHITE  
**706202000** BLACK  
**706203000** RED

Material: Vinyl  
Finish: Matte

**L43 Actuator**



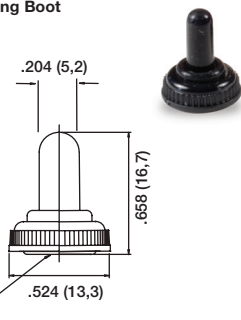
**PART NO.**  
**481202000** BLACK  
**481203000** RED

Material: Nylon  
Finish: Matte

**NOTE:** Additional nuts, locking rings and lockwashers available separately, see Section N.

Other colors available, consult Customer Service Center.

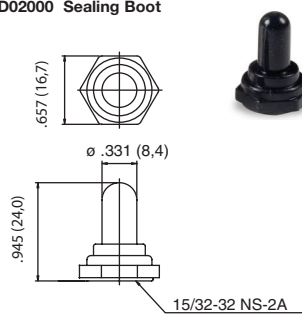
**759D02000 Sealing Boot**



1/4-40 uns-2A nut

**NOTE:** For use with S actuator style when combined with H3 and H bushings

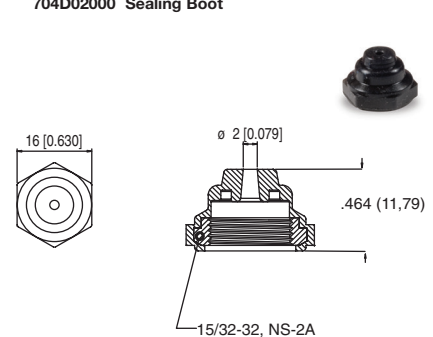
**703D02000 Sealing Boot**



15/32-32 NS-2A

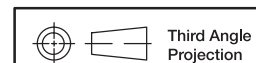
**NOTE:** For use with T style actuator

**704D02000 Sealing Boot**



15/32-32, NS-2A

**NOTE:** For use with T style actuator



Third Angle Projection

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

Toggle



**NEW**

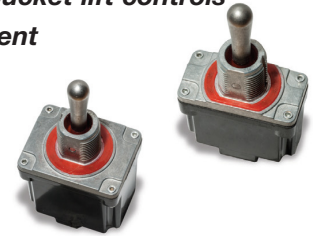
# PT Series Sealed Power Toggle Switch

## Features/Benefits

- **IP66/IP68 versatile rating to withstand harsh outdoor environments, intense, wet weather, wind blown rain, dirt**
- **UL 61058-1 certified has global acceptance with no additional testing needed**
- **Integrated panel seal for extra protection**
- **Superior oil and fuel resistance**
- **High strength, heat resistant housing designed for demanding applications subject to vibration and harsh conditions**

## Typical Applications

- **Off-road, Construction/Agricultural vehicles**
- **Material handling equipment**
- **Articulating, scissor, and bucket lift controls**
- **Outdoor industrial equipment**
- **Lift gate controls**



