







Toggles

Product Selection Guide

Toggles						
Series	7000	E	ET	T	GT	9000
Switch Type	Miniature	Miniature	Subminiature	Subminiature	Ultriminiature	Power
Poles/Throws	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	SPST, SPDT, DPST, DPDT	DPDT
Maximum Current Silver/Gold	5 Amps	7.5 Amps/ 5 Amps	3 Amps/ 2 Amps	3 Amps/ 2 Amps	0.4 VA	10 Amps
Process Sealed		•	•		•	
PCB Mount Options						
Vertical	•	•	•	•	•	•
Right Angle	•	•	•	•	•	
Vertical Right Angle	•	•	•	•	•	•
Surface Mount Options						
Vertical					•	
Right Angle			•		•	
Panel Mount Options						
Rear Mount	•	•		•		•
Termination Options						
PCB Thru-hole	•	•	•	•	•	•
Wire Wrap	•	•	•	•		
Solder Lug	•	•		•		•
Quick Connect	•	•				•
Other Available Options						
Support Brackets	•	•	•	•	•	•
Snap-in Retention	•	•	•			
ESD Protection	•	•	•	•		
Tape & Reel			•		•	
Bushing Options						
10-48				•		
1/4-40	•	•		•		•
15/32	•					•
M6P 0.75 (Metric)	•					
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7000 Series Miniature Toggle Switches

Features/Benefits

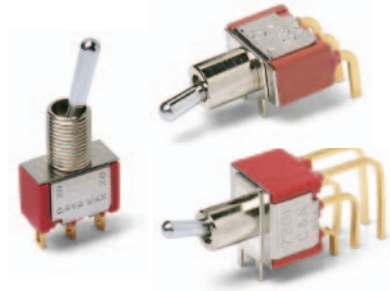
- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS complaint models available



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: 10⁹ 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.

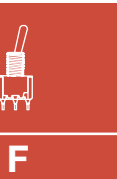
Build-A-Switch

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

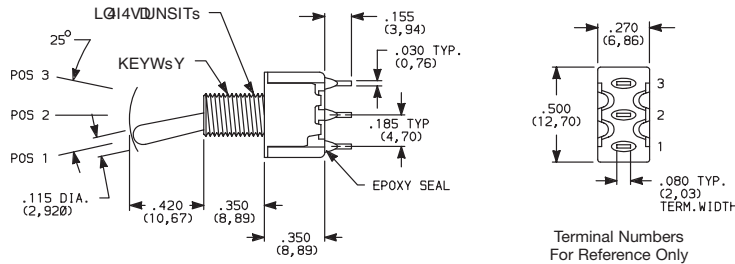
NOTE: Materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

SWITCH FUNCTION



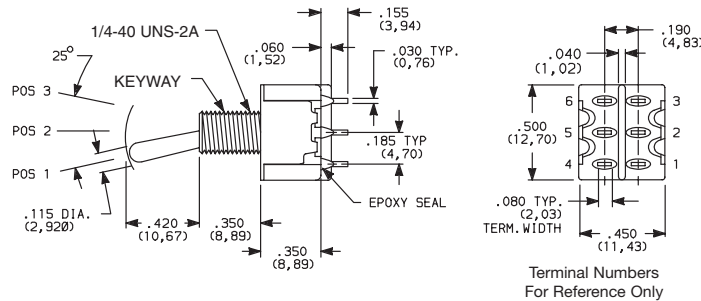
NO. POLES	MODEL NO.	UL/CSA** MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
			POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
			KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	KEYWAY	
SP	7101	U11	ON	NONE	ON	2-3	N/A	2-1	
	7103	U13	ON	OFF	ON	2-3	OPEN	2-1	
	7105	U15	MOM.	OFF	MOM.				
	7107	U17	ON	OFF	MOM.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



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



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



F

Toggle

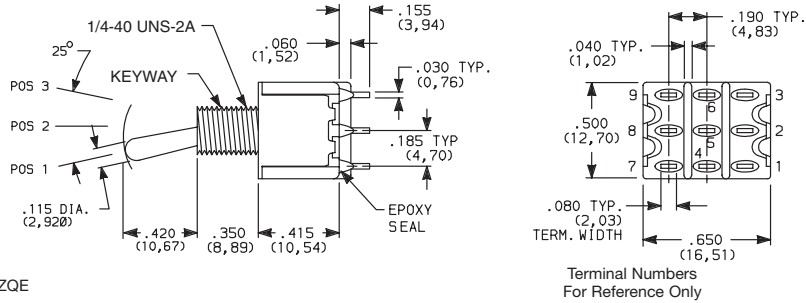


7000 Series Miniature Toggle Switches

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	7301	U31	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
	7303	U33	ON	OFF	ON	2-3,5-6,8-9			
	7305	U35	MOM.	OFF	MOM.	2-3,5-6,8-9	OPEN	2-1,5-4,8-7	
	7307	U37	ON	OFF	MOM.				
	7308	U38	ON	NONE	MOM.	2-3,5-6,8-9	N/A	2-1,5-4,8-7	

3PDT

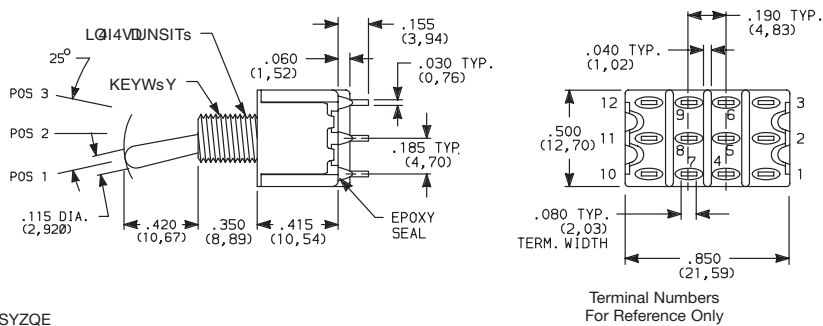


Part number shown: 7301SYZQE

Terminal Numbers
For Reference Only

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

4PDT



Part number shown: 7401SYZQE

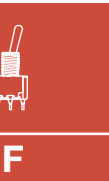
MOM. = Momentary

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

** U11-U415 model nos.



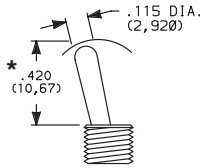
all options when ordered with G, Q, R or S contact material.



