

# Toggles

## Product Selection Guide

<b>Toggles</b>						
<b>Series</b>	<b>7000</b>	<b>E</b>	<b>ET</b>	<b>T</b>	<b>GT</b>	<b>9000</b>
<b>Switch Type</b>	Miniature	Miniature	Subminiature	Subminiature	Ultriminiature	Power
<b>Poles/Throws</b>	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	SPST, SPDT, DPST, DPDT	DPDT
<b>Maximum Current Silver/Gold</b>	5 Amps	7.5 Amps/ 5 Amps	3 Amps/ 2 Amps	3 Amps/ 2 Amps	0.4 VA	10 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-25	F-32	F-38	F-43



# 7000 Series Miniature Toggle Switches

## Features/Benefits

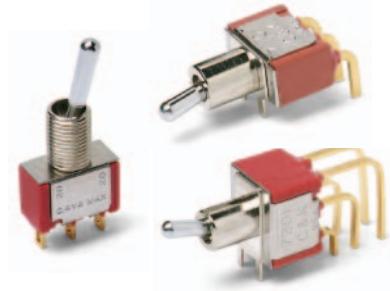
- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS complaint models available



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 G-16 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-4.

**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.

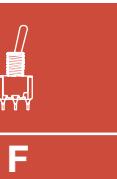
## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-4 thru F-16. For additional options not shown in catalog, consult our Customer Service Center.

<p><b>Switch Function</b></p> <p><b>7101</b> SP On-None-On  <b>7103</b> SP On-Off-On  <b>7105</b> SP Mom.-Off-Mom.  <b>7107</b> SP On-Off-Mom.  <b>7108</b> SP On-None-Mom.  <b>7109</b> SP None-On-Mom.  <b>7201</b> DP On-None-On  <b>7203</b> DP On-Off-On  <b>7205</b> DP Mom.-Off-Mom.  <b>7207</b> DP On-Off-Mom.  <b>7208</b> DP On-None-Mom.  <b>7211</b> DP On-On-On  <b>7213</b> DP On-On-Mom.  <b>7215</b> DP Mom.-On-Mom.  <b>7301</b> 3P On-None-On  <b>7303</b> 3P On-Off-On  <b>7305</b> 3P Mom.-Off-Mom.  <b>7308</b> 3P On-None-Mom.  <b>7401</b> 4P On-None-On  <b>7403</b> 4P On-Off-On  <b>7405</b> 4P Mom.-Off-Mom.  <b>7408</b> 4P On-None-Mom.  <b>7411</b> 4P On-On-On  <b>7413</b> 4P On-On-Mom.  <b>7415</b> 4P Mom.-On-Mom.</p> <p><small>Note: UL/CSA models available, see pages F-4 &amp; F-5.</small></p>	<p><b>Actuator</b></p> <p><b>M</b> .200" high  <b>P3</b> Flatted, anti-rotation, .450" high  <b>S</b> .420" high  <b>T</b> .687" high, 15/32 bushing  <b>K2</b> Locking lever, .704" high  <b>K9</b> Locking lever, .704" high  <b>K12</b> Locking lever, .732" high  <b>K19</b> Locking lever, .732" high  <b>L</b> .840" high  <b>L1</b> .640" high  <b>L1P</b> Anti-rotation, .640" high  <b>L2</b> .550" high  <b>L2P</b> Anti-rotation, .550" high  <b>L3</b> Plastic .940" inch  <b>L40</b> Lever handle without cap  <b>L41</b> .531" high lever handle with cap  <b>L42</b> .838" high lever handle with cap  <b>MP</b> Anti-rotation, .200" high  <b>P1</b> Flatted, anti-rotation, .840" high  <b>P4</b> Flatted, anti-rotation, .250" high  <b>SP</b> Anti-rotation, .420" high  <b>T1</b> .487" high, 15/32 bushing  <b>T1P</b> Anti-rotation, .487" high, 15/32 bushing  <b>T2P</b> Flatted, anti-rotation, .610" high, 15/32 bushing  <b>TP</b> Anti-rotation, .687" high, 15/32 bushing</p>	<p><b>Bushing</b></p> <p><b>D</b> .280 high, keyway  <b>H</b> .296 high, flat  <b>Y</b> .350 high, keyway  <b>NONE</b> No bushing choice required  <b>CW</b> Splashproof  <b>D8</b> .280" high, flat  <b>D9</b> .280" high, keyway  <b>H3</b> .315" high, keyway  <b>H4</b> 8mm high, keyway  <b>Y1</b> .378" high, keyway  <b>Y3</b> 8.9mm high, keyway  <b>Y4</b> .378" high, flat  <b>Y9</b> .350" high, keyway</p> <p><b>Terminations</b></p> <p><b>A</b> Right angle, PC thru-hole  <b>AV2</b> Vert. right angle, PC thru-hole  <b>C</b> PC Thru-hole  <b>V3</b> .460 high, V-bracket  <b>Z</b> Solder lug  <b>A2</b> Right angle, PC thru-hole  <b>A3</b> Right angle, PC thru-hole  <b>A4</b> Right angle, PC thru-hole  <b>AW1</b> Right angle, extended, PC thru-hole  <b>AW4</b> Right angle, extended, PC thru-hole  <b>V2</b> .555" high, V-bracket  <b>V4</b> .630" high, V-bracket  <b>V6</b> .460" high, V-bracket  <b>V7</b> .630" high, V-bracket  <b>V8</b> .953" high, V-bracket  <b>V9</b> 1.150" high, V-bracket  <b>V21</b> .555" high, snap-in V-bracket  <b>V31</b> .460" high, snap-in V-bracket  <b>V41</b> .630" high, snap-in V-bracket  <b>V71</b> .630" high, snap-in V-bracket  <b>V81</b> .953" high, snap-in V-bracket</p>	<p><b>Contact Material</b></p> <p><b>B</b> Gold  <b>P</b> Gold, matte-tin  <b>Q</b> Silver  <b>S</b> Silver, matte-tin  <b>G</b> Gold over silver  <b>R</b> Gold over silver, matte-tin</p> <p><b>Seal</b></p> <p><b>E</b> Epoxy  <b>I</b> Epoxy potted base</p> <p><b>Actuator Color/Finish</b></p> <p><b>NONE</b> Bright chrome  <b>2</b> Black  <b>3</b> Red  <b>S</b> Satin chrome</p> <p><b>KXX Actuator Color/Finish</b></p> <p><b>NONE</b> Natural aluminum  <b>2</b> Black anodized aluminum  <b>3</b> Red anodized aluminum  <b>7</b> Blue anodized aluminum</p> <p><b>Bushing Finish</b></p> <p><b>NONE</b> Nickel on all bushings (except D8, satin chrome)  <b>2</b> Black</p> <p><b>W</b> .750" long, wire wrap  <b>W1</b> .964" long, wire wrap  <b>W3</b> .425" long, wire wrap  <b>W4</b> 1.062" long, wire wrap  <b>W5</b> 1.305" long, wire wrap  <b>Z3</b> Quick connect</p>
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Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



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.

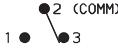
TERMINAL SEAL: Epoxy.

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

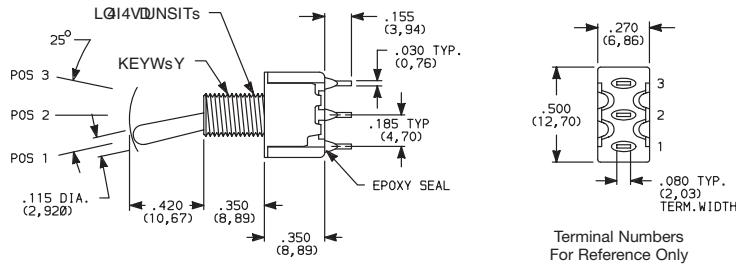
Lockwasher: Steel, nickel plated.

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

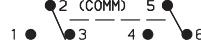
## SWITCH FUNCTION

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

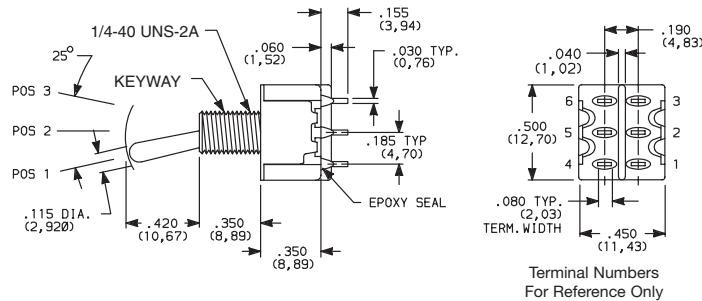
### SPDT



Part number shown: 7101SYZBE

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

### DPDT



Part number shown: 7201SYZQE

MOM. = Momentary

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

\* Wiring for 3-way switch, see Section N.



Third Angle  
Projection

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

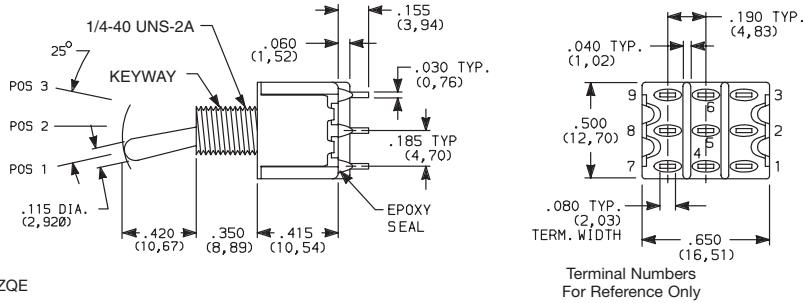
www.ck-components.com

# 7000 Series Miniature Toggle Switches

## SWITCH FUNCTION

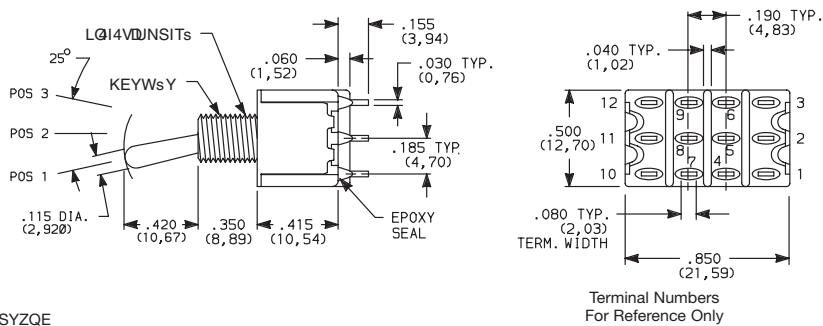
NO. POLES	MODEL NO.	UL/CSA** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
			KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	
3P	<b>7301</b>	<b>U31</b>	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
	<b>7303</b>	<b>U33</b>	ON	OFF	ON	2-3,5-6,8-9	OPEN	2-1,5-4,8-7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



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



MOM. = Momentary

\* Wiring for 3-way switch, see Section N.

\*\* U11-U415 model nos.



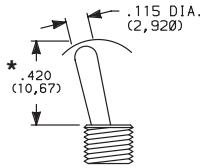
all options when ordered with G, Q, R or S contact material.



# 7000 Series Miniature Toggle Switches

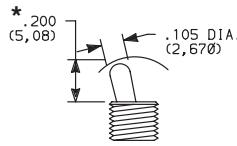
## ACTUATOR

**S** .420" HIGH <sup>1</sup>  
**SP** ANTIROTATION, .420" HIGH <sup>2,3</sup>



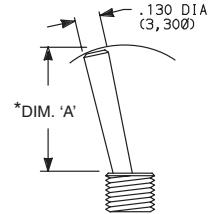
S actuator standard when ordered with C, W-W5, Z & Z3 terminations. Caps are available separately, see page F-16.

**M** .200" HIGH <sup>1</sup>  
**MP** ANTIROTATION, .200" 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.

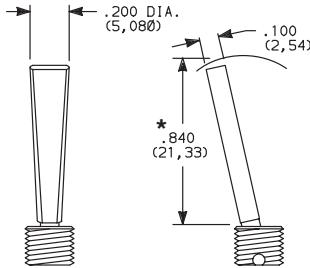
**L, L1, L2** .840", .640", .550" HIGH <sup>1</sup>  
**L1P, L2P** ANTIROTATION, .840", .640", .550" HIGH <sup>2,3</sup>



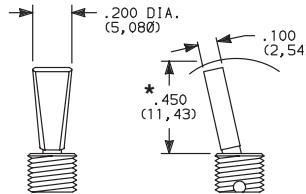
OPTION CODE	DIM 'A'
L	.840 (21,34)
L1, L1P	.640 (16,26)
L2, L2P	.550 (13,97)

Caps are available separately, see page F-16.

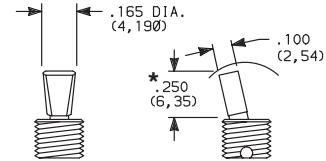
**P1** FLATTED WITH ANTIROTATION, .840" HIGH <sup>2,3</sup>



**P3** FLATTED WITH ANTIROTATION, .450" HIGH <sup>2,3</sup>

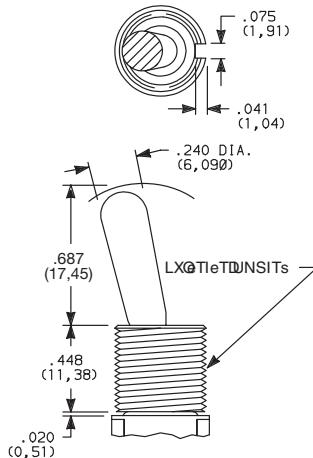


**P4** FLATTED WITH ANTIROTATION, .250" HIGH <sup>2,3</sup>

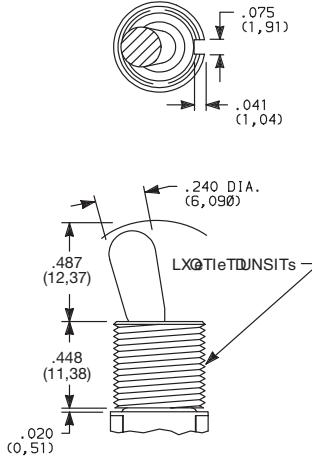


Dress nut part number 709901201 supplied standard with threaded bushing. (Part number 709903201 with metric threaded bushings.)

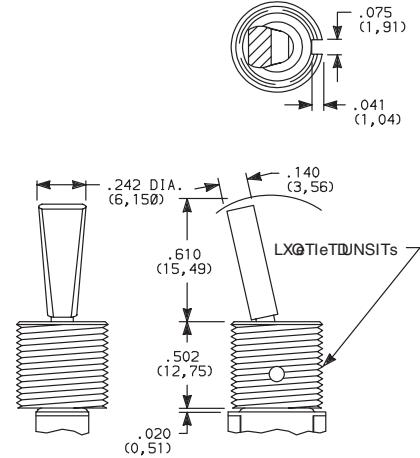
**T** .687 (17,45) HIGH <sup>1,2</sup>  
**TP** ANTIROTATION, .687 (17,45) HIGH, 15/32 BUSHING <sup>1,2,3</sup>



**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, .610" 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.

Toggle F

<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
NONE	BRIGHT CHROME-With Nickel Plated Bushing
2	BLACK
S	SATIN CHROME

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

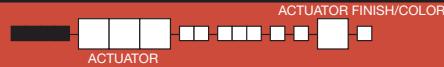


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# 7000 Series Miniature Toggle Switches

## ACTUATOR

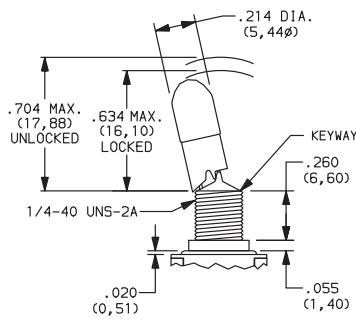


**K2** LOCKING LEVER, .704" HIGH (threaded)

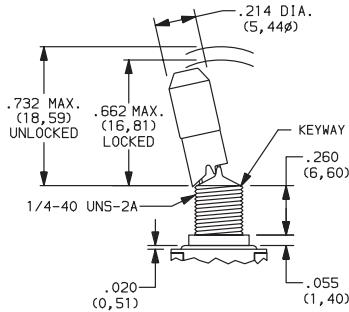
**K9** LOCKING LEVER, .704" HIGH (unthreaded)

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

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



Replaces K, K8



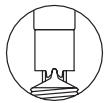
Replaces K1, K18

OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK ANODIZED ALUMINUM
3	RED ANODIZED ALUMINUM
7	BLUE ANODIZED ALUMINUM

### 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



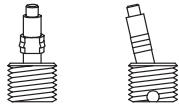
-08 Models  
1 Position lock

**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.

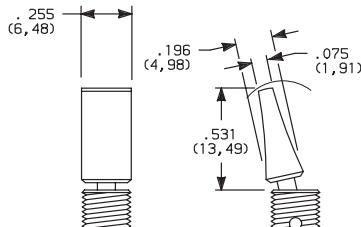
Bushing option code not required unless CW splashproof bushing ordered.

**L40** LEVER HANDLE WITHOUT CAP



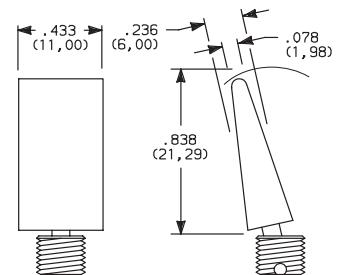
No color choice required

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

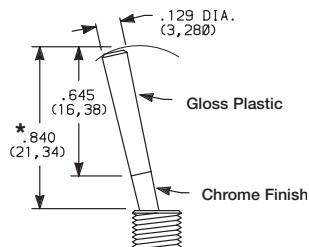


Finish: Matte (L41 & L42).