## Specifications

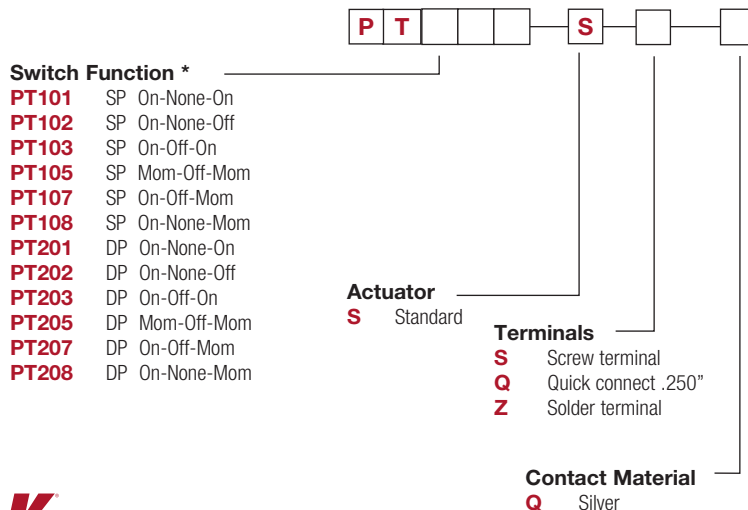
UL ELECTRICAL RATINGS:	UL 61058-1
MAINTAINED FUNCTIONS:	15A GP, 277VAC 50/60Hz T85 15(4)A, 277VAC 50/60Hz T85 1/2 hp, 125VAC 50/60Hz T85 1 hp, 250VAC 50/60Hz T85
MOMENTARY FUNCTIONS:	10A GP, 277VAC 50/60Hz T85 10(4)A, 277VAC 50/60Hz T85 1/4hp, 125VAC 50/60Hz T85 1/2 hp, 250VAC 50/60Hz T85
ELECTRICAL LIFE:	10,000 cycles
DC ELECTRICAL RATINGS:	Resistive Loads
ALL FUNCTIONS:	Up to 25A, 24VDC 0.75A, 125VDC 0.5A, 250VDC
MAINTAINED FUNCTIONS:	15A, 28VDC
MOMENTARY FUNCTIONS:	10A, 28VDC
DIELECTRIC STRENGTH:	2500V min. initial (terminal to toggle)
INSULATION RESISTANCE:	1000 MΩ min. initial
CONTACT RESISTANCE:	50 mΩ max. initial(terminal to toggle)
OPERATING AND STORAGE TEMPERATURE:	-40°C to +85°C
IP RATINGS:	IP66/IP68 Versatile

## Materials

CASE:	Thermoset
ACTUATOR:	Stainless Steel
PIVOT PIN:	Stainless Steel
BUSHING:	Zinc Die Cast
SEAL:	Silicone
MOVEABLE CONTACT(S):	Copper alloy, silver plated
BUTTON:	Silver Cadmium
TERMINALS:	Brass for Quick connect, silver plated brass for solder and screw terminals
HARDWARE:	Hex nut & locking ring: brass, nickel plated Screws: brass Lock washer: brass, nickel plated
PACKAGING:	Trays

## Build-A-Switch

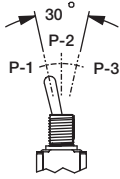







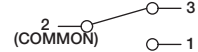
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-53 thru F-56. For additional options not shown in catalog, consult Customer Service Center.



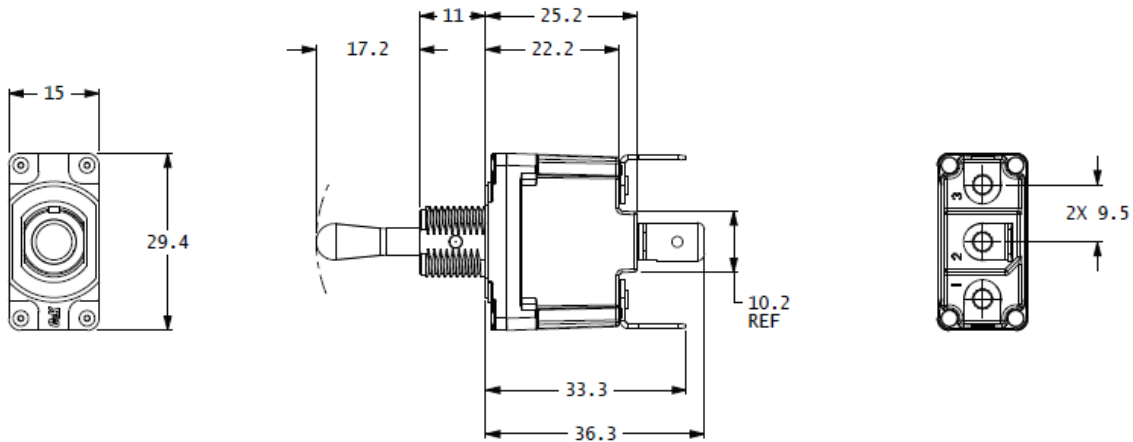
# PT Series Sealed Power Toggle Switch

**NEW**

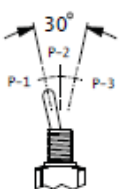








**SP**

	NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3	
									
	SP	PT101	ON	NONE	ON	2-3	N/A	2-1	
		PT102*	ON	NONE	OFF	2-3	N/A	OPEN	
		PT103	ON	OFF	ON	2-3	OPEN	2-1	
		PT105	MOM	OFF	MOM				
		PT107	ON	OFF	MOM				
		PT108	ON	NONE	MOM	2-3	N/A	2-1	