7000 Series Miniature Toggle Switches

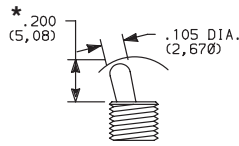
ACTUATOR

S .420" HIGH ¹
SP ANTIROTATION, .420" HIGH ^{2,3}



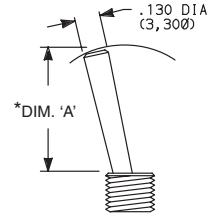
S actuator standard when ordered with C, W-W5, Z & Z3 terminations. Caps are available separately, see page F-16.

M .200" HIGH ¹
MP ANTIROTATION, .200" HIGH ^{2,3}



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

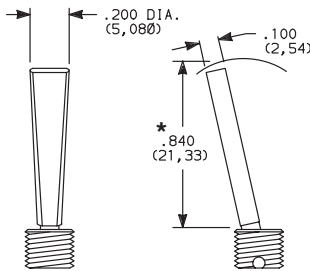
L, L1, L2 .840", .640", .550" HIGH ¹
L1P, L2P ANTIROTATION, .840", .640", .550" HIGH ^{2,3}



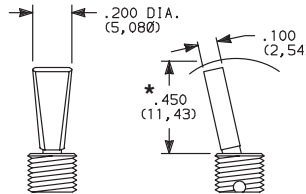
OPTION CODE	DIM 'A'
L	.840 (21,34)
L1, L1P	.640 (16,26)
L2, L2P	.550 (13,97)

Caps are available separately, see page F-16.

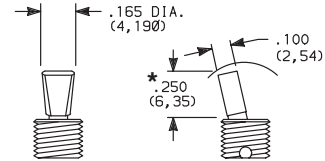
P1 FLATTED WITH ANTIROTATION, .840" HIGH ^{2,3}



P3 FLATTED WITH ANTIROTATION, .450" HIGH ^{2,3}

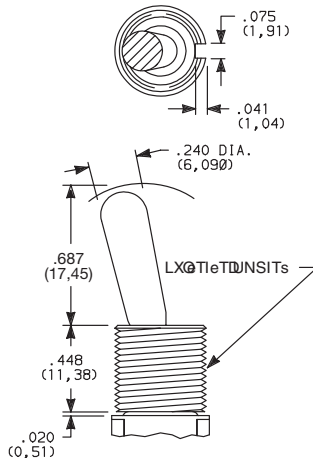


P4 FLATTED WITH ANTIROTATION, .250" HIGH ^{2,3}

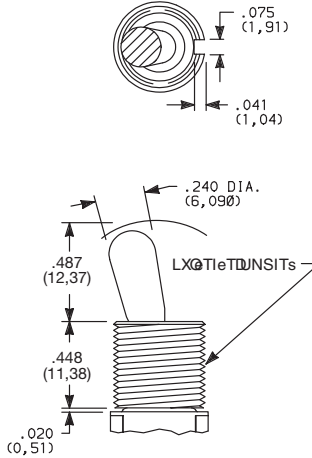


Dress nut part number 709901201 supplied standard with threaded bushing. (Part number 709903201 with metric threaded bushings.)

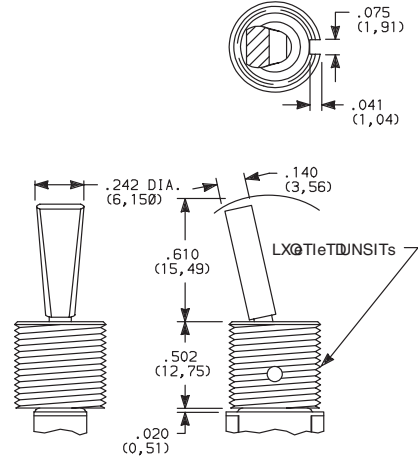
T .687 (17,45) HIGH ^{1,2}
TP ANTIROTATION, .687 (17,45) HIGH, 15/32 BUSHING ^{1,2,3}



T1 .487 (12,37) HIGH ^{1,2}
T1P ANTIROTATION, .487 (12,37) HIGH, 15/32 BUSHING ^{1,2,3}



T2P FLATTED, ANTIROTATION, .610" HIGH, 15/32 BUSHING ^{1,2,3}



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

¹ L, L1, L2, M, S & TXX actuators not available with Y1 bushing.
² L1P, L2P, MP, P1, P3, P4, SP & TXX actuators not available with D8 & H4 bushing.
³ 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.

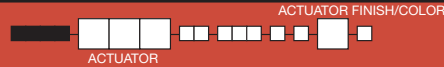


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



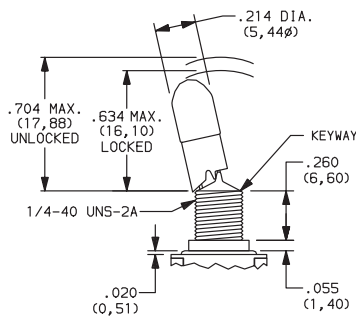
7000 Series Miniature Toggle Switches

ACTUATOR

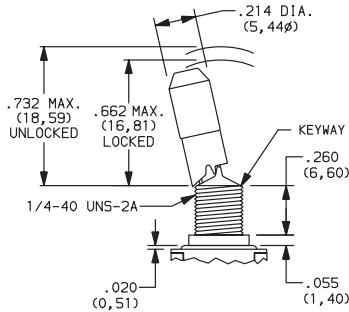


- K2** LOCKING LEVER, .704" HIGH (threaded)
K9 LOCKING LEVER, .704" HIGH (unthreaded)

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



Replaces K, K8



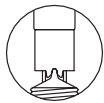
Replaces K1, K18

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



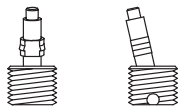
-08 Models
1 Position lock

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.