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



**L3** PLASTIC .940" HIGH



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

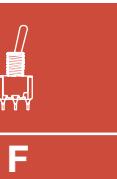
\* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

**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.



Third Angle  
Projection

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

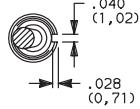


# 7000 Series Miniature Toggle Switches

## BUSHING

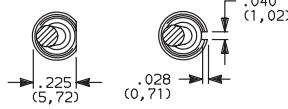


**Y** .350" HIGH, THREADED, KEYWAY  
**Y9** .350" HIGH, UNTHREADED, KEYWAY

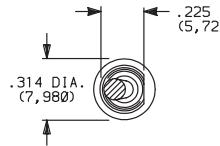


**NONE** NO BUSHING  
No bushing choice required with KXX, TXX actuators. (exception: Specify CW if splashproof bushing desired).

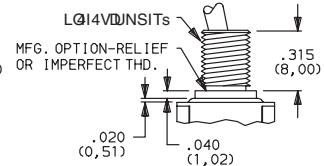
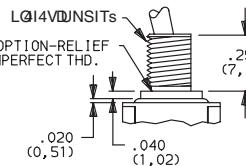
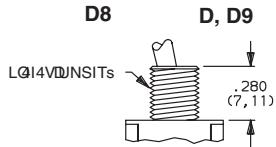
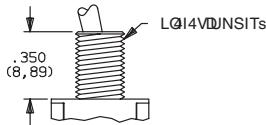
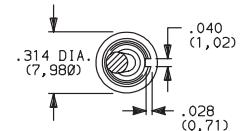
**D** .280" HIGH, THREADED, KEYWAY  
**D8** .280" HIGH, UNTHREADED, FLAT<sup>3</sup>  
**D9** .280" HIGH, UNTHREADED, KEYWAY



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



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

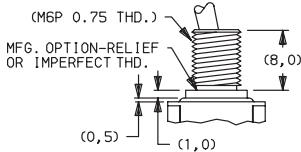
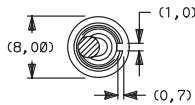


Y bushing standard with C, W-W5, Z or Z3 terminations.

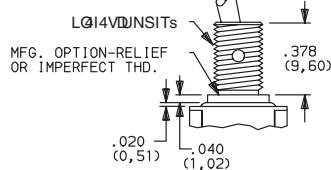
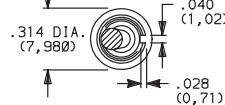
D9 bushing standard with all terminations except C, W-W5, Z or Z3. Add .070 (1,78) to all actuators lengths with D, D8 & D9 bushings.

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

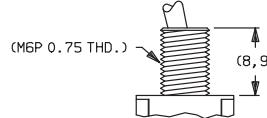
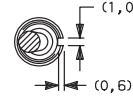
**H4** 8mm HIGH, KEYWAY, THREADED, METRIC HIGH TORQUE<sup>1,2,3</sup>



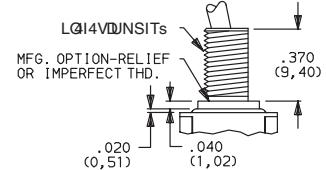
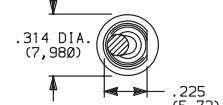
**Y1** .378" HIGH, KEYWAY, THREADED, HIGH TORQUE<sup>1,2,4</sup>



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

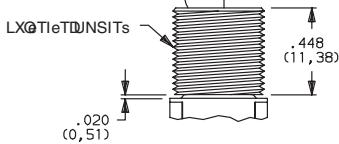
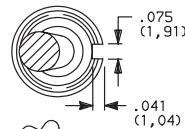


**Y4** .378" HIGH, FLAT, THREADED, HIGH TORQUE<sup>1,2,5</sup>

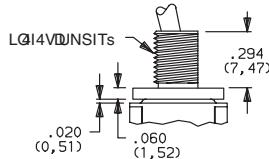
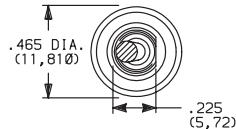


**CW** THREADED, SPLASHPROOF<sup>1,2</sup>

For  $\text{DTL}$  Actuators M



For Actuators Other than  $\text{DTL}$



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.

OPTION CODE	BUSHING FINISH
NONE	NICKEL on all bushings except 'D8' satin chrome.
2	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.

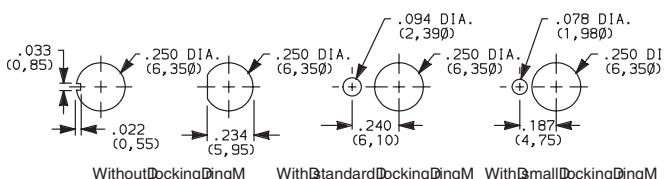
**NOTE:** Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

## PANEL MOUNTING

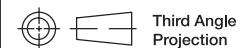
LQ14VNSITs

METRIC

LX14TNSITs



Toggle



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



# 7000 Series Miniature Toggle Switches

## TERMINATIONS

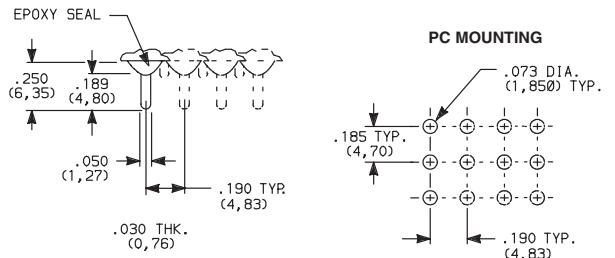
### Z SOLDER LUG



### SPDT thru 4PDT

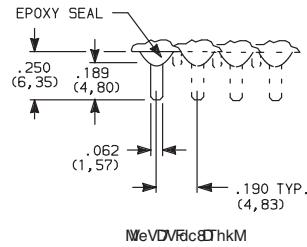
Not available with P, R or S contact materials.

### C PC THRU-HOLE



### SPDT thru 4PDT

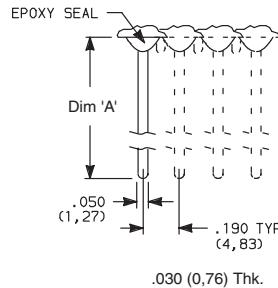
### Z3 QUICK CONNECT



### SPDT thru 4PDT

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

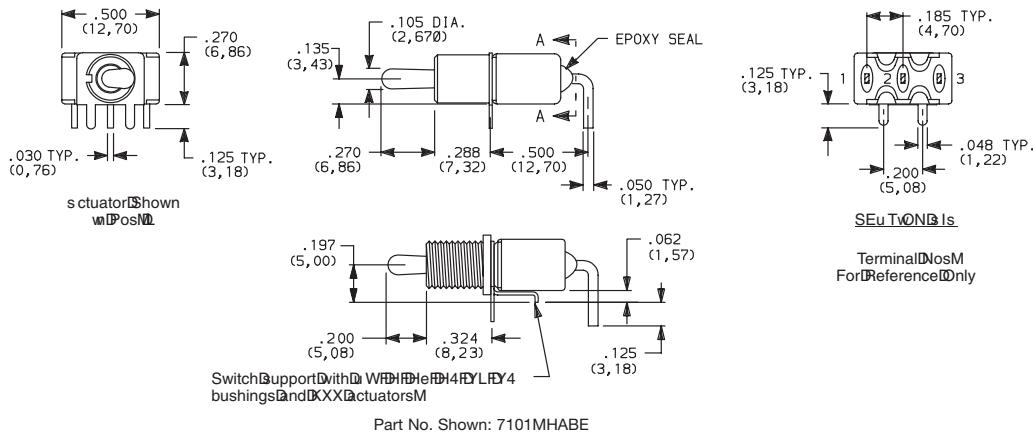
### W, W1, W3, W4, W5 WIRE WRAP



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)

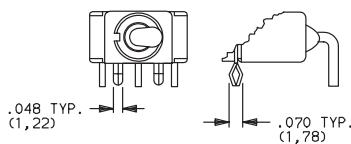
### SPDT thru 4PDT

### A RIGHT ANGLE, PC THRU-HOLE



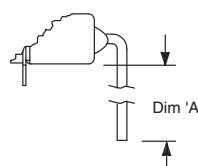
7101MD9ABE  
Horizontal Actuation  
SPDT

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



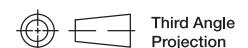
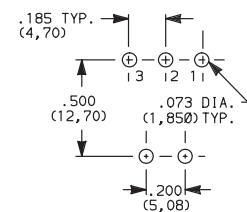
Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

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



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

### PC MOUNTING



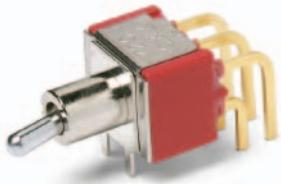
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



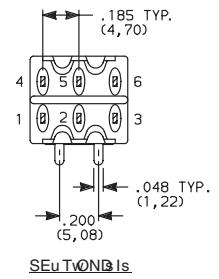
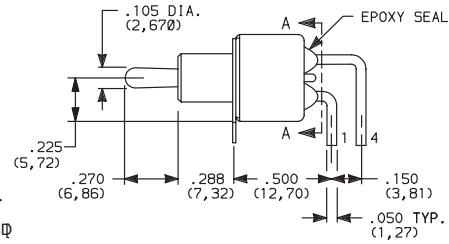
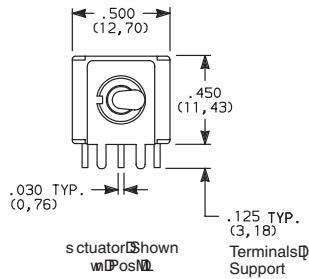
# 7000 Series Miniature Toggle Switches

## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE

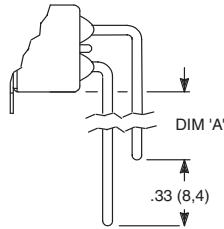
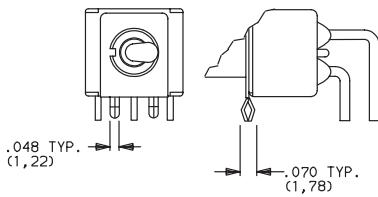


**7201MD9ABE**  
Horizontal Actuation  
**DPDT**



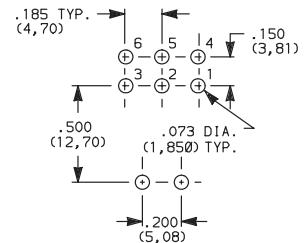
### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

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



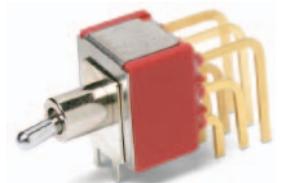
OPTION CODE	DIM 'A'
<b>AW1</b>	.40 (10,2)
<b>AW4</b>	.50 (12,7)

### PC MOUNTING

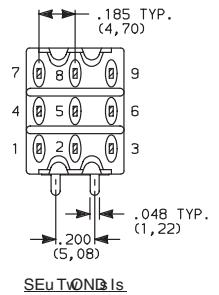
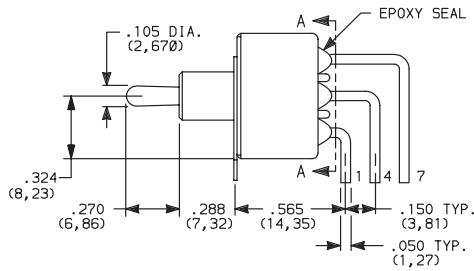
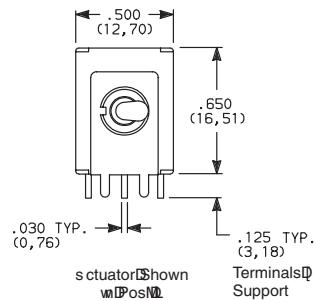


Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

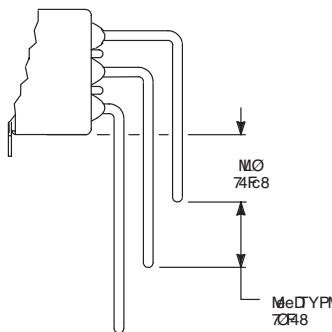
### A RIGHT ANGLE, PC THRU-HOLE



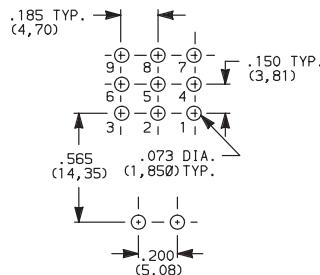
**7301MD9ABE**  
Horizontal Actuation  
**3PDT**



### 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**

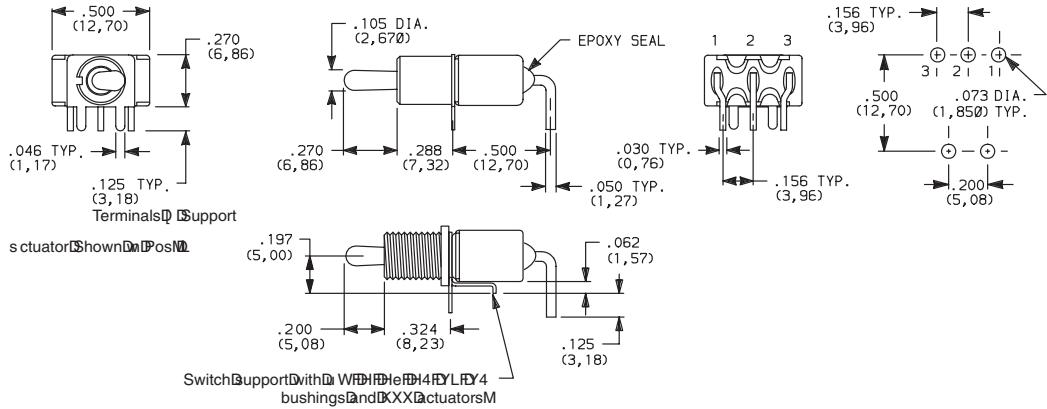


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# 7000 Series Miniature Toggle Switches

## TERMINATIONS

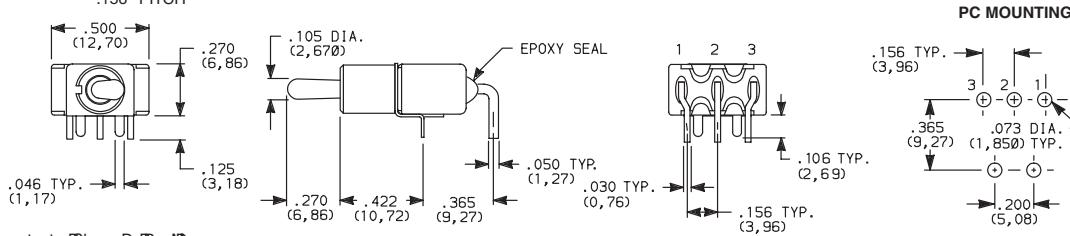
**A2** RIGHT ANGLE, PC THRU-HOLE,  
.156" PITCH



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

Not available with TXX actuators and I seal.  
Terminal bend radii and lead-in manufacturing option.  
Part No. Shown: 7101MHA2BE

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

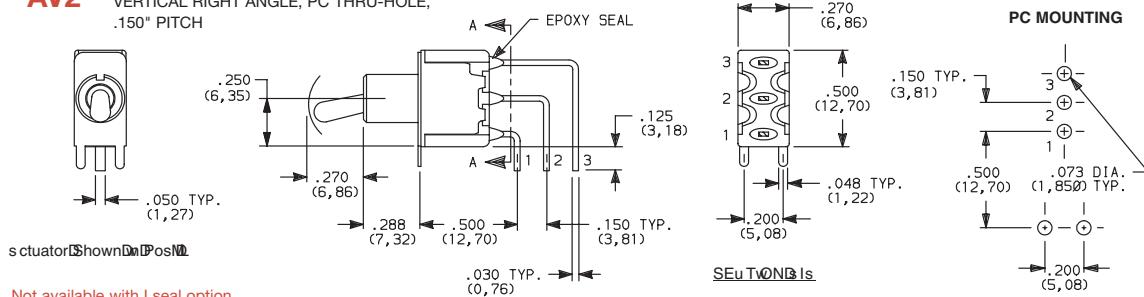


**7101MD9A4BE**  
Horizontal Actuation  
**SPDT**

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.