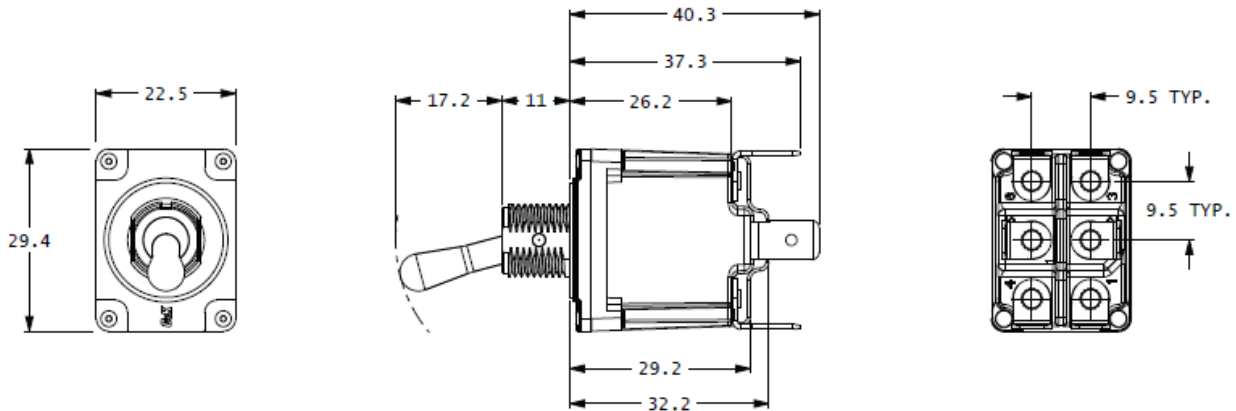
\* PT102 OMIT TERMINAL 1



**DP**

	NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS.1	POS.2	POS.3	POS.1	POS.2	POS.3	
									
	DP	PT201	ON	NONE	ON	2-3, 5-6	N/A	2-1, 4-5	
		PT202*	ON	NONE	OFF	2-3, 5-6	N/A	OPEN	
		PT203	ON	OFF	ON	2-3, 5-6	OPEN	2-1, 4-5	
		PT205	MOM	OFF	MOM				
		PT207	ON	OFF	MOM				
		PT208	ON	NONE	MOM	2-3, 5-6	N/A	2-1, 4-5	