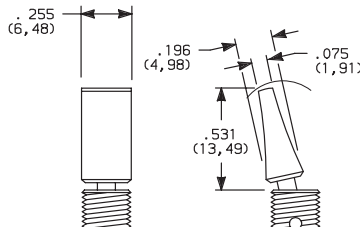
Bushing option code not required unless CW splashproof bushing ordered.

- L40** LEVER HANDLE WITHOUT CAP



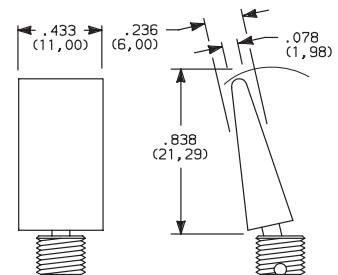
No color choice required

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

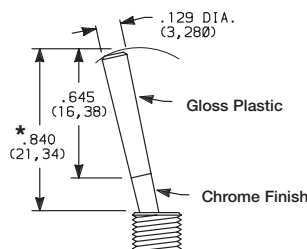


Finish: Matte (L41 & L42).

- 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



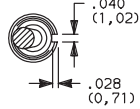
F

Toggle

7000 Series Miniature Toggle Switches

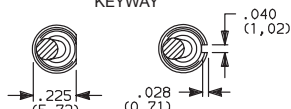
BUSHING

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

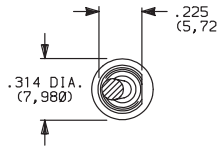


NONE NO BUSHING
No bushing choice required with KXX, TXX actuators. (exception: Specify CW if splashproof bushing desired).

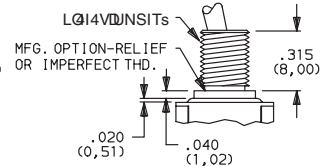
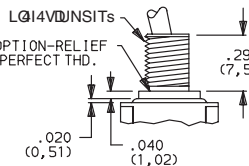
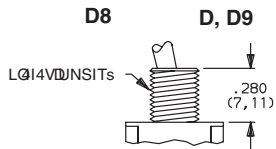
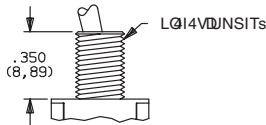
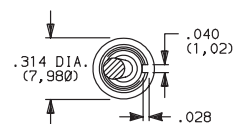
D .280" HIGH, THREADED, KEYWAY
D8 .280" HIGH, UNTHREADED, FLAT³
D9 .280" HIGH, UNTHREADED, KEYWAY



H .296" HIGH, FLAT THREADED, HIGH TORQUE^{1,2}



H3 .315" HIGH, KEYWAY THREADED, HIGH TORQUE^{1,2}

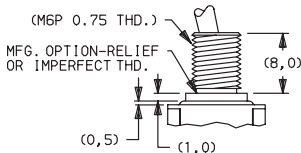
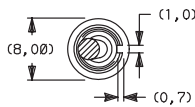


Y bushing standard with C, W-W5, Z or Z3 terminations.

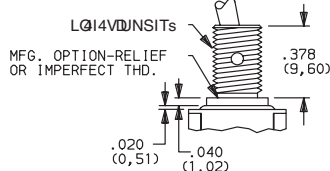
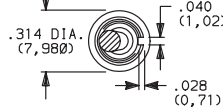
D9 bushing standard with all terminations except C, W-W5, Z or Z3. Add .070 (1,78) to all actuators lengths with D, D8 & D9 bushings.

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

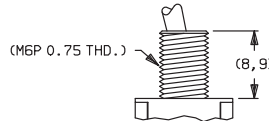
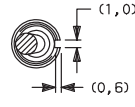
H4 8mm HIGH, KEYWAY, THREADED, METRIC HIGH TORQUE^{1,2,3}



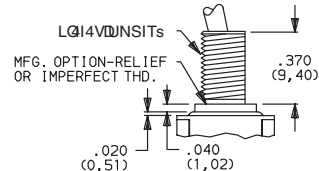
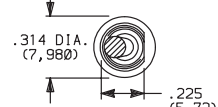
Y1 .378" HIGH, KEYWAY, THREADED, HIGH TORQUE^{1,2,4}



Y3 8.9mm HIGH, KEYWAY, THREADED, METRIC

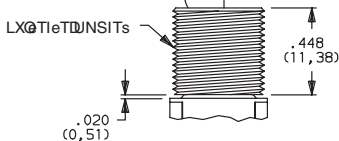
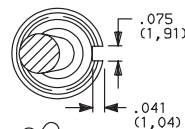


Y4 .378" HIGH, FLAT, THREADED, HIGH TORQUE^{1,2,5}

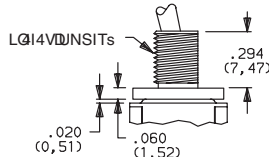
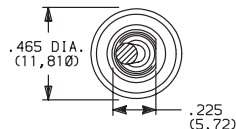


CW THREADED, SPLASHPROOF^{1,2}

For $\text{DT} \text{DL}$ Actuators M



For Actuators Other than $\text{DT} \text{DL}$



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

¹ Will withstand 12 in.-lbs. of torque with no distortion.

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

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

⁴ Y1 bushing available only with LXP, MP, PX & SP actuators.

⁵ Y4 bushing not available with L4X actuators.