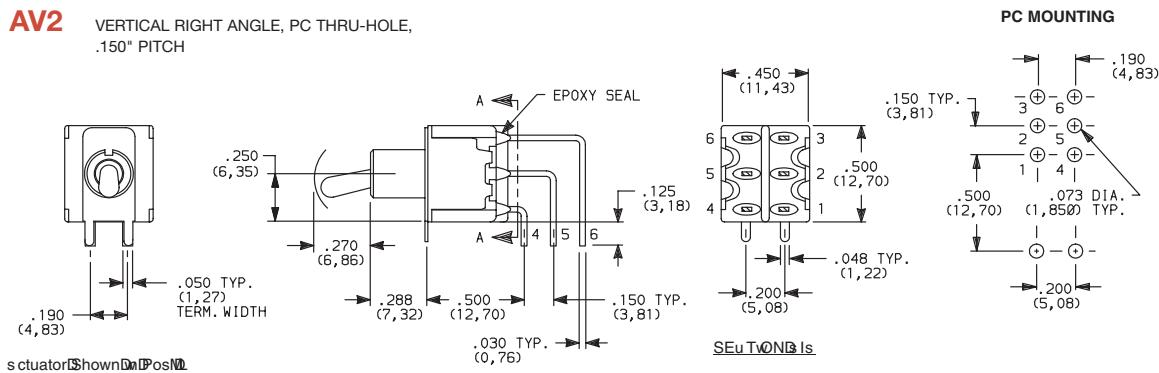
**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE,  
.150" PITCH



**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



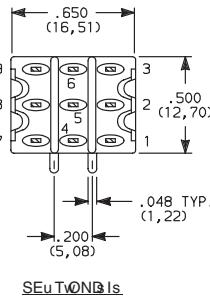
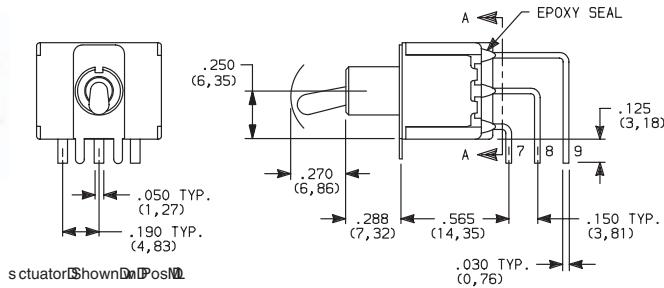
# 7000 Series Miniature Toggle Switches

## TERMINATIONS

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



**7301MD9AV2BE**  
Vertical Actuation  
**3PDT**

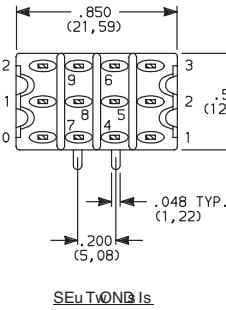
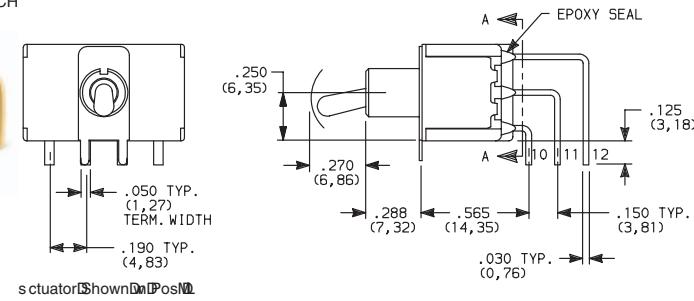


Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

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



**7401MD9AV2BE**  
Vertical Actuation  
**4PDT**



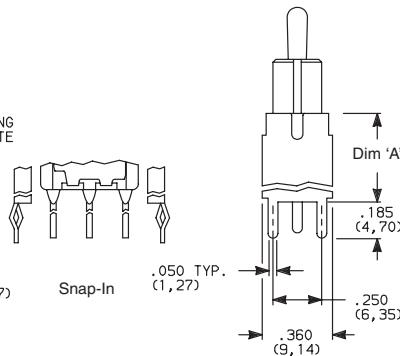
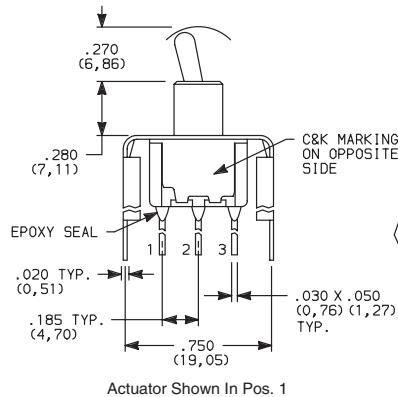
Not available with I seal option.  
Terminal bend radii and lead-in manufacturing option.

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

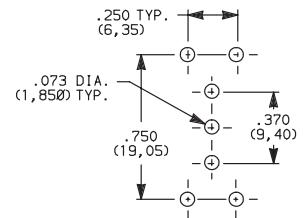
**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN



**7101MD9\_BE**  
**SPDT**



PC MOUNTING



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

Toggle



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

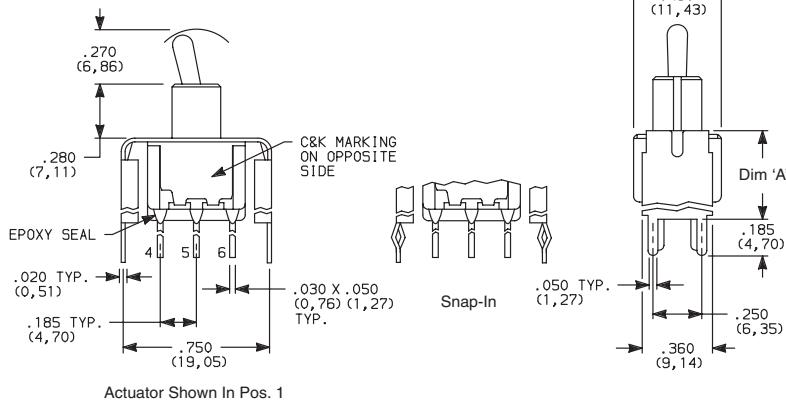
# 7000 Series Miniature Toggle Switches

## TERMINATIONS



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

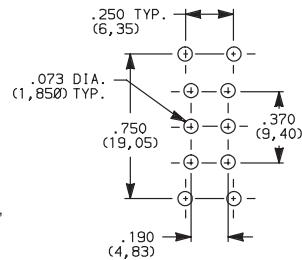
**V21, V61, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



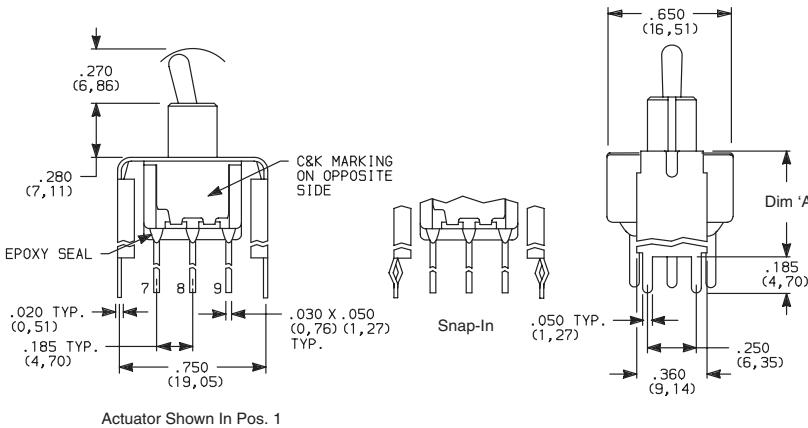
OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V6, V61</b>	.460 (11,68)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)



7201MD9\_BE  
DPDT

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

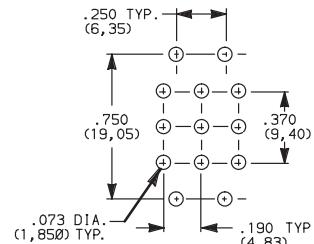
**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



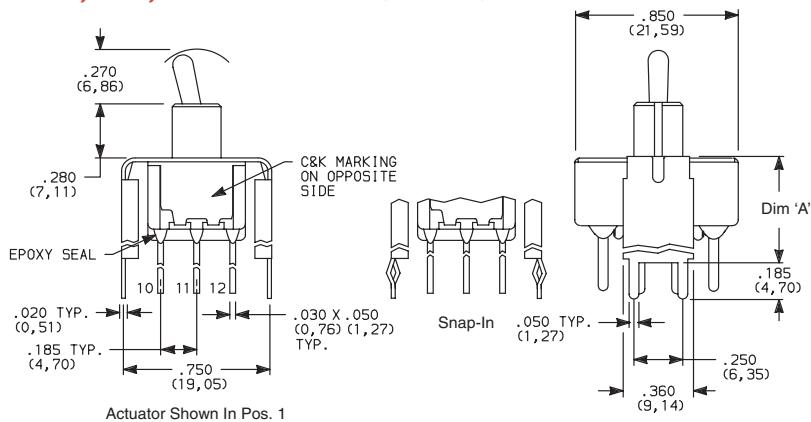
OPTION CODE	DIM 'A'
<b>V2, V21</b>	.555 (14,10)
<b>V7, V71</b>	.630 (16,00)
<b>V8, V81</b>	.953 (24,21)



7301MD9\_BE  
3PDT

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

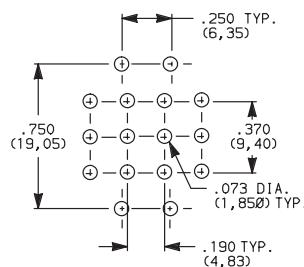
**V21, V71, V81** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

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

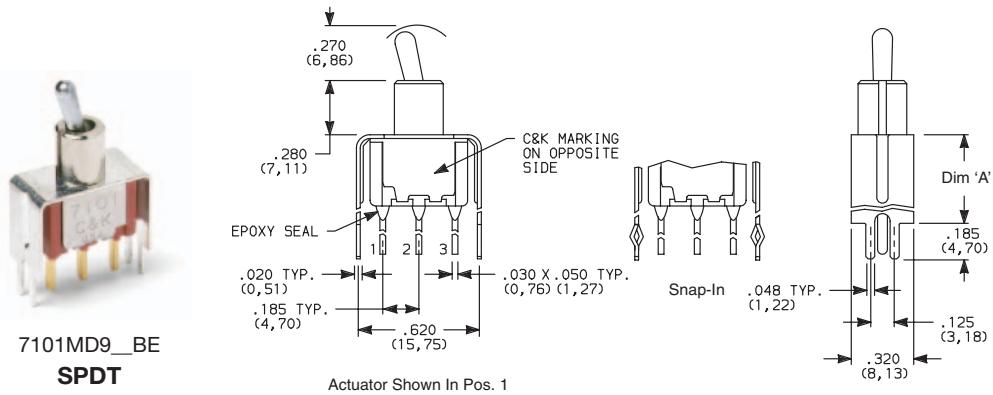


# 7000 Series Miniature Toggle Switches

## TERMINATIONS

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

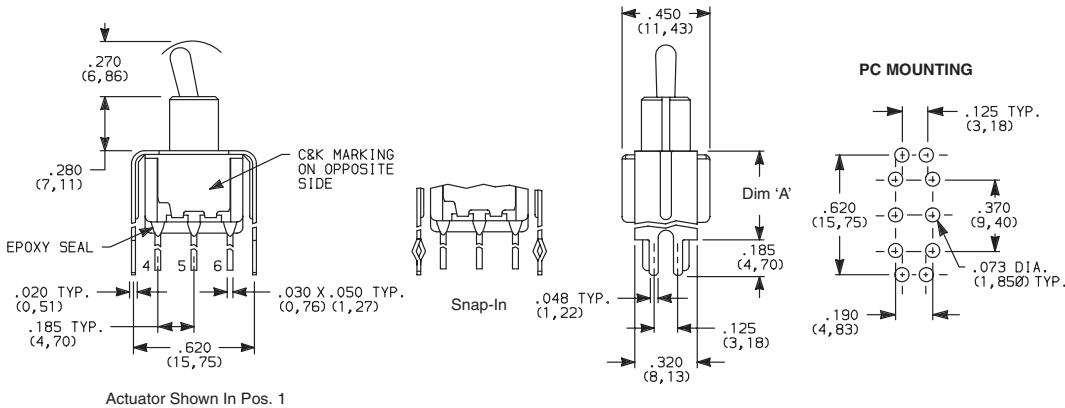
**V31, V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Not available with I seal option.

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

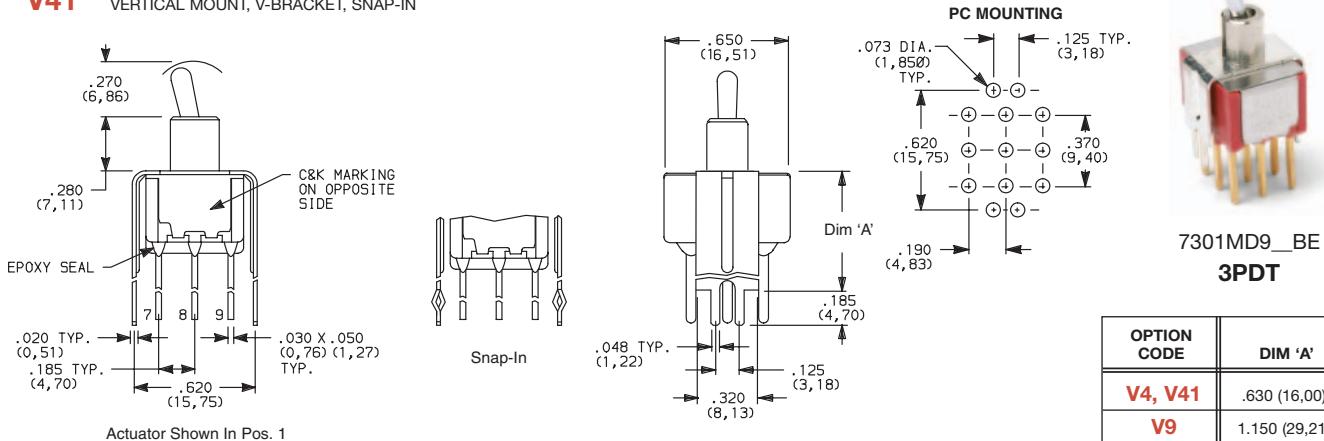
**V31, V41** VERTICAL MOUNT, V-BRACKET, SNAP-IN



Not available with I seal option.

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

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



Not available with I seal option.



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

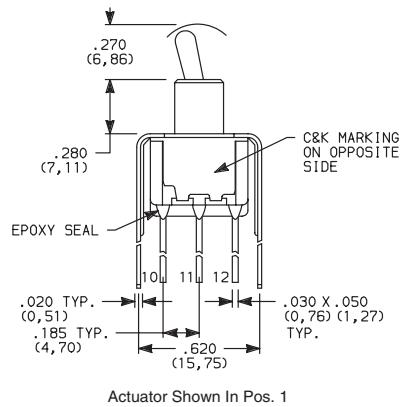
www.ck-components.com

# 7000 Series Miniature Toggle Switches

## TERMINATIONS

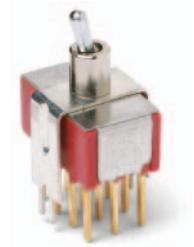
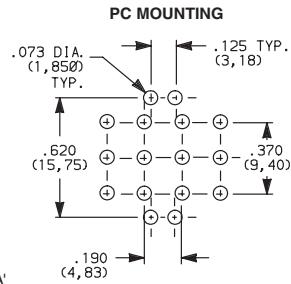
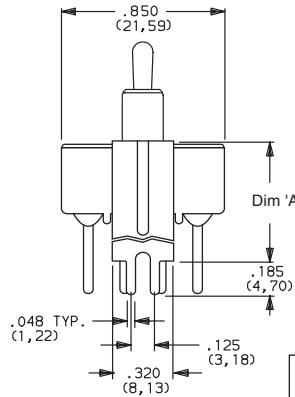
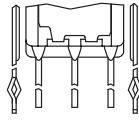
**V4, V9** VERTICAL MOUNT, V-BRACKET

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



Actuator Shown In Pos. 1

Not available with I seal option.



7401MD9\_BE  
4PDT

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

## 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.

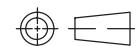
**NOTE:** Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

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.



Third Angle  
Projection

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



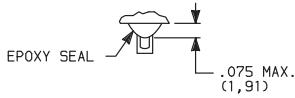
F

Toggle

# 7000 Series Miniature Toggle Switches

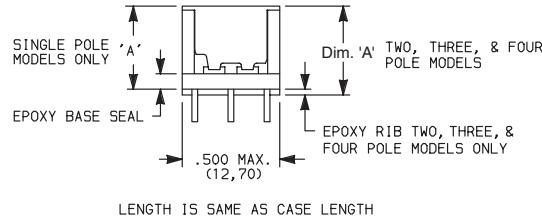
## SEAL

### E EPOXY SEAL



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

### I EPOXY POTTED BASE

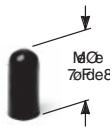


NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

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

## AVAILABLE HARDWARE

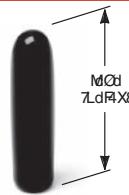
### Cap



**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

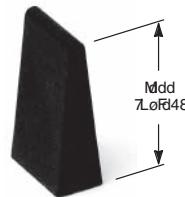
### L41 Lever handle



**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



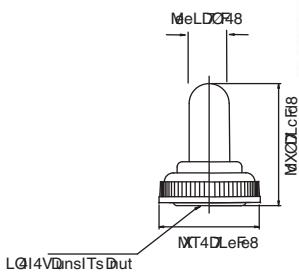
**PART NO.**  
**530100000**

Available in loose pieces.

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

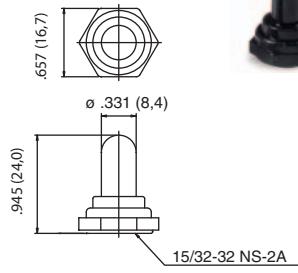
Other colors available, consult Customer Service Center.

### 759D02000 Sealing Boot



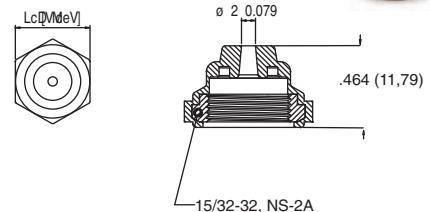
**NOTE:** For use with S actuator style when combined with D, H, H3, Y, and Y4 bushings

### 703D02000 Sealing Boot



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

### 704D02000 Sealing Boot

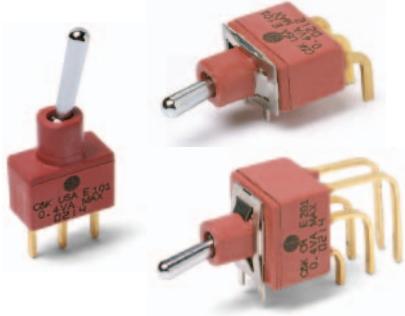


**NOTE:** For use with T, TP and T2P style actuators. Can not be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, and 7407.