\* PT202 OMIT TERMINAL 1 AND 4



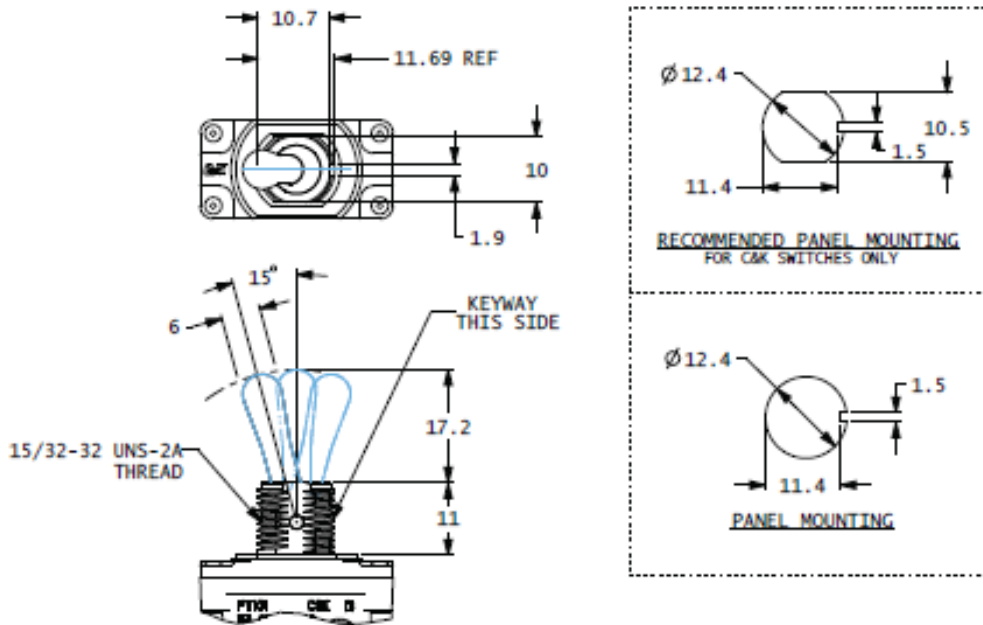
**Toggle**

**NEW**

# PT Series Sealed Power Toggle Switch

## ACTUATOR

**S** STANDARD

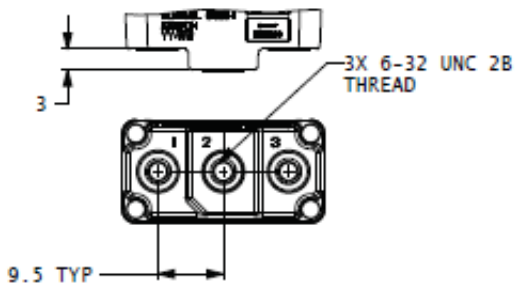


## TERMINALS

**S** SCREW TERMINAL

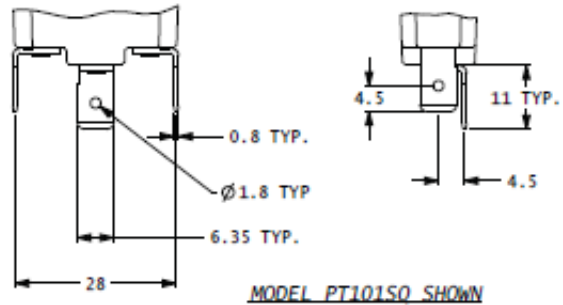
**Q** QUICK CONNECT

**SP**



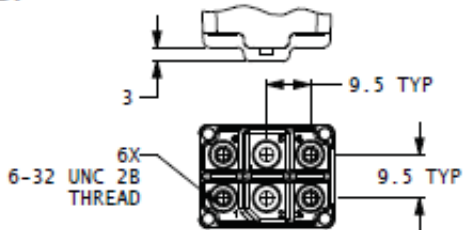
MODEL\_PT101SS\_SHOWN

**SP**



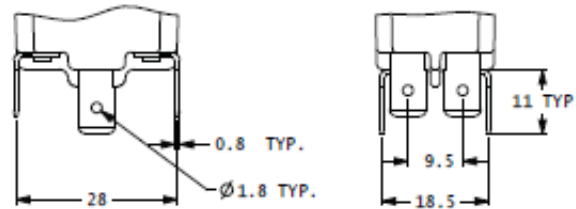
MODEL\_PT101SQ\_SHOWN

**DP**



MODEL\_PT201SS\_SHOWN

**DP**



MODEL\_PT201SQ\_SHOWN



**F**

**Toggle**

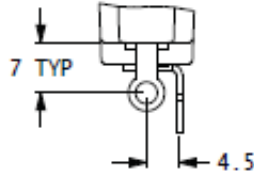
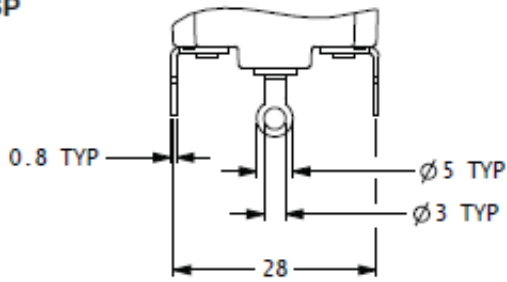