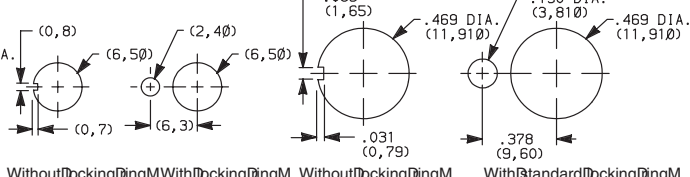
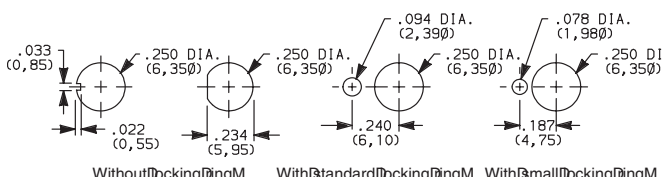
NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

PANEL MOUNTING

LQ14VNSITs

METRIC

LX14TNSITs



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

Toggle



7000 Series Miniature Toggle Switches

TERMINATIONS

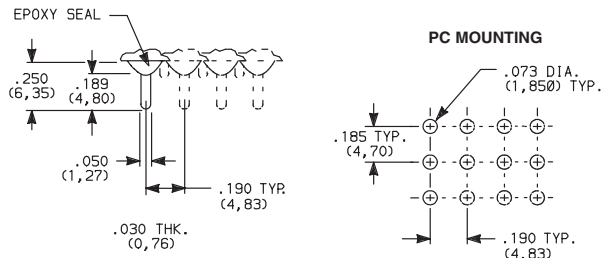
Z SOLDER LUG



SPDT thru 4PDT

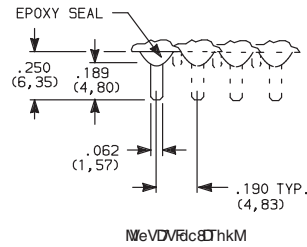
Not available with P, R or S contact materials.

C PC THRU-HOLE



SPDT thru 4PDT

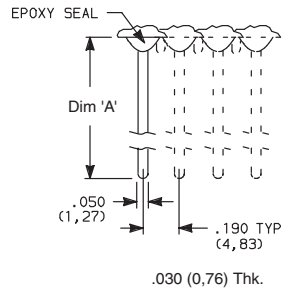
Z3 QUICK CONNECT



SPDT thru 4PDT

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

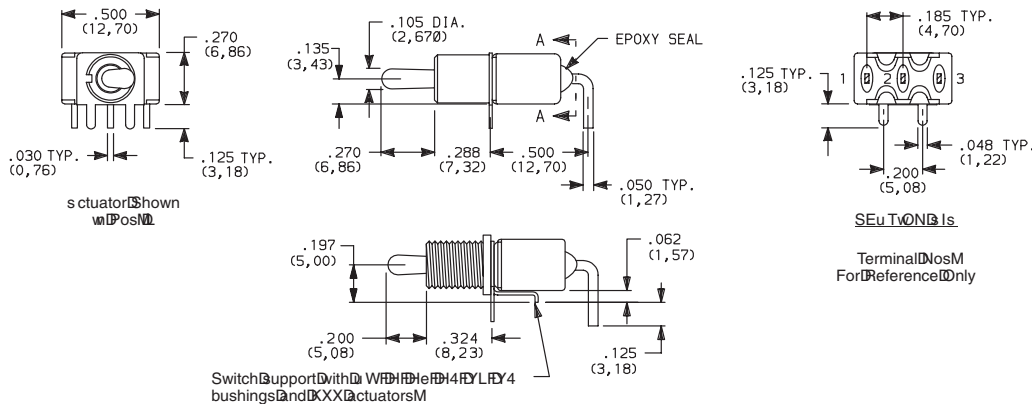
W, W1, W3, W4, W5 WIRE WRAP



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

SPDT thru 4PDT

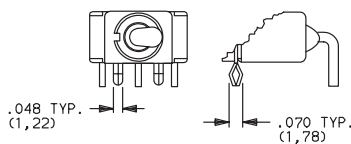
A RIGHT ANGLE, PC THRU-HOLE



7101MD9ABE
Horizontal Actuation
SPDT

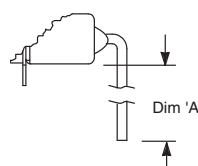
Part No. Shown: 7101MHABE

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



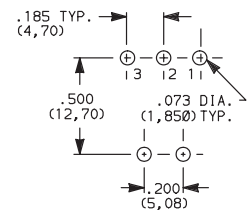
Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

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

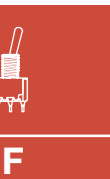


OPTION CODE	DIM 'A'
AW1	.72 (18,3)
AW4	.83 (21,1)

PC MOUNTING



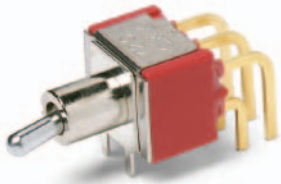
Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



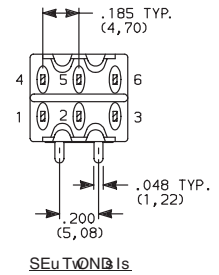
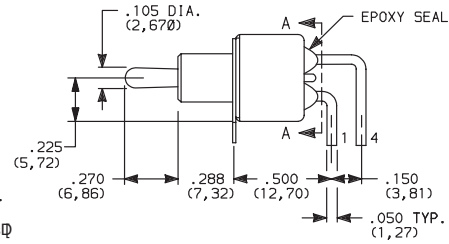
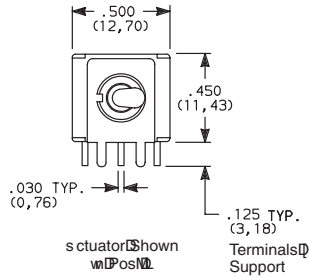
7000 Series Miniature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

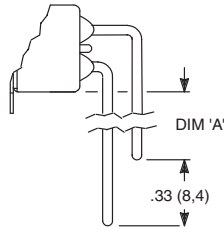
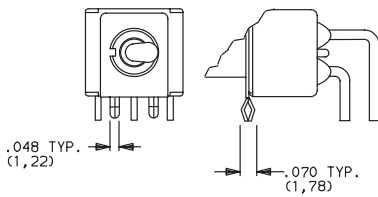