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

# 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-25 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-18 thru F-24. 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.

<p><b>Switch Function</b></p> <p><b>E101</b> SP, On-None-On  <b>E103</b> SP, On-Off-On  <b>E105</b> SP, Mom.-Off-Mom.  <b>E107</b> SP, On-Off-Mom.  <b>E108</b> SP, On-None-Mom.  <b>E201</b> DP, On-None-On  <b>E203</b> DP, On-Off-On  <b>E205</b> DP, Mom.-Off-Mom.  <b>E207</b> DP, On-Off-Mom.  <b>E208</b> DP, On-None-Mom.  <b>E211</b> DP, On-On-On  <b>E213</b> DP, On-On-Mom.  <b>E215</b> DP, Mom.-On-Mom.  <b>E301</b> 3P, On-None-On</p>	<p><b>Actuator</b></p> <p><b>M</b> .300" high  <b>S</b> .500" high  <b>L3</b> Plastic, .940" high</p> <p><b>Bushing</b></p> <p><b>D1</b> .250" high  <b>F1</b> Conductive, .250" high*  <b>D9</b> .280" high  <b>Y</b> Threaded, .350" high</p>	<p><b>Terminations</b></p> <p><b>A</b> Right angle, PC thru-hole  <b>AV2</b> Vertical right angle, PC thru-hole  <b>C</b> PC Thru-hole  <b>V3</b> .460" high, V-bracket  <b>Z</b> Solder lug  <b>A3</b> Right angle, PC thru-hole  <b>AV3</b> Vertical right angle, PC thru-hole  <b>V6</b> .460" high, V-bracket  <b>V9</b> 1.150" high, V-bracket  <b>V31</b> .460" high, snap-in V-bracket  <b>V61</b> .460" high, snap-in V-bracket  <b>W</b> .750" long, wire wrap  <b>Z3</b> Quick connect</p>	<p><b>Contact Material</b></p> <p><b>B</b> Gold  <b>P</b> Gold, matte-tin  <b>Q</b> Silver  <b>S</b> Silver, matte-tin  <b>G</b> Gold over silver  <b>R</b> Gold over silver, matte-tin</p> <p><b>Seal</b></p> <p><b>E</b> Epoxy</p>
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\* F1 available with SP and DP versions only, please see page F-19



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

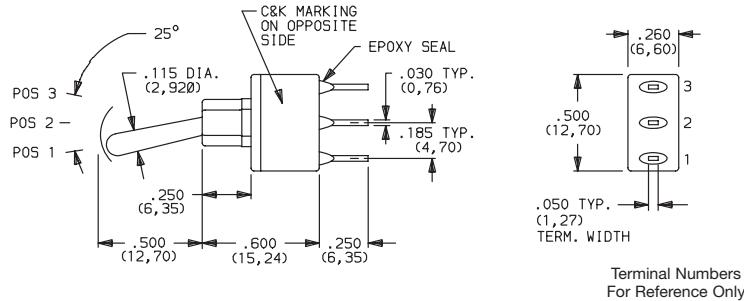


# E Series Sealed Miniature Toggle Switches

## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
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.				

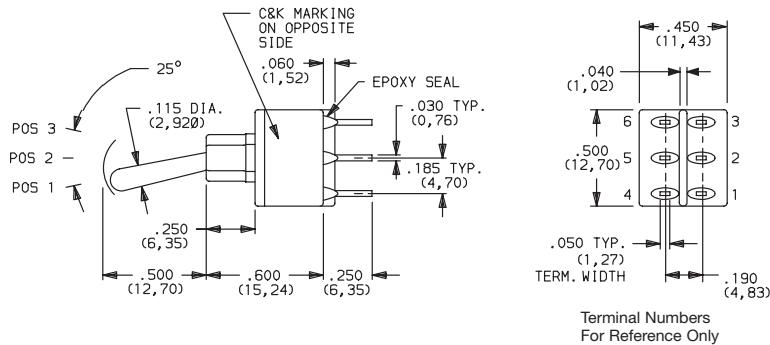
### SPDT



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.				
<b>E215**</b>	MOM.	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4		

### DPDT



Part number shown: E201SD1CBE

MOM. = Momentary

\*\* Wiring for 3-way switch, see Section N.

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



F

Toggle

**C&K**

Third Angle Projection

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	
3P	E301	ON	NONE	ON	2-3-5-6-8-9	N/A	2-1-5-4-8-7	

**3PDT**

Part number shown: E301SD1CBE

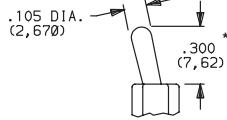
MOM. = Momentary

\*\* Wiring for 3-way switch, see Section N.

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

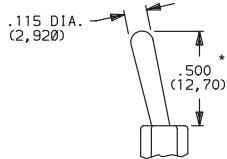
## ACTUATOR

**M** .300" HIGH



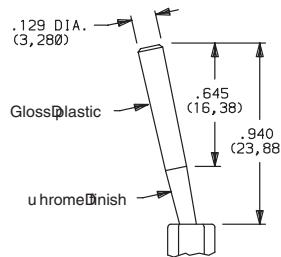
Standard when ordered with A, A3, AV2, AV3, V2-V61 terminations. Finish: Chrome.

**S** .500" HIGH



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

**L3** PLASTIC, .940" HIGH



OPTION CODE	L3 ACTUATOR COLOR
2	BLACK

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

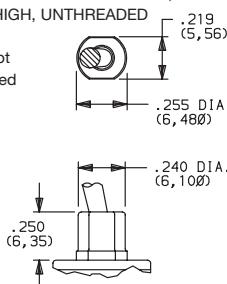
\* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

## BUSHING

**D1** .250" HIGH, UNTHREADED

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

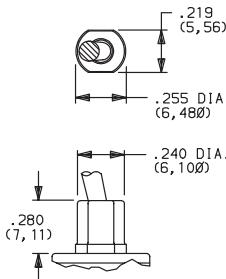
F1 bushing is not UL/CSA approved



**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.

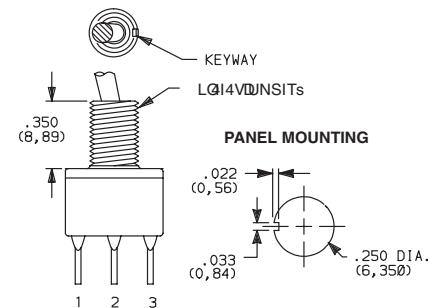
**D9** .280" HIGH, UNTHREADED



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.**



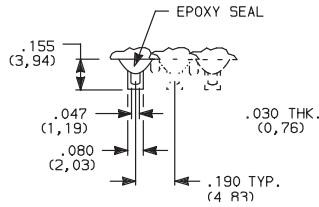
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

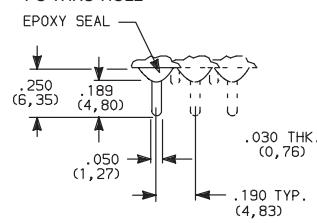
### Z SOLDER LUG



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

### SPDT thru 3PDT

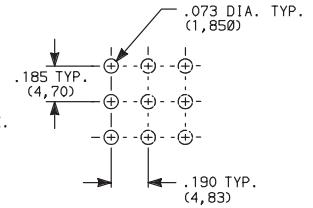
### C PC THRU-HOLE



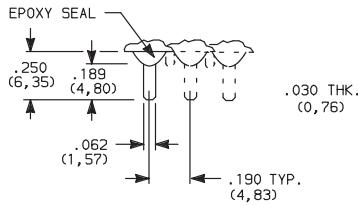
### SPDT thru 3PDT

Not available with F1 conductive bushing.

### PC MOUNTING



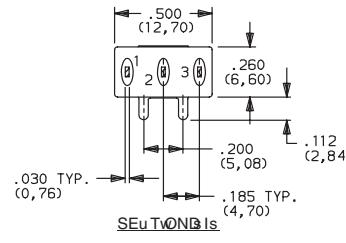
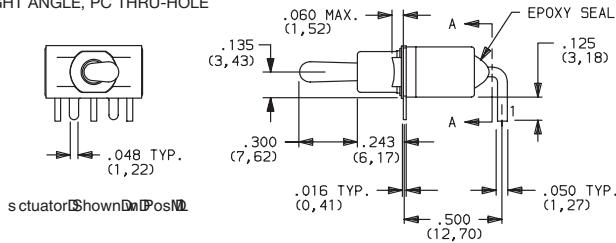
### Z3 QUICK CONNECT



Not available with F1 conductive bushing or P, R or S contact material. Mating quick connector available; order part number 530100000, page F-26.

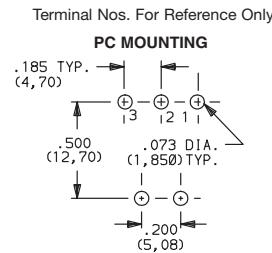
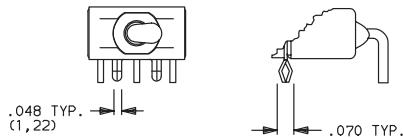
### SPDT thru 3PDT

### A RIGHT ANGLE, PC THRU-HOLE



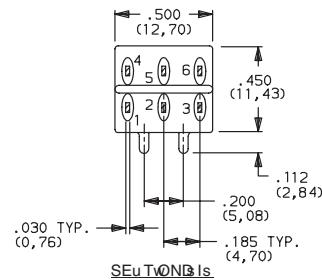
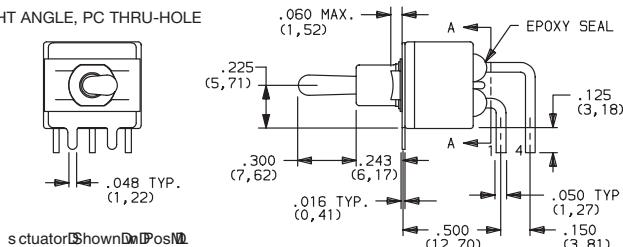
E101MD1ABE  
Horizontal Actuation  
SPDT

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



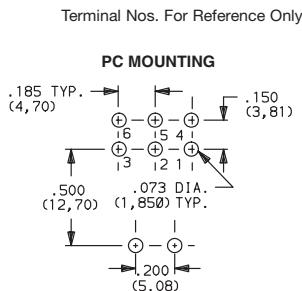
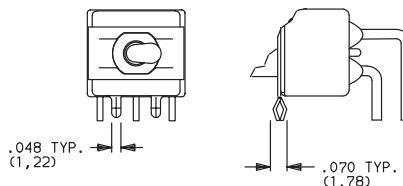
Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

### A RIGHT ANGLE, PC THRU-HOLE



E201MD1ABE  
Horizontal Actuation  
DPDT

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



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

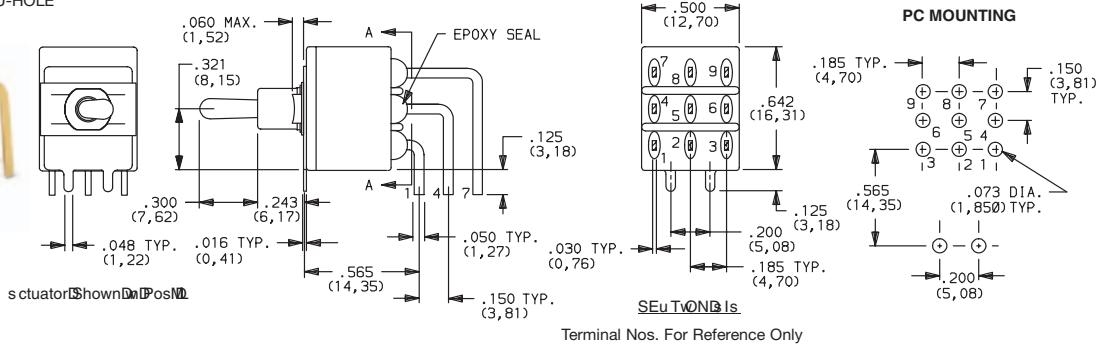
# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE



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

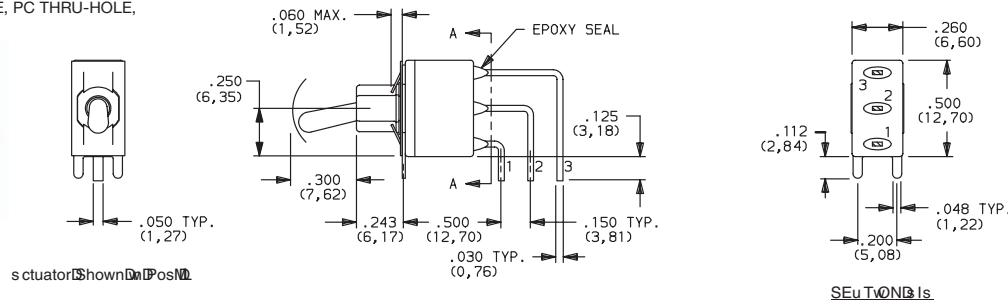


Not available with D9 & Y bushings.  
Terminal bend radii and lead-in manufacturing option.

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



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



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

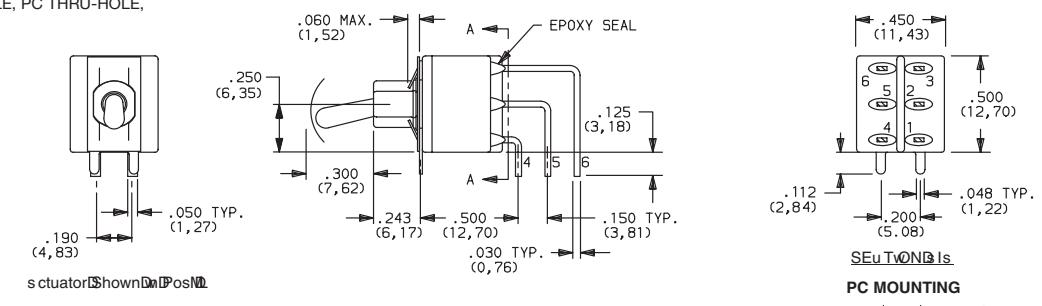


Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

### 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

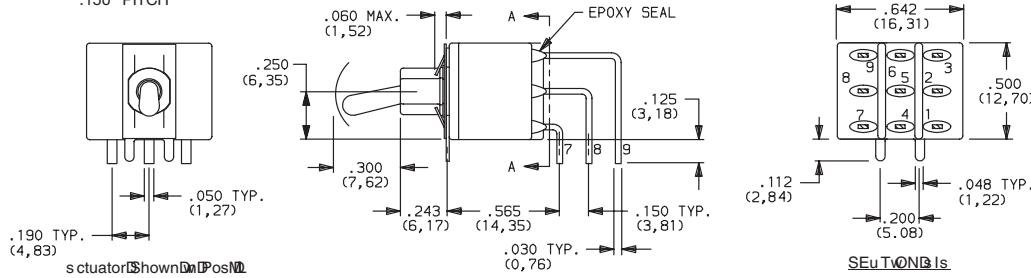


Toggle

# E Series Sealed Miniature Toggle Switches

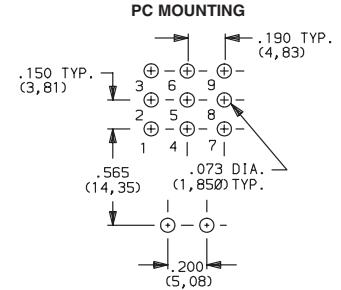
## TERMINATIONS

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



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

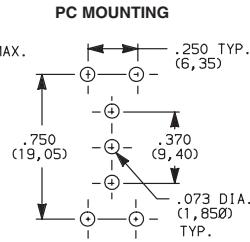
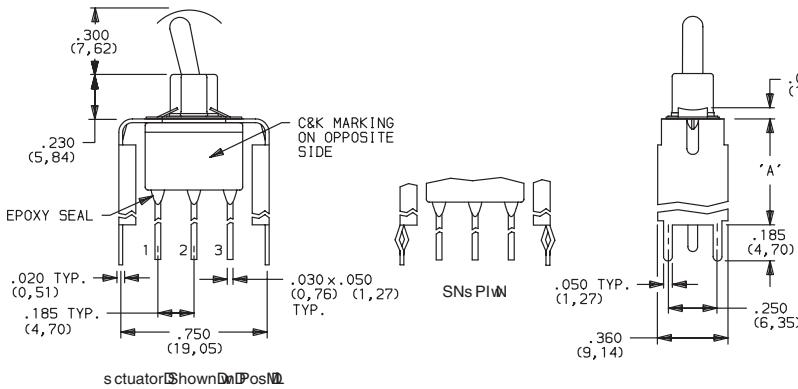
**AV3** VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE  
.150" PITCH



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



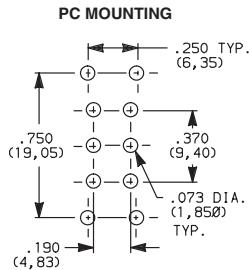
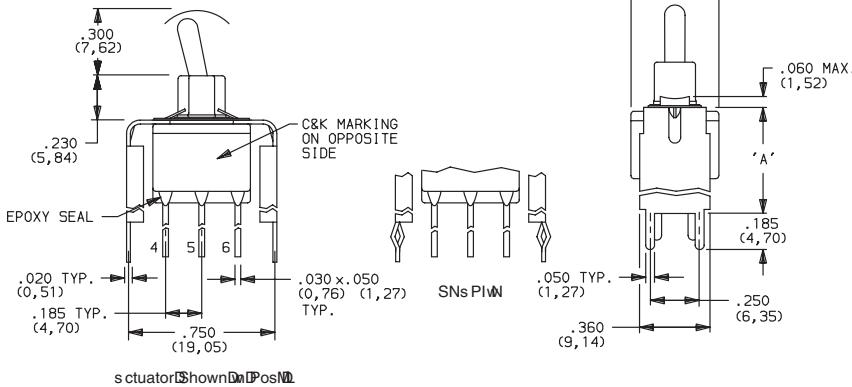
**E101MD1\_BE**  
**SPDT**

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)



Third Angle  
Projection

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

www.ck-components.com

# E Series Sealed Miniature Toggle Switches

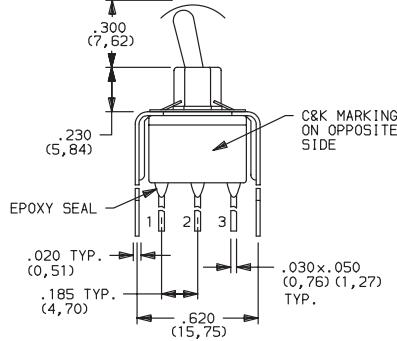
## TERMINATIONS

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

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



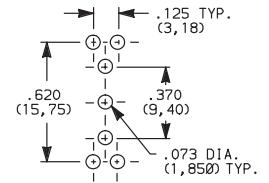
**E101MD1\_BE**  
**SPDT**



actuator shown in position

Not available with Y bushing.