# PT Series Sealed Power Toggle Switches

**NEW**

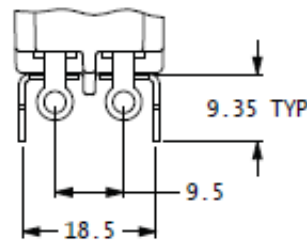
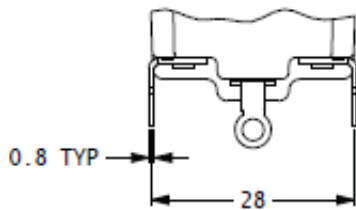
**Z** SOLDER TERMINAL SP

**SP**



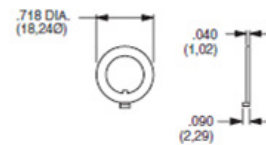
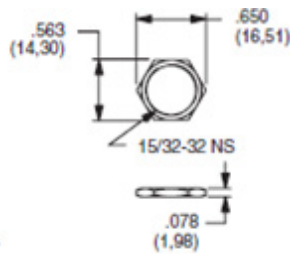
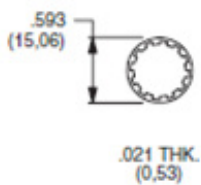
MODEL PT101SZ SHOWN

**DP**



MODEL PT201SZ SHOWN

## MOUNTING HARDWARE



**PART NO.**  
**700302202** NICKEL PLATED

**PART NO.**  
**707100201** NICKEL PLATED

**PART NO.**  
**707200201** NICKEL PLATED WITH KEYWAY

Note: Standard hardware shipped with each switch is 1 pc each



**T**

**Toggle**

**NEW**

# ILT Series Illuminated Toggle Switch

## Features/Benefits

- **LED built in to toggle handle. Save panel space instead of having an separate indicator light.**
- **6 LED color options to choose from. Easily determine if the switch is ON or Off from any distance.**
- **Electrical ratings up to 20 Amps. Suitable for high amp, industrial applications.**
- **6.3 quick connect Terminals. Easy installation. No soldering required.**

## Typical Applications

- **Telecommunications**
- **Instrumentation**
- **Medical equipment**

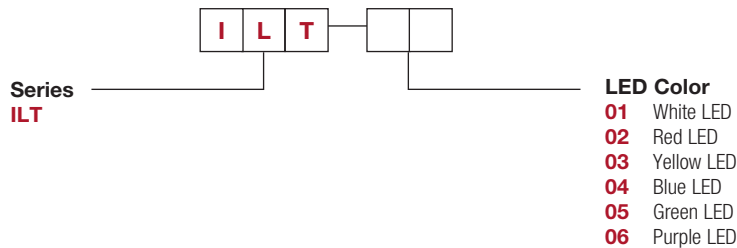


## Specifications

RATINGS: 20A 12 VDC  
CONTACT RESISTANCE: 50 mΩ max.  
INSULATION RESISTANCE: 500V DC 1000MΩ min.  
DIELECTRIC STRENGTH: 1 Minute 1500V AC  
OPERATING TEMPERATURE: -25°C to +85°C  
ELECTRICAL LIFE: 10,000 cycles

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.