7201MD9ABE
Horizontal Actuation
DPDT



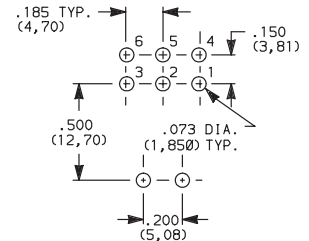
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

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



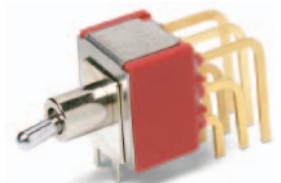
OPTION CODE	DIM 'A'
AW1	.40 (10,2)
AW4	.50 (12,7)

PC MOUNTING

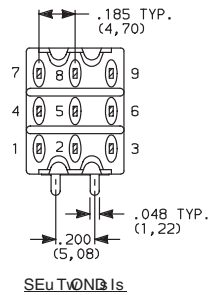
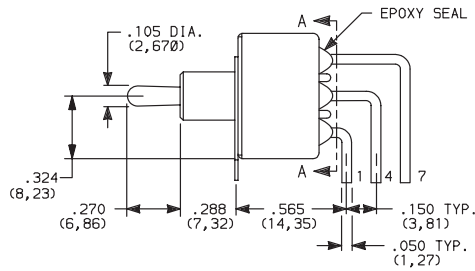
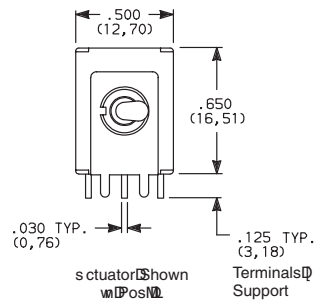


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

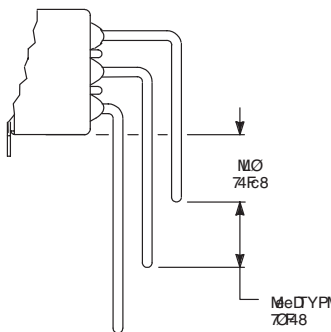
A RIGHT ANGLE, PC THRU-HOLE



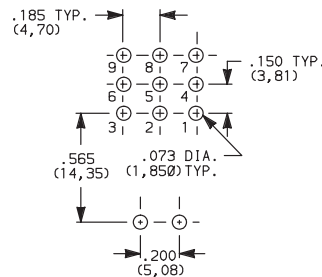
7301MD9ABE
Horizontal Actuation
3PDT



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

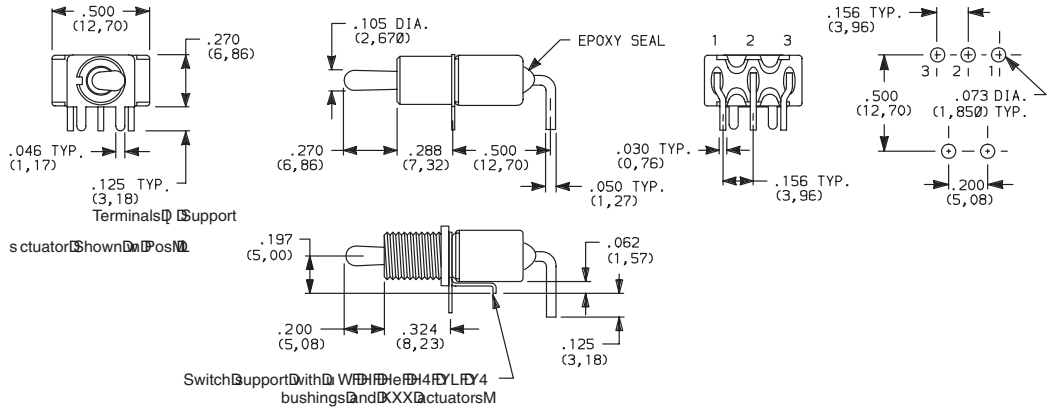


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series Miniature Toggle Switches

TERMINATIONS

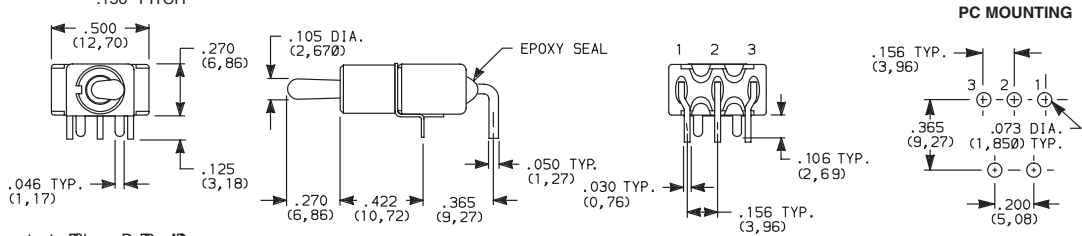
A2 RIGHT ANGLE, PC THRU-HOLE,
.156" PITCH



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

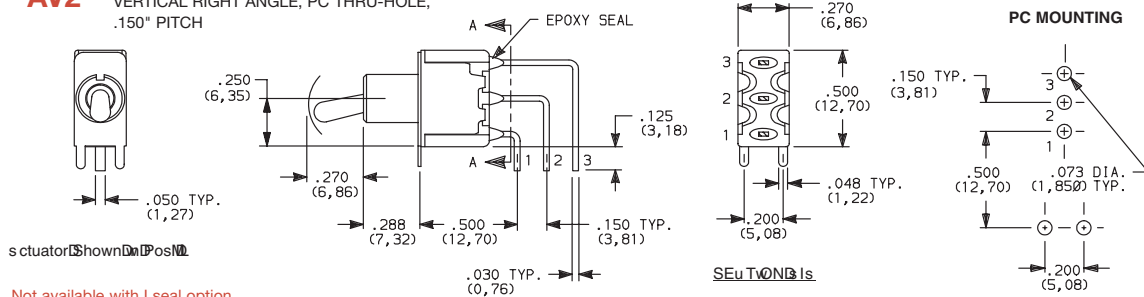


7101MD9A4BE
Horizontal Actuation
SPDT

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.