PC MOUNTING



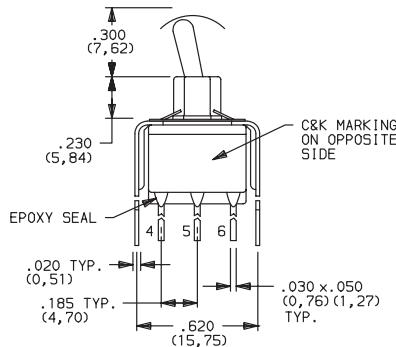
OPTION CODE	DIM 'A'
<b>V3, V31</b>	.460 (11,68)
<b>V9</b>	1.150 (29,21)

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

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



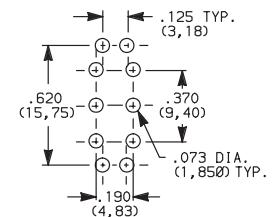
**E201MD1\_BE**  
**DPDT**



actuator shown in position

Not available with Y bushing.

PC MOUNTING

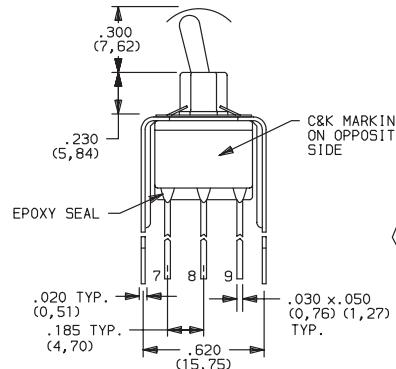


OPTION CODE	DIM 'A'
<b>V3, V31</b>	.460 (11,68)
<b>V9</b>	1.150 (29,21)

**V9** VERTICAL MOUNT, V-BRACKET



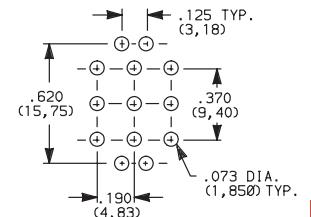
**E301MD1\_BE**  
**3PDT**



actuator shown in position

Not available with D9 & Y bushings.

PC MOUNTING



OPTION CODE	DIM 'A'
<b>V9</b>	1.150 (29,21)



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





# ET Series Sealed Subminiature Toggle Switches

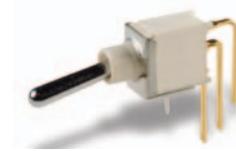
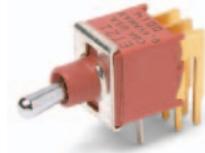
## Features/Benefits

- 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-31 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.

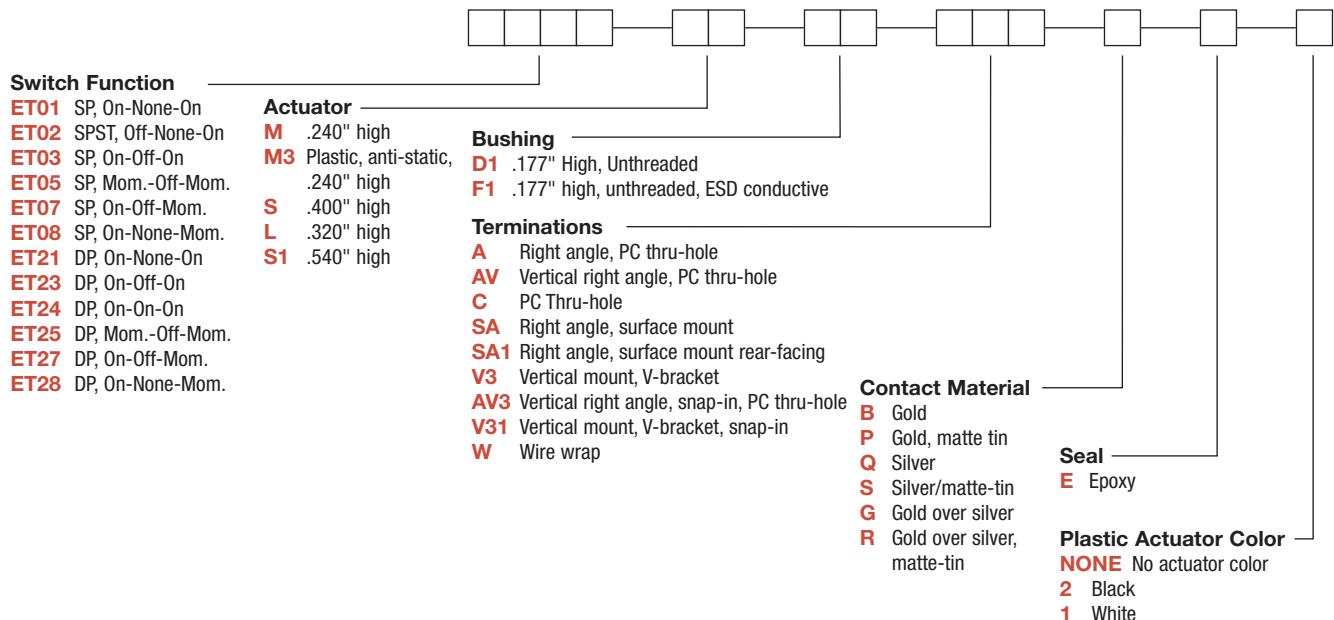
**TERMINAL SEAL:** Epoxy.

**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-26 thru F-31. 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.



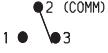
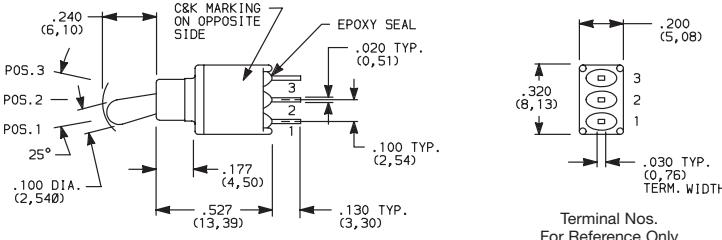
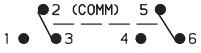
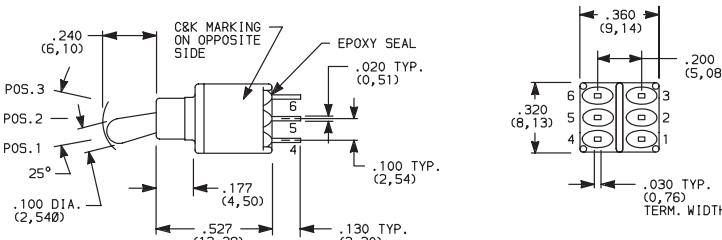
**F**  
Toggle



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

# 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 	
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	
<b>SPDT</b>  <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	
<b>DPDT</b>  <p>Part number shown: ET21MD1CBE</p>								

MOM. = Momentary

\*\* Wiring for 3-way switch, see Section N.

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



F

Toggle

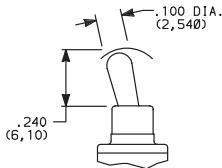


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# ET Series Sealed Subminiature Toggle Switches

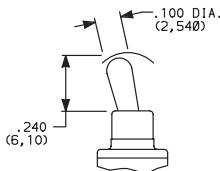
## ACTUATOR

**M** .240" HIGH



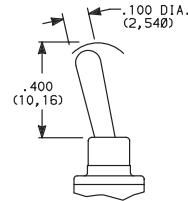
Standard with A, AV, V3 & V31 terminations.

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



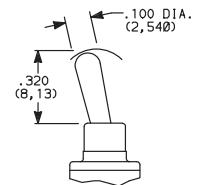
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not available with F1 conductive bushing option. Not UL approved.

**S** .400" HIGH

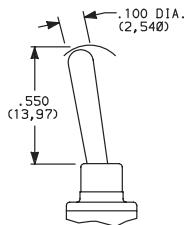


Standard with C or W terminations.

**L** .320" HIGH



**S1** .540" HIGH



OPTION CODE	PLASTIC ACTUATOR COLOR
(NONE)	BLACK (M3 & S3 only)
1	WHITE (M3 & S3 only)

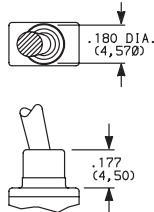
**NOTE:** All actuators have chrome finish (except M3 & S3).

## BUSHING

**D1** .177" HIGH, UNTHREADED

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

F1 bushing is not UL/CSA approved



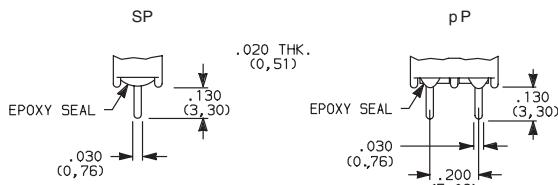
**NOTE:** ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

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

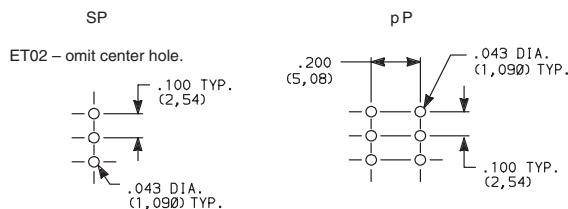
Internal actuator o-ring seal standard.

## TERMINATIONS

**C** PC THRU-HOLE



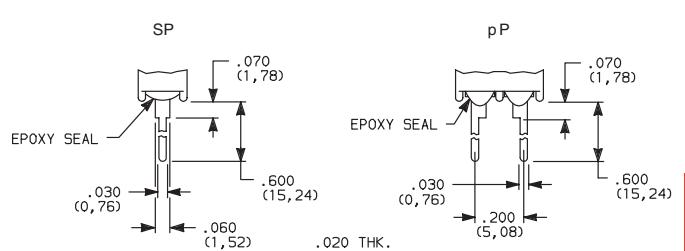
PC MOUNTING



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

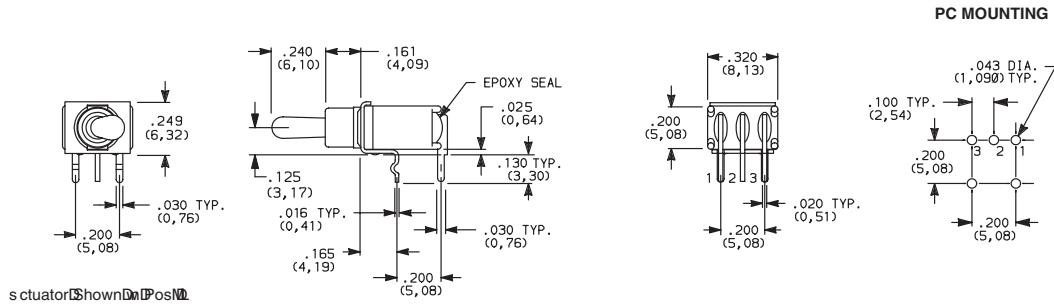


# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

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

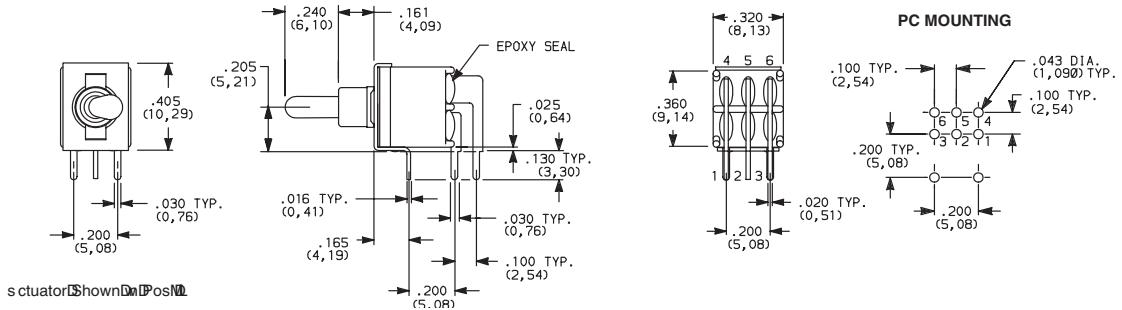
**ET01MD1ABE**  
Horizontal Actuation  
**SPDT**



Not available with ET02 model.

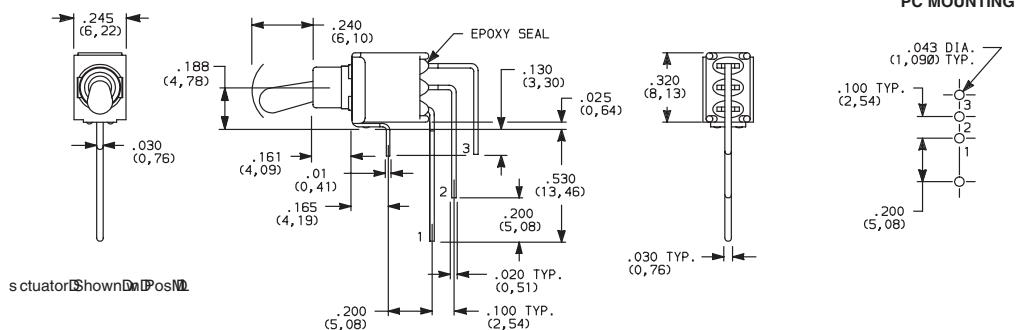
**A** RIGHT ANGLE, PC THRU-HOLE

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



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

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

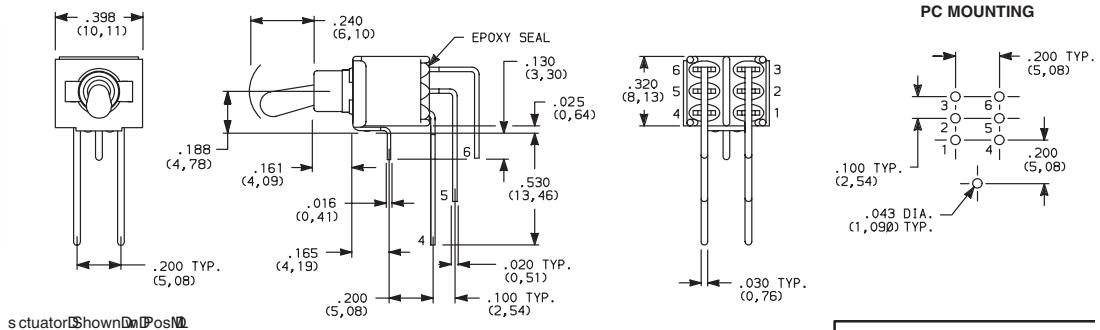


ET02 - omit terminal 2.

**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

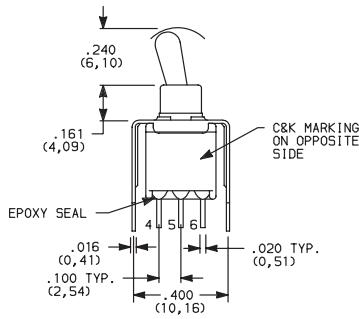
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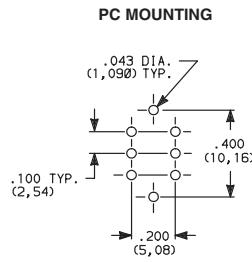
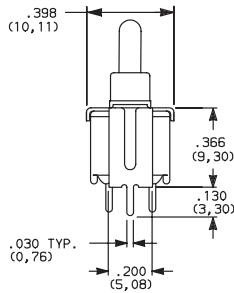
# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

### V3 VERTICAL MOUNT, V-BRACKET



actuator shown in position



ET21MD1V3BE  
DPDT

## CONTACT MATERIAL

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

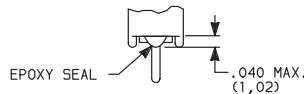
<sup>6</sup> TERMINALS: Copper alloy, with matte tin over nickel plate.