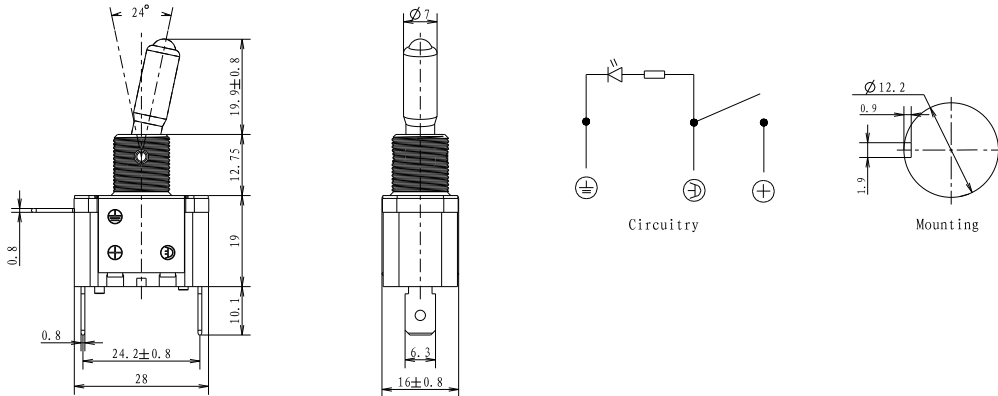
F

**Toggle**

# ILT Series Illuminated Toggle Switch

## SWITCH FUNCTION

UL** MODEL NO.	SWITCH FUNCTION	
	POS. 1	POS. 2
	KEYWAY	KEYWAY
ILT01	ON	OFF
ILT02	ON	OFF
ILT03	ON	OFF
ILT04	ON	OFF
ILT05	ON	OFF
ILT06	ON	OFF



### Selection Guide

Dice	Lens Type	Luminous intensity(mcd) @ 20mA			Viewing Angle
		Min.	Typ	Max.	
White	Water Clear	10000	--	12000	20
Red	Red Diffused	200	--	500	30
Yellow	Yellow Diffused	200	--	500	20
Blue	Water Clear	3000	--	5000	20
Green	Green Diffused	8000	--	10000	30
Purple	Water Clear	3000	--	5000	20

Note:

1. 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

2. the above luminous intensity measurement allowance tolerance  $\pm 15\%$

### Electrical / Optical Characteristics at Ta=25° C

Parameter	Units	White	Red	Yellow	Blue	Green	Purple
		Forward Voltage (VF)	V	2.8-3.6	2.0 Typ	2.0 Typ	2.8-3.6
Reverse Current (IR)	$\mu$ A	10 Max.	10 Max.	10 Max.	10 Max.	10 Max.	10 Max.
Dominate Wavelength ( $\lambda_d$ )	nm	460-465	620-625	585-590	460-465	520-525	460-465

### Absolute Maximum Ratings at Ta=25° C

Parameter	Units	White	Red	Yellow	Blue	Green	Purple
		Power Dissipation (Pd)	mW	90	60	60	90
DC Forward Current (IF)	mA	20	20	20	20	20	20
Peak Forward Current (I <sub>FP</sub> )	mA	60	60	60	60	60	60
Reverse Voltage (VR)	V	5	5	5	5	5	5
Electrostatic Discharge (HBM) (ESD)	V	2000	2000	2000	2000	2000	2000
Operating Temperature (Topr)	° C	-40°+80					
Storage Temperature (Tstg)	° C	-40°+100					

Note:

1. 1/10 Dut cycle, 0.1ms pulse width.

2. The above forward voltage measure ment allowance tolerance  $\pm 0.1V$ .



Third Angle  
Projection

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

www.ckswitches.com

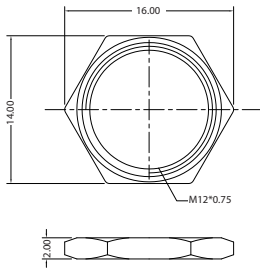
**C&K**

9 Dec 21

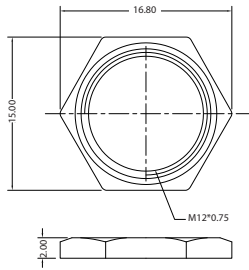
**NEW**

# ILT Series Illuminated Toggle Switches

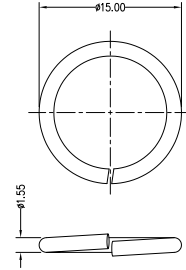
## MOUNTING HARDWARE



**PART NO.**  
**G01101325** 14MM HEX NUT



**PART NO.**  
**G01101326** 15MM HEX NUT



**PART NO.**  
**G01101327** 15MM WASHER



F

Toggle