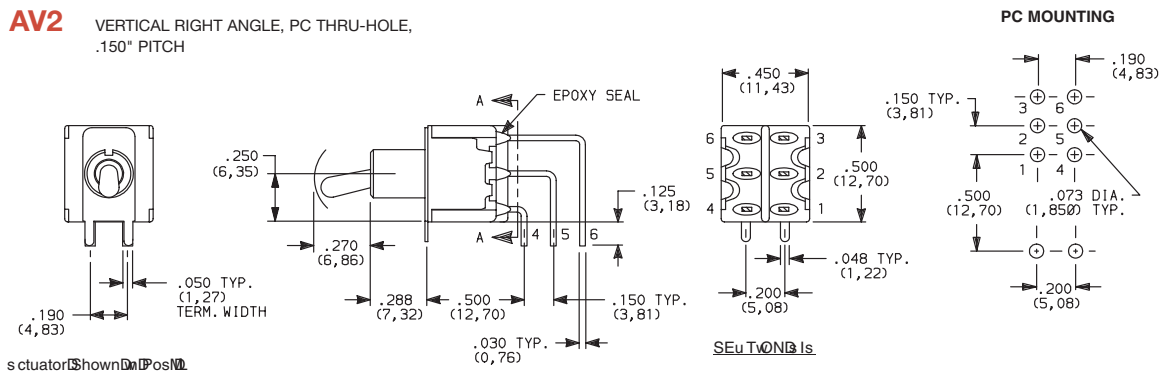
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE,
.150" PITCH



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



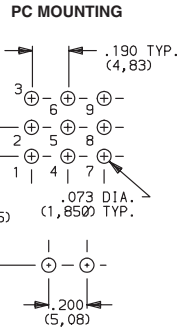
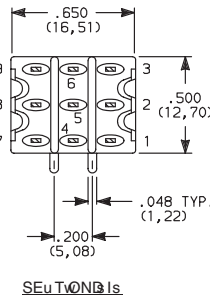
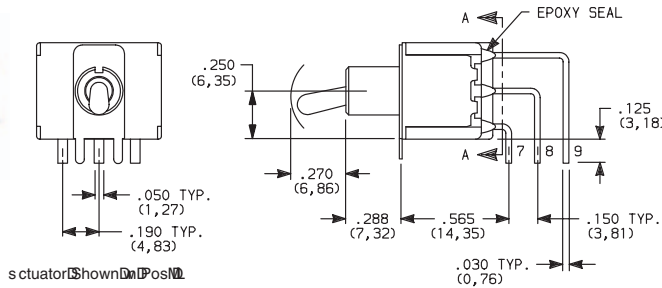
7000 Series Miniature Toggle Switches

TERMINATIONS

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



7301MD9AV2BE
Vertical Actuation
3PDT

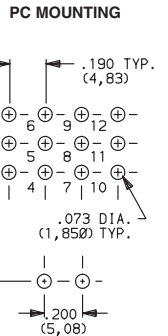
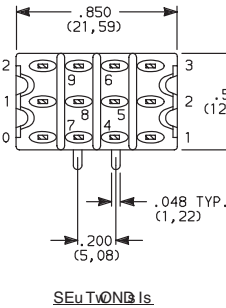
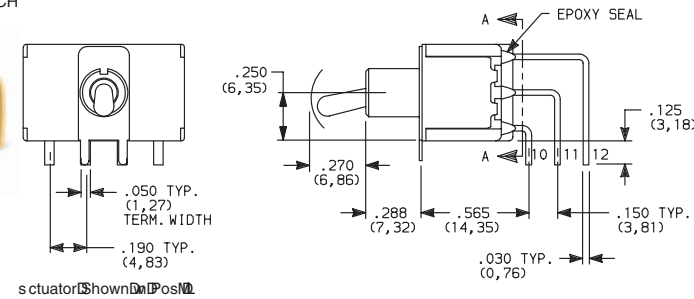


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

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



7401MD9AV2BE
Vertical Actuation
4PDT



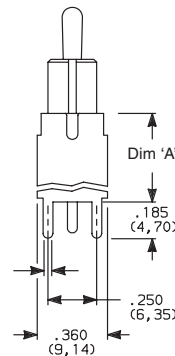
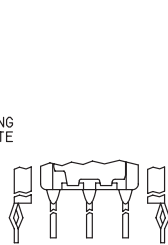
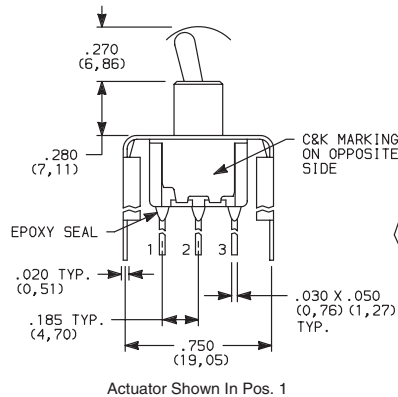
Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

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

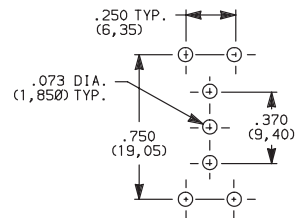
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



7101MD9_BE
SPDT



PC MOUNTING



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

Not available with I seal option.