**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

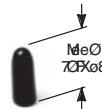


## AVAILABLE HARDWARE

### Cap

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

Material: Vinyl  
Finish: Matte



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



Third Angle  
Projection

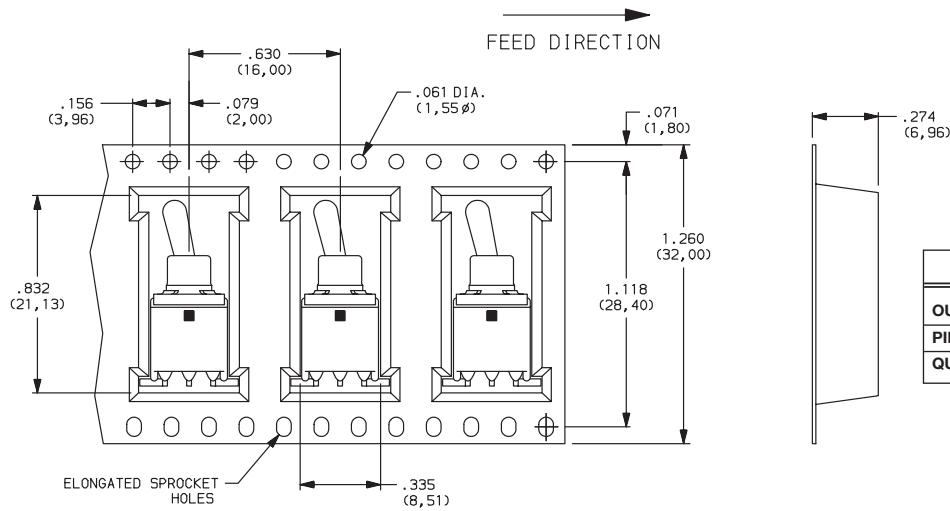
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

www.ck-components.com

# ET Series Sealed Subminiature Toggle Switches

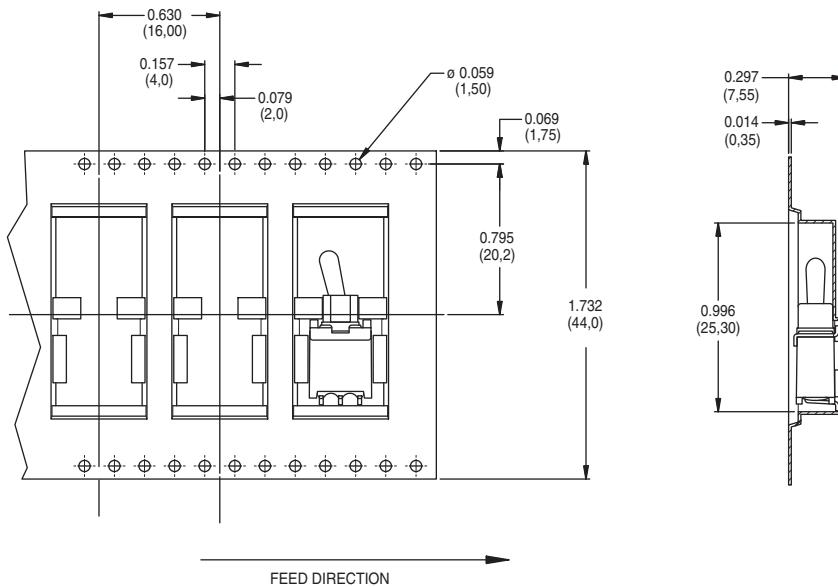
## TAPE & REEL

For part number ET01M3D1SAKE



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



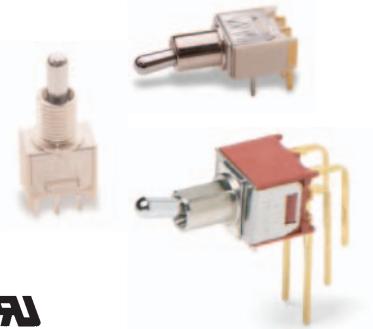
# T Series Subminiature Toggle Switches

## 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



Models Available

## 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-33 thru F-37. 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** .620" 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

### Contact Material

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

### Seal

- E** Epoxy



F

Toggle



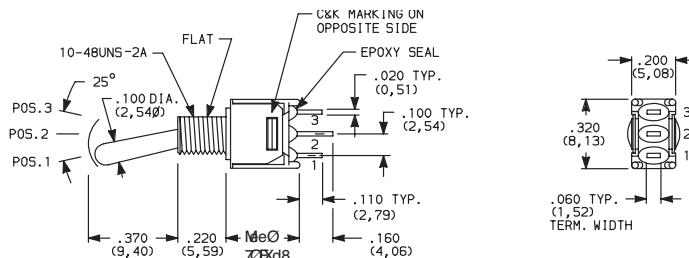
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# 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	T101	ON	NONE	ON	2-3	N/A	2-1	
	T103	ON	OFF	ON	2-3	OPEN	2-1	
	T105	MOM.	OFF	MOM.				
	T107	ON	OFF	MOM.				
	T108	ON	NONE	MOM.	2-3	NA	2-1	
T102	OFF	NONE	ON	OPEN	N/A	3-1		

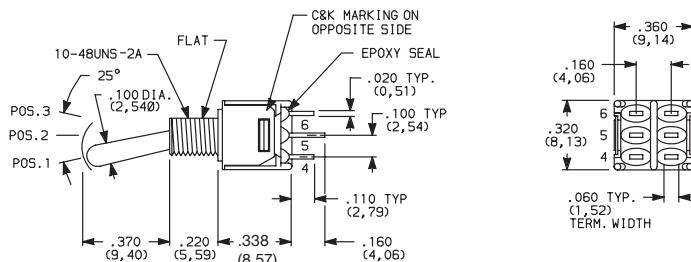
### SPDT



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	T201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	T203	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	T205	MOM.	OFF	MOM.				
	T208	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	T211*	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	

### DPDT



Part number shown: T201SHZQE

Terminal Nos.  
For Reference Only

MOM. = Momentary

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



Third Angle  
Projection

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

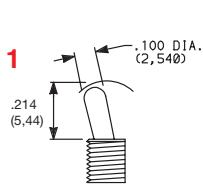


Toggle

# T Series Subminiature Toggle Switches

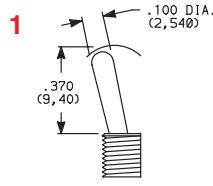
## ACTUATOR

**M** .210" HIGH



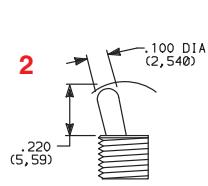
Standard with A, AV or V3 terminations.

**S** .370" HIGH

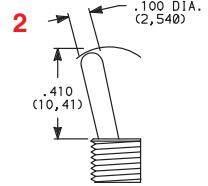


Standard with Z, C or W terminations.

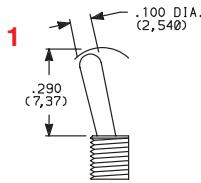
**M1** .220" HIGH  
(with "T" bushing)



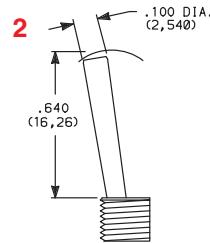
**S1** .410" HIGH  
(with "T" bushing)



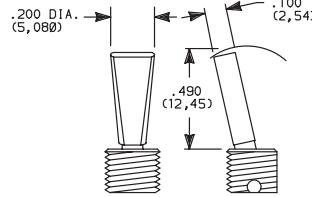
**L** .290" HIGH



**L1** .620" HIGH



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



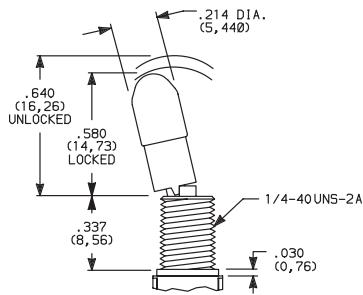
Available with T & T9 bushings only.  
Dress nut part number 709901201  
supplied standard with threaded bushing.

1 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.

2 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



Not available with CF bushing option.

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

### Locking Positions



-01 & -02 Models  
2 Position lock



-03 & -11 Models  
3 Position lock



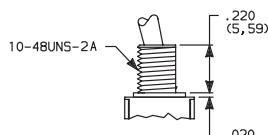
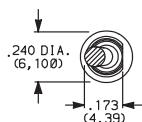
-08 Models  
1 Position lock

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.

## BUSHING

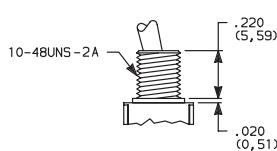
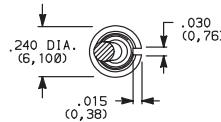
**H** .220" HIGH THREADED, FLAT



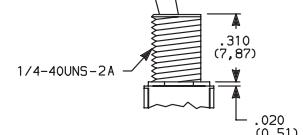
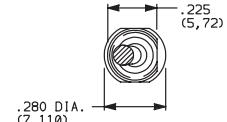
H standard with C, W & Z terminations.

H9 standard with A, AV & V3 terminations.

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



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



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

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



Third Angle  
Projection

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

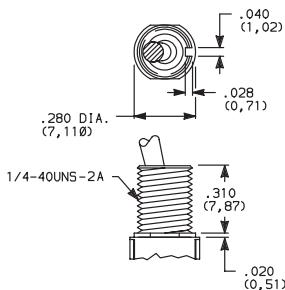


Toggle  
F

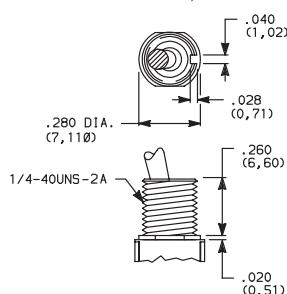
# T Series Subminiature Toggle Switches

## BUSHING

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

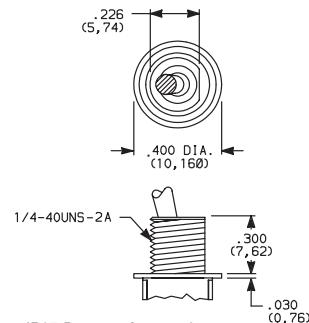


**TD** .260" HIGH THREADED, KEYWAY



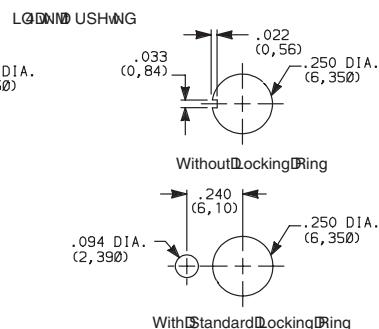
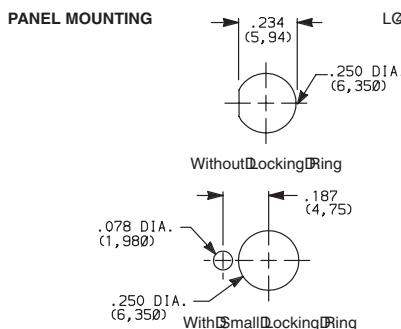
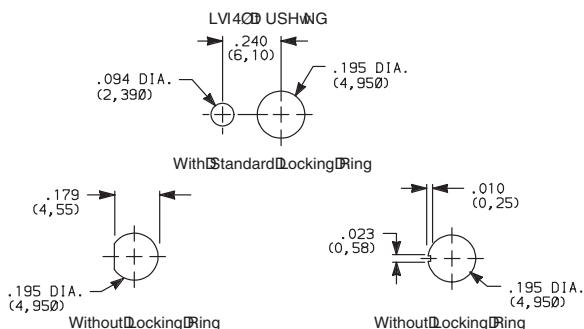
**D9** .260" HIGH UNTHREADED, KEYWAY

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



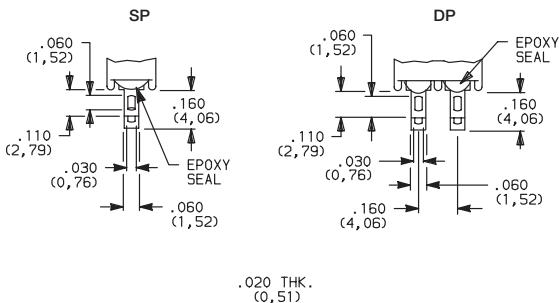
IP67 Degree of protection.  
Internal o-ring actuator seal and external bushing seal washer standard.

Not available with K locking lever option.



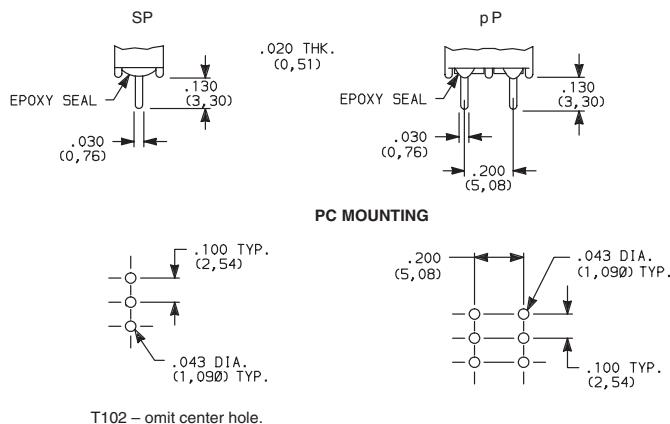
## TERMINATIONS

**Z** SOLDER LUG

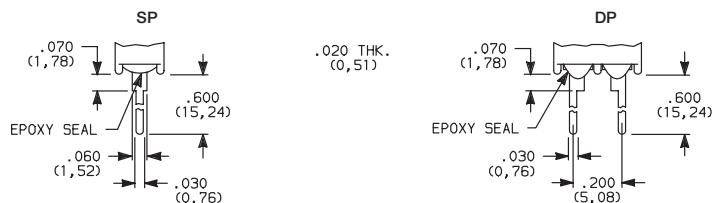


Not available with P or R contact materials.

**C** PC THRU-HOLE



**W** WIRE WRAP



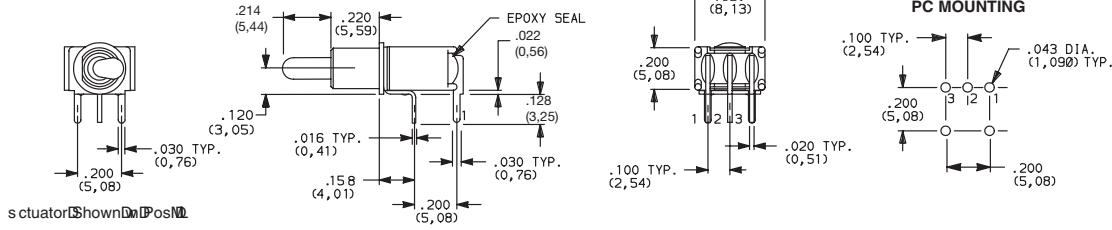
Third Angle Projection  
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# T Series Subminiature Toggle Switches

## TERMINATIONS

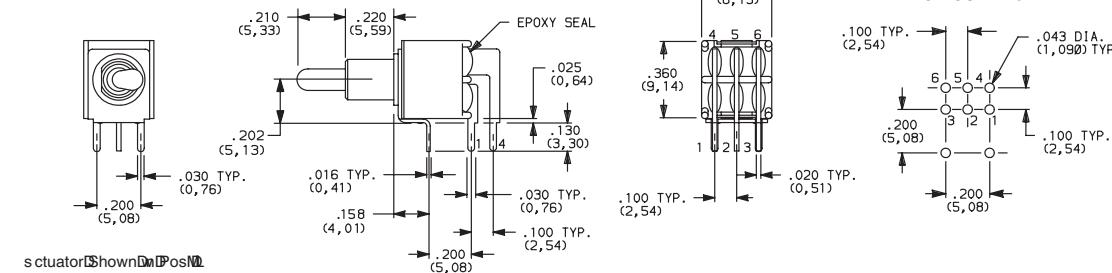
### A RIGHT ANGLE, PC THRU-HOLE



**T101MH9ABE**  
Horizontal Actuation  
**SPDT**

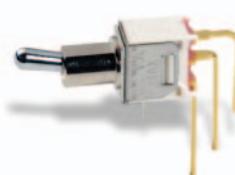
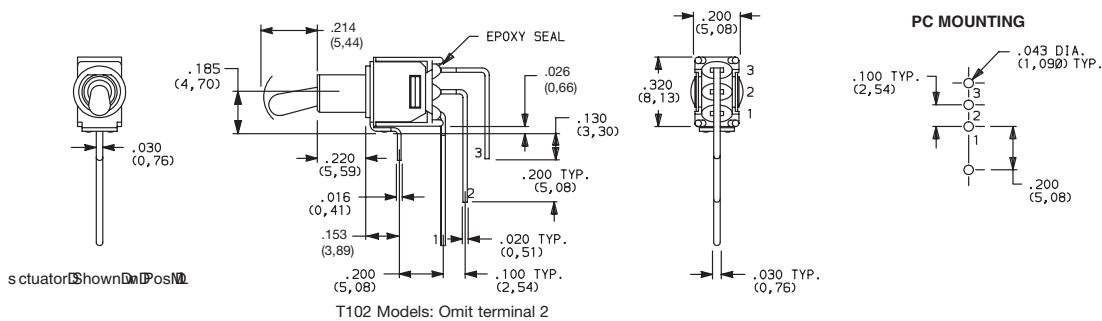
Not available with T102 model.