F

Toggle



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

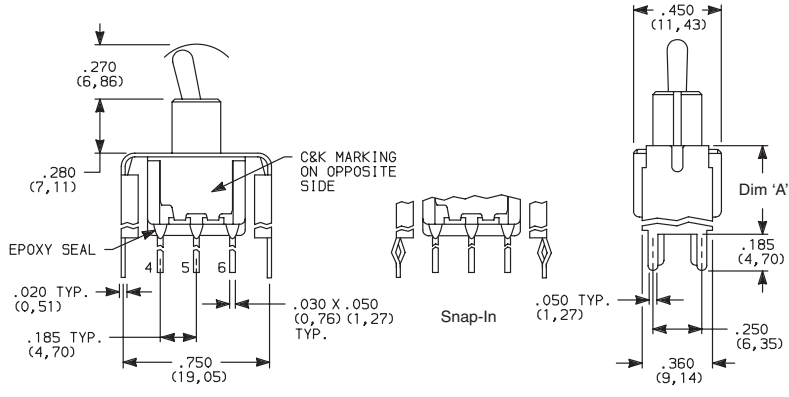
7000 Series Miniature Toggle Switches

TERMINATIONS



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

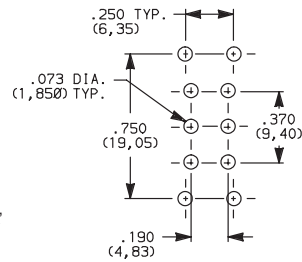
V21, V61, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



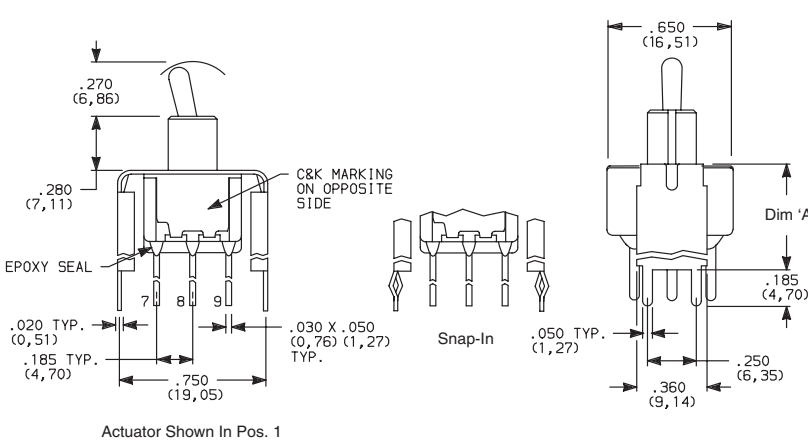
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11,68)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7201MD9_BE
DPDT

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

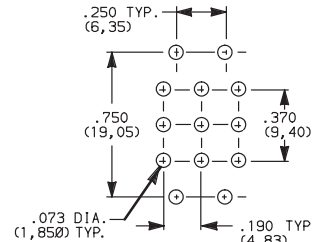
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



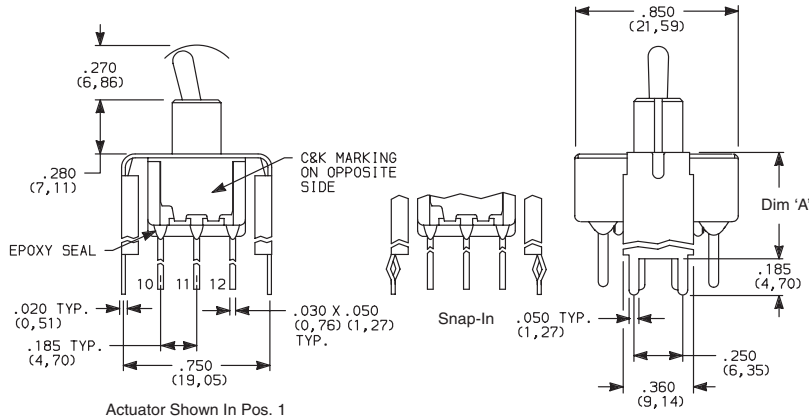
OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7301MD9_BE
3PDT

V2, V7, V8 VERTICAL MOUNT, V-BRACKET

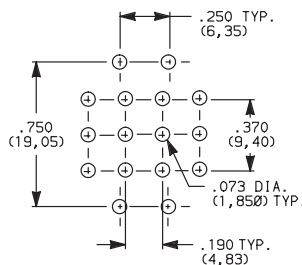
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



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



7401MD9_BE
4PDT



Third Angle
Projection

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



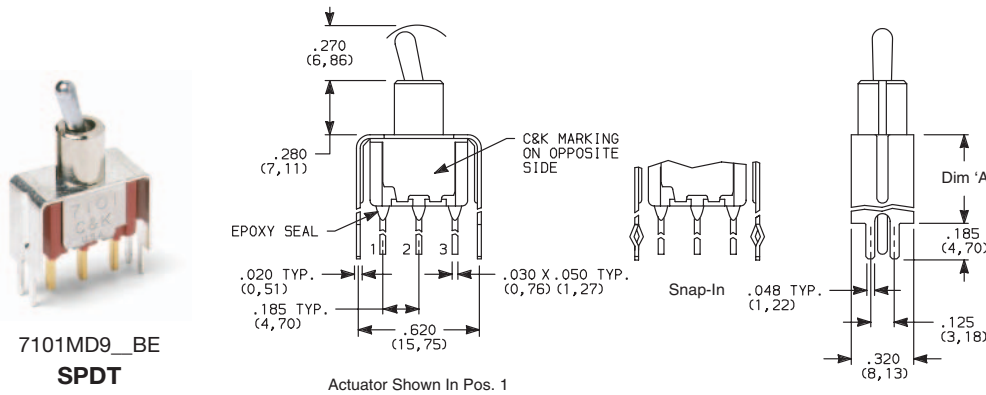
Toggle

7000 Series Miniature Toggle Switches

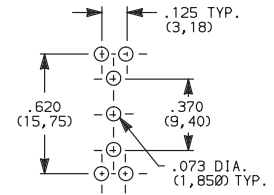
TERMINATIONS

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

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



PC MOUNTING

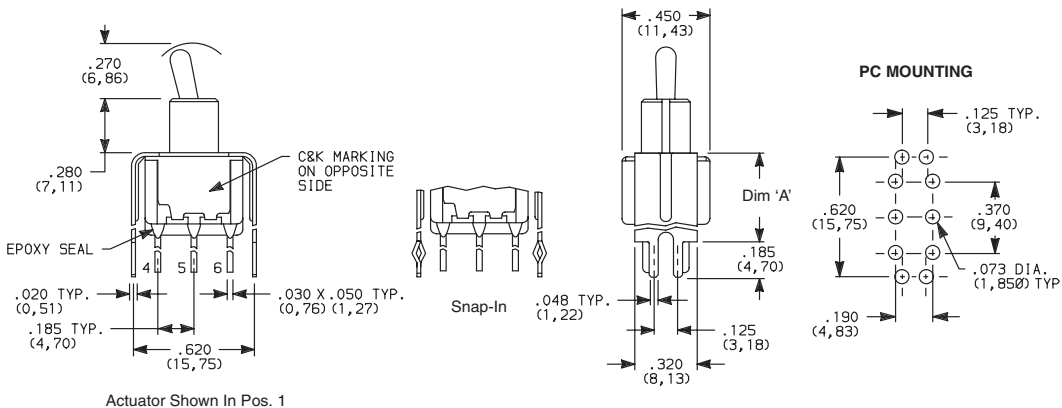


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

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

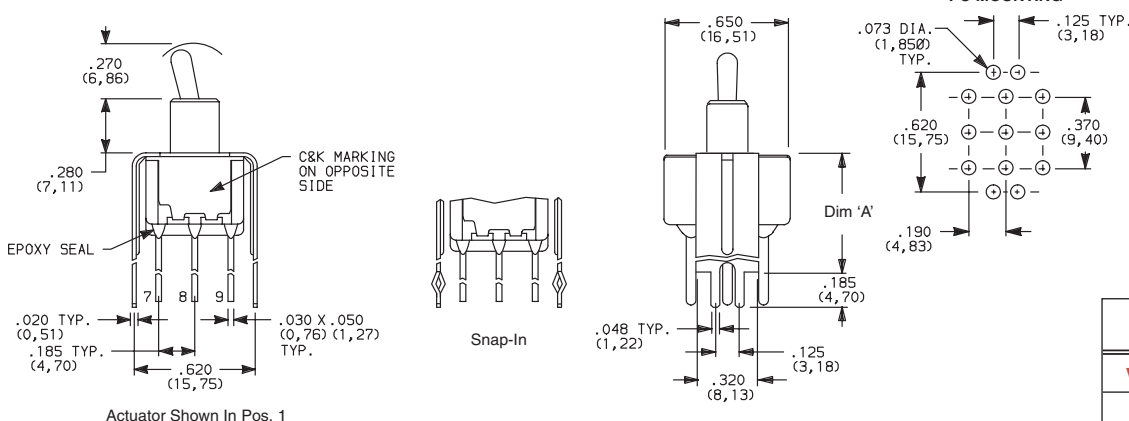


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

V4, V9 VERTICAL MOUNT, V-BRACKET

V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



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

Not available with I seal option.



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

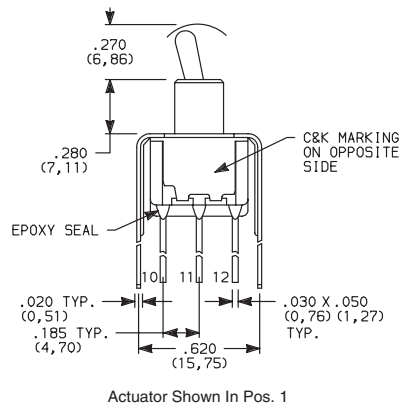
www.ck-components.com

7000 Series Miniature Toggle Switches

TERMINATIONS

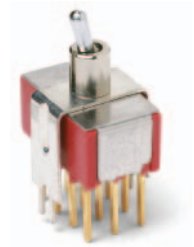
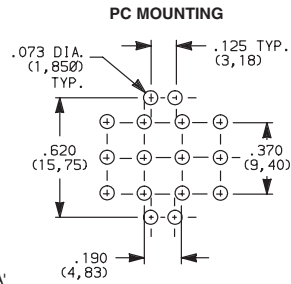
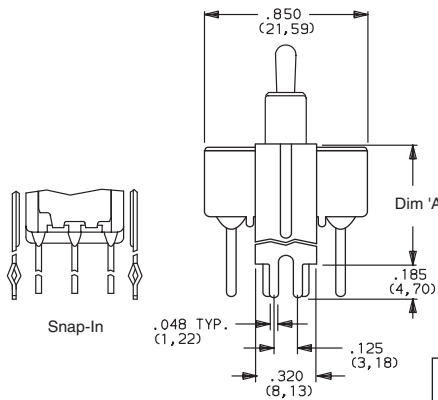
V4, V9 VERTICAL MOUNT, V-BRACKET

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'
V4, V41	.630 (16,00)
V9	1.150 (29,21)

CONTACT MATERIAL

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

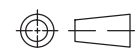
NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

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



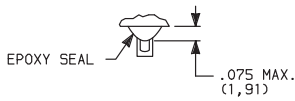
F

Toggle

7000 Series Miniature Toggle Switches

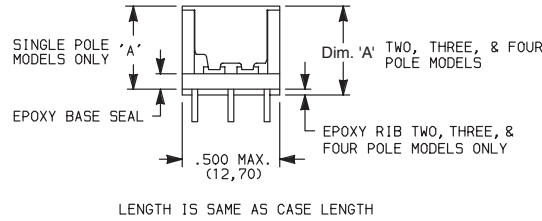
SEAL

E EPOXY SEAL



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

I EPOXY POTTED BASE