### A RIGHT ANGLE, PC THRU-HOLE



**T201MH9ABE**  
Horizontal Actuation  
**DPDT**

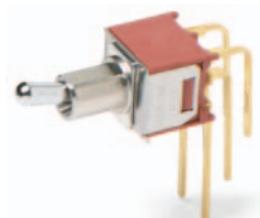
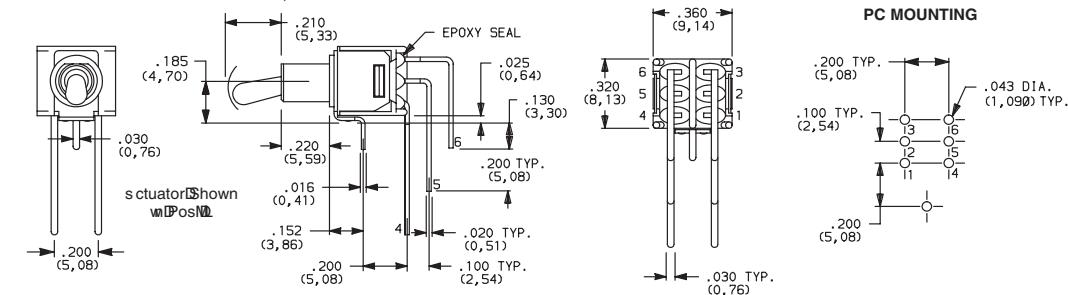
### AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



**T101MH9AVBE**  
Vertical Actuation  
**SPDT**

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

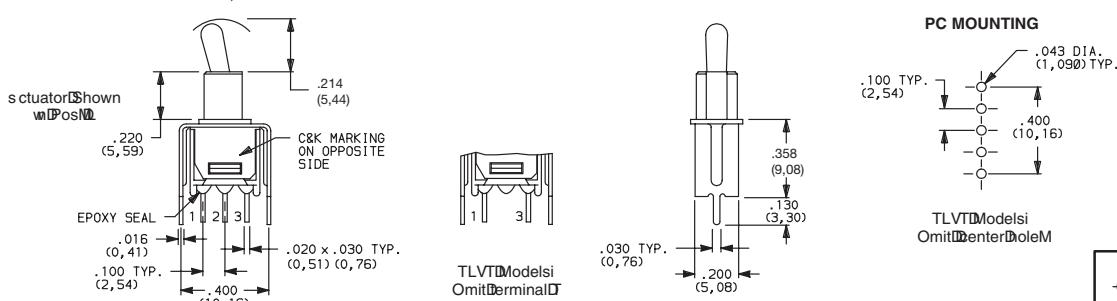
### AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



**T201MH9AVBE**  
Vertical Actuation  
**DPDT**

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

### V3 VERTICAL MOUNT, V-BRACKET



**T101MH9V3BE**  
**SPDT**



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

Toggle



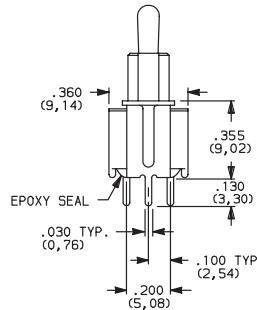
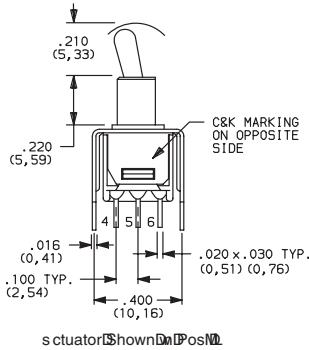
# T Series Subminiature Toggle Switches

## TERMINATIONS

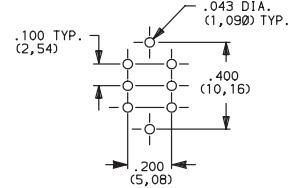
**V3** VERTICAL MOUNT, V-BRACKET



T201MH9V3BE  
DPDT



PC MOUNTING



## 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		

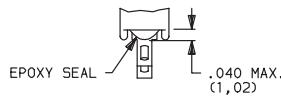
\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- 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

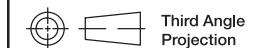
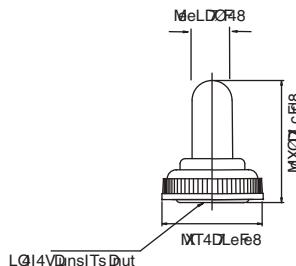


## AVAILABLE HARDWARE

**759D02000** SEALING BOOT



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



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



**F**

Toggle

# 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-42 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.

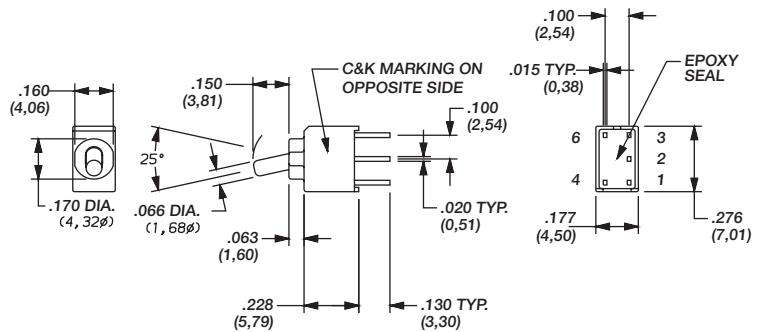
## How To Order

Complete part numbers for GT Series Sealed Ultraminiature Toggle Switches are shown on pages F-38 thru F-42.

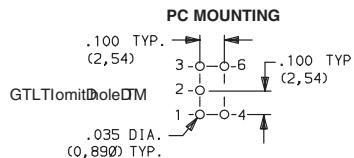


GT11MCBE  
SPDT

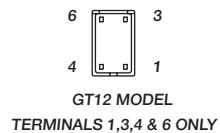
PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
<b>GT11MCBE</b>	ON	NONE	ON
<b>GT13MCBE</b>	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
<b>GT12MCBE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



ACTUATOR SHOWN IN POS. 1



TERMINAL NOS. FOR  
REFERENCE ONLY



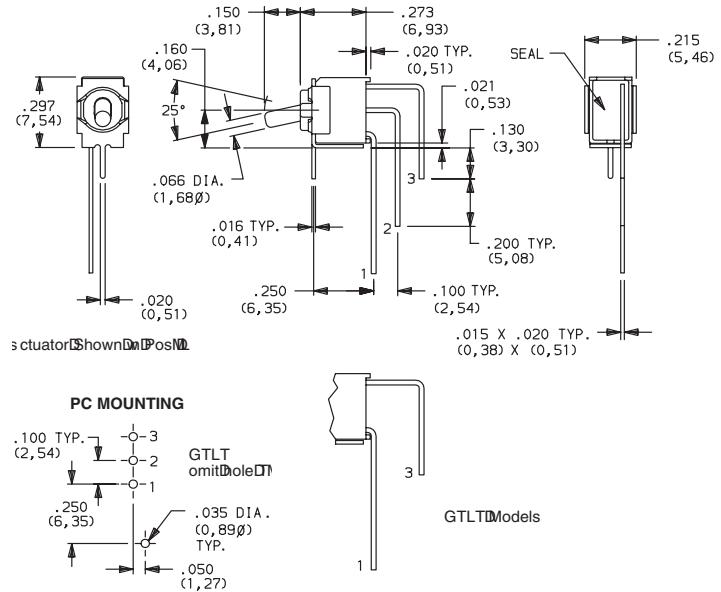


# GT Series Sealed Ultraminiature Toggle Switches



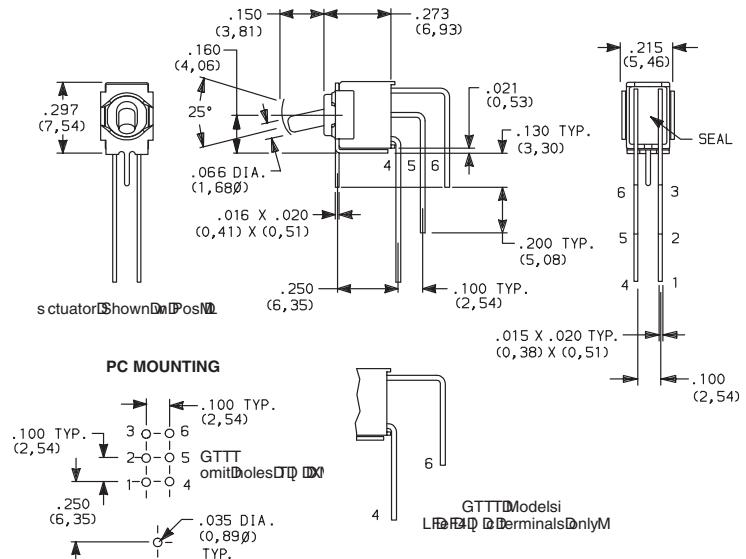
GT11MAVBE  
Vertical  
Actuation  
SPDT

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT11MAVBE</b> <b>GT13MAVBE</b>	ON	NONE	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			



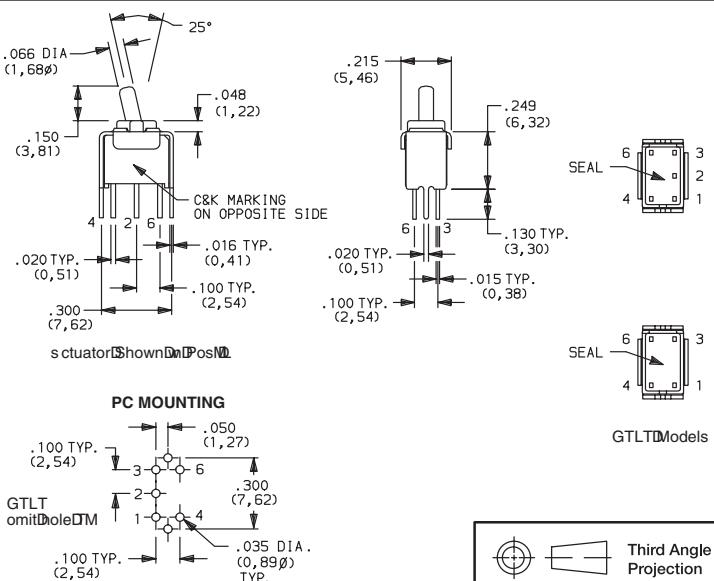
GT21MAVBE  
Vertical  
Actuation  
DPDT

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT21MAVBE</b> <b>GT23MAVBE</b>	ON	NONE	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			



GT11MV3BE  
SPDT

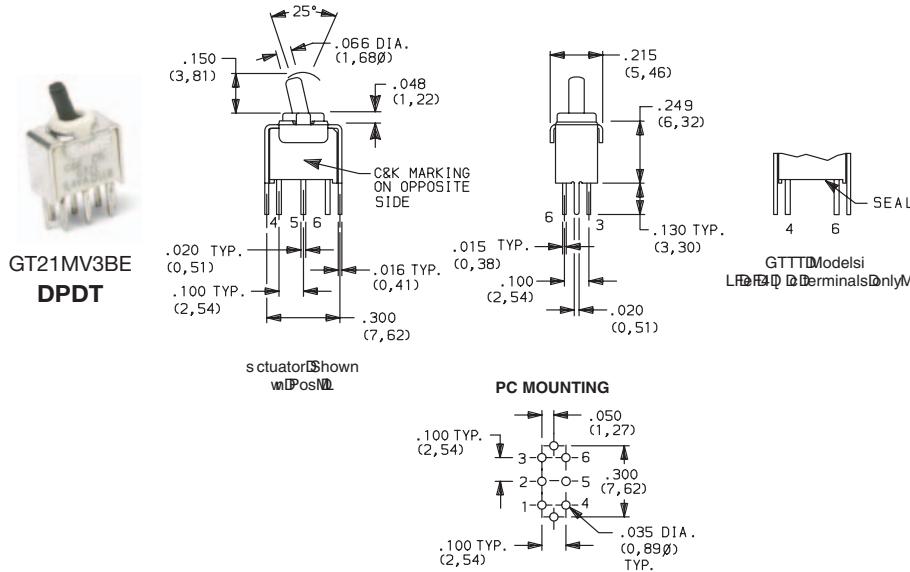
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT11MV3BE</b> <b>GT13MV3BE</b>	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
<b>GT12MV3BE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



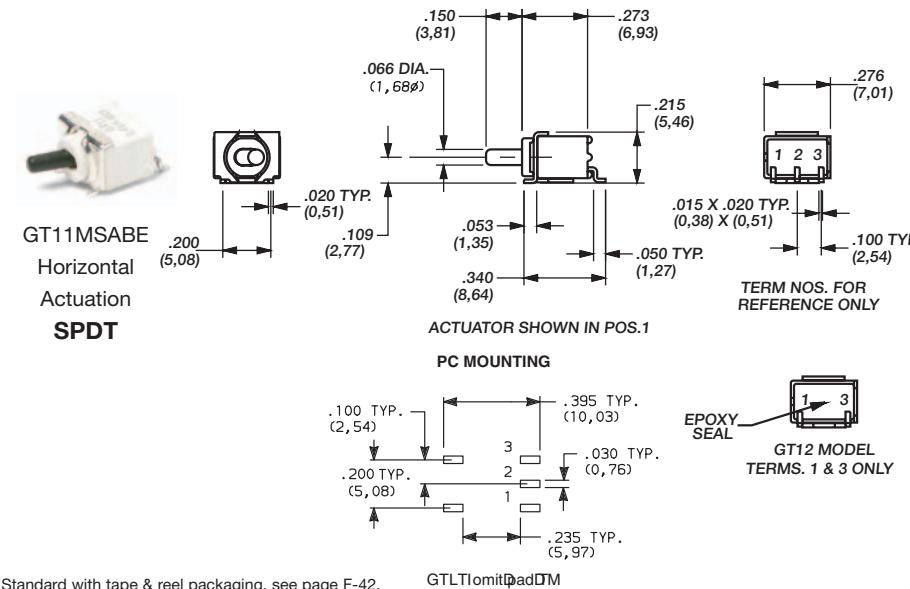
Toggle



# GT Series Sealed Ultraminiature Toggle Switches

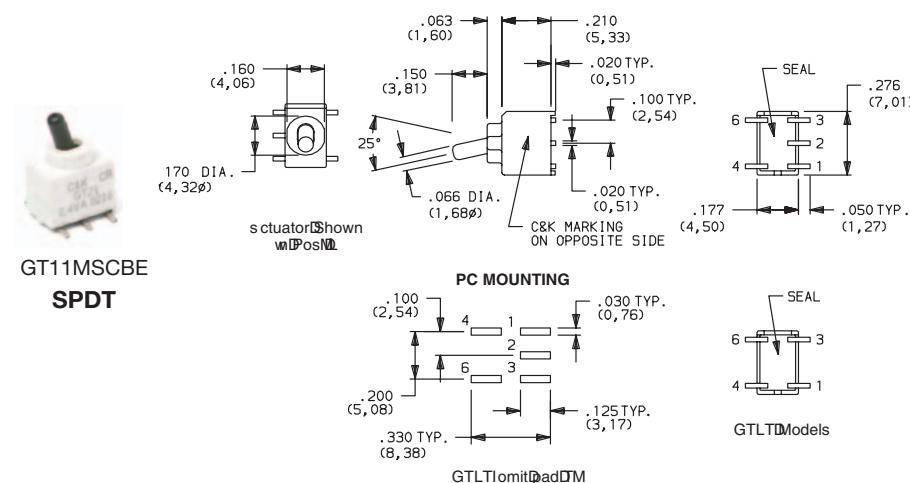


PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT21MV3BE</b> <b>GT23MV3BE</b>	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MV3BE</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



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

Standard with tape & reel packaging, see page F-42.



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT11MSCBETR</b> <b>GT13MSCBETR</b>	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
<b>GT12MSCBETR</b>	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-42.

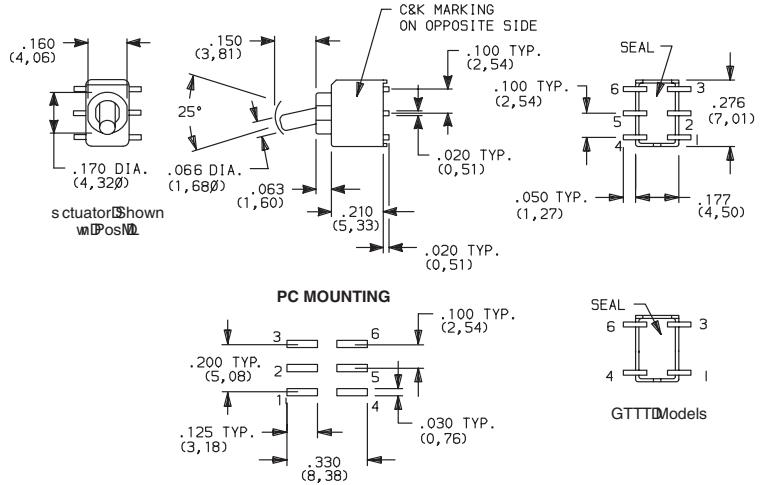


# GT Series Sealed Ultraminiature Toggle Switches



GT21MSCBE  
DPDT

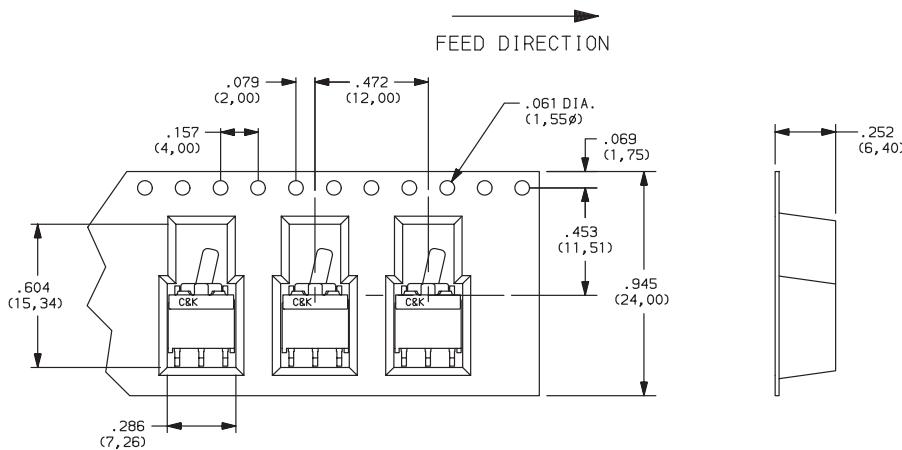
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>GT21MSCBETR</b>	ON	NONE	ON
<b>GT23MSCBETR</b>	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
<b>GT22MSCBETR</b>	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



Standard with tape & reel packaging

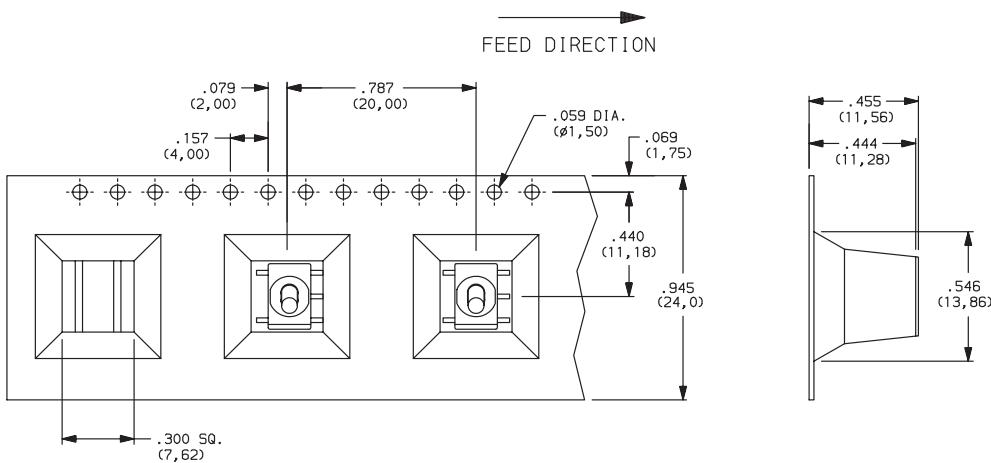
## TAPE & REEL

For part numbers GT11MSABE, GT12MSABE, GT13MSABE



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

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



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	200

Toggle F



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

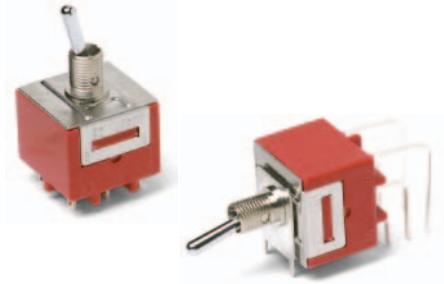
# 9000 Series Power Toggle Switches

## 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



Models Available

## Specifications

CONTACT RATING: 9201 Model: 6 AMPS @ 120 V AC or 28 V DC; 3 AMPS @ 250 V AC. 9221 Model: 10 AMPS @ 125 V AC or 28 V DC; 5 AMPS @ 250 V AC.  
 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).

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

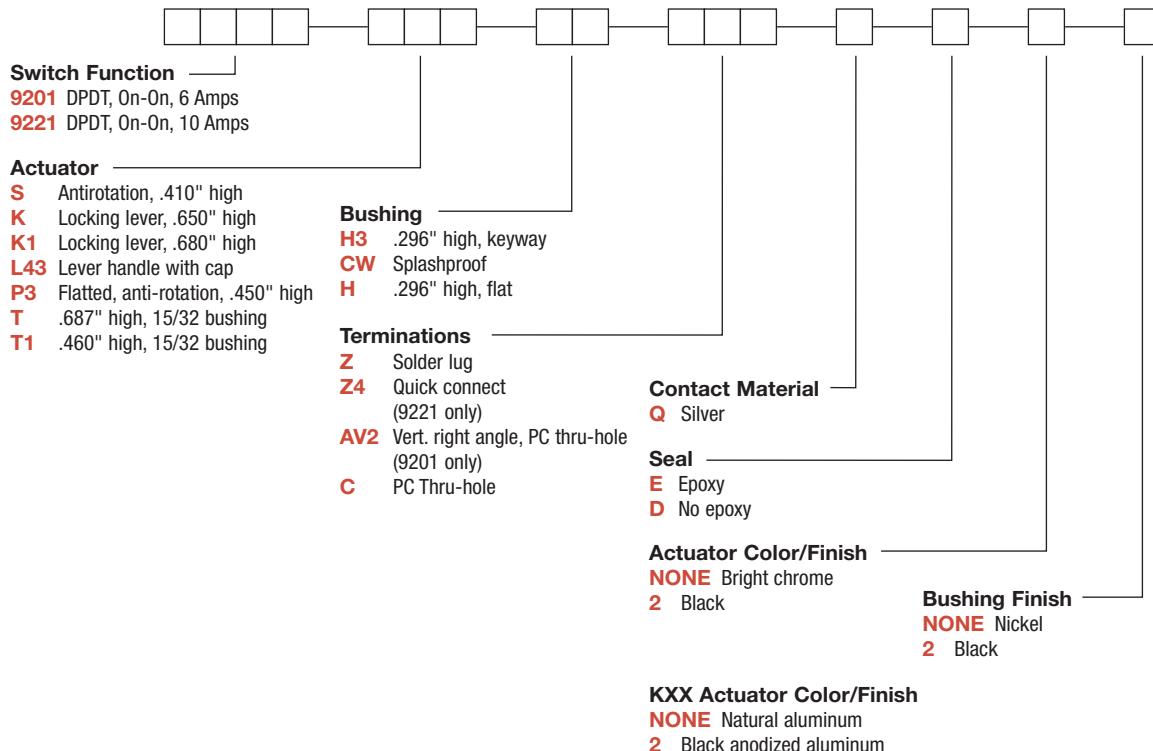
**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## 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.

## 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-43 thru F-47. For additional options not shown in catalog, consult Customer Service Center.



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



# 9000 Series Power Toggle Switches

## 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

\* See CONTACT MATERIAL, page F-47, for complete ratings.

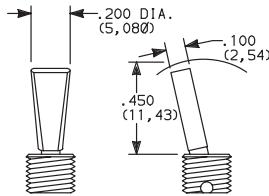
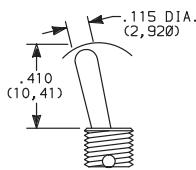
All 9000 Series models meet international dimensional and electrical requirements.

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
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK

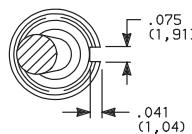
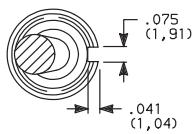
**NOTE:** Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

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
NONE	BRIGHT CHROME—With Nickel Plated Bushing
2	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

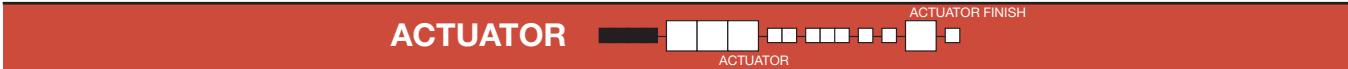


**F**

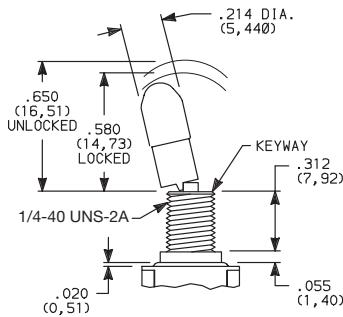
**Toggle**



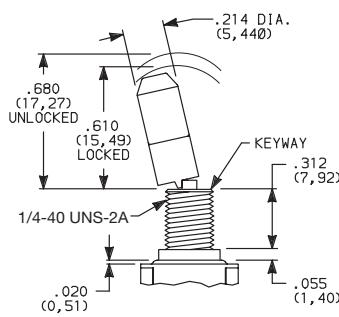
# 9000 Series Power Toggle Switches



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



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



### Locking Positions

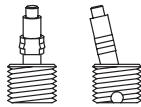


T Position Lock

**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.

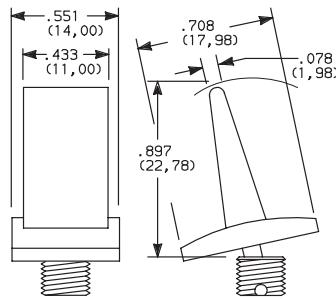
OPTION CODE	ACTUATOR CAP FINISH
<b>NONE</b>	NATURAL ALUMINUM—With Nickel Plated Bushing
<b>2</b>	BLACK ANODIZED ALUMINUM

**L40** LEVER HANDLE WITHOUT CAP



No color choice required.

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



Finish: Matte

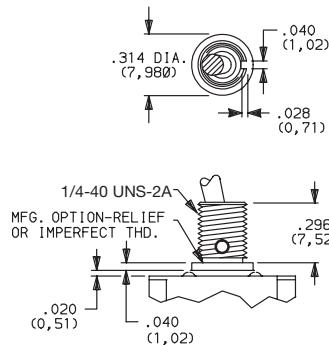
OPTION CODE	ACTUATOR CAP COLOR
<b>2</b>	BLACK
<b>NONE</b>	No Actuator Color (L40 option)

Other colors available, consult Customer Service Center.

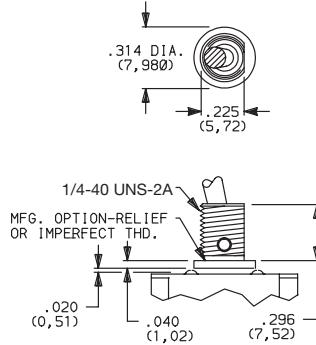
**NOTE:** Lever handle actuator L43 supplied, but not installed. For interchangeability, order L40 actuator option and order lever handles separately, see page F-47. Antirotation is standard on all actuators, provides 'anti-push-in' feature.



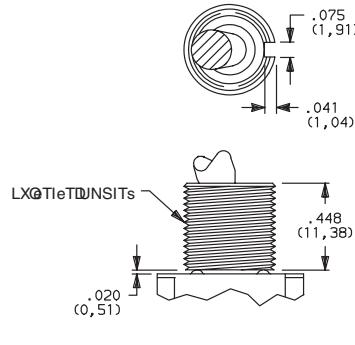
**H3** .296" HIGH, THREADED, KEYWAY



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



**CW** SPLASHPROOF, 15/32 BUSHING



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.

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



**F**

Toggle

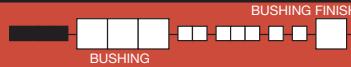


Third Angle Projection  
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# 9000 Series Power Toggle Switches

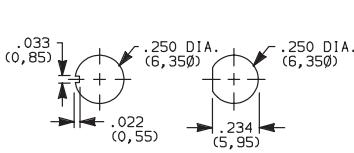
## BUSHING



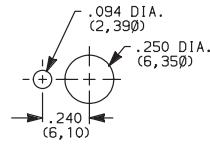
### PANEL MOUNTING

1/4-40 UNS-2A

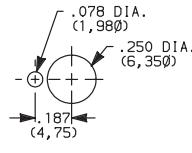
15/32-32 UNS-2A



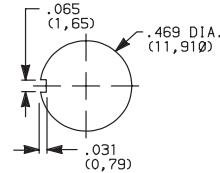
Without Docking Ring M



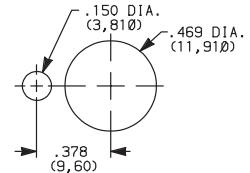
With Standard Docking Ring M



With Small Docking Ring M



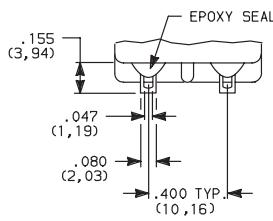
Without Docking Ring M



With Standard Docking Ring M

## TERMINATIONS

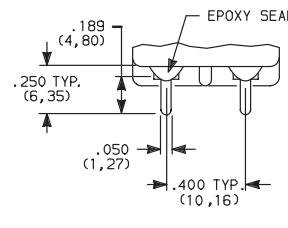
### Z SOLDER LUG



9201 Only

.030 THK. (0,76)

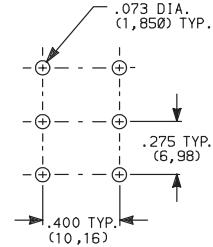
### C PC THRU-HOLE



9201 Only

.030 THK. (0,76)

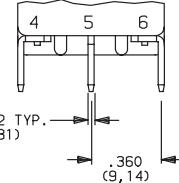
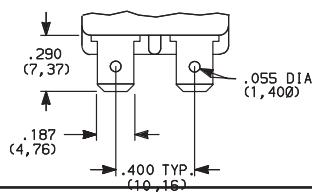
### PC MOUNTING



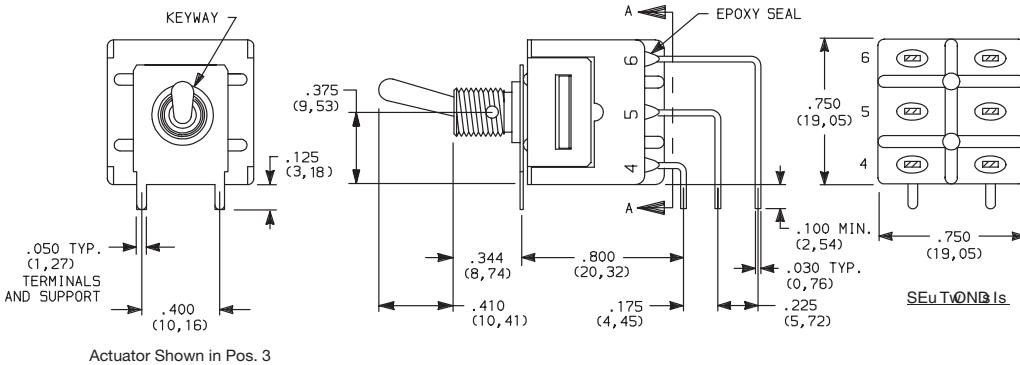
### Z4 .187" QUICK CONNECT

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

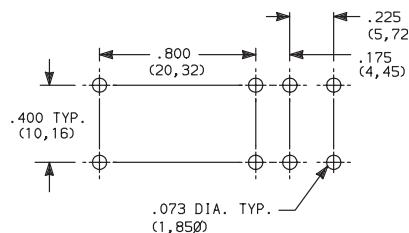


Actuator Shown in Pos. 3



9201SH3AV2QE  
Vertical Actuation  
DPDT

### PC MOUNTING



Terminal Nos.  
For Reference Only



Third Angle  
Projection

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

www.ck-components.com

9201 Only

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



# 9000 Series Power Toggle Switches

## CONTACT MATERIAL

OPTION CODE	MODEL	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
Q	9201	SILVER <sup>1,2</sup>	SILVER OR TIN <sup>2,5</sup>	POWER	6 AMPS @120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
	9221	SILVER CADMIUM OXIDE <sup>3,4,6</sup>	TIN <sup>5</sup>		10 AMPS @125 V AC OR 28 V DC; 5 AMPS @ 250 V AC.

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

<sup>1</sup> END CONTACTS: Coin silver, silver plated.

<sup>2</sup> CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

<sup>3</sup> END CONTACTS: Silver cadmium oxide.

<sup>4</sup> CENTER CONTACTS: Copper alloy, silver plated.

<sup>5</sup> Z4 TERMINALS ONLY: Copper alloy, matte-tin plated.

<sup>6</sup> Cadmium in electrical switch contacts is exempt from RoHS.

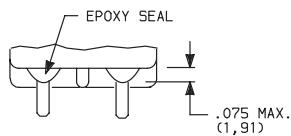
**NOTE:** Any models supplied with Q contact material are RoHS compliant.

All 9000 Series models meet international dimensional and electrical requirements. 

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

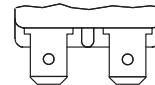
## SEAL

**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

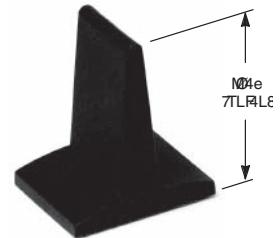
Cap  
Compatible with S actuator



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

Material: Vinyl  
Finish: Matte

L43 Actuator



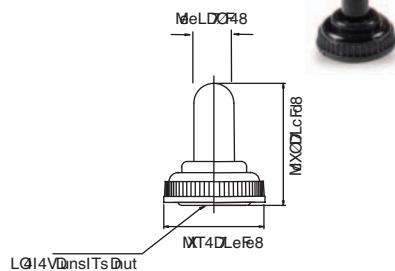
**PART NO.**  
**481202000** BLACK  
**481203000** RED

Material: Nylon  
Finish: Matte

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

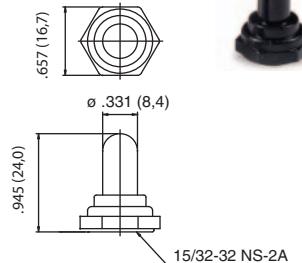
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



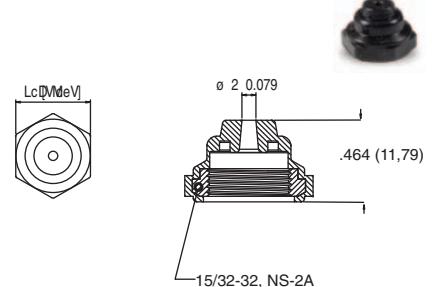
**NOTE:** For use with S actuator style when combined with H3 and H bushings

703D02000 Sealing Boot



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

704D02000 Sealing Boot



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



Third Angle Projection

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

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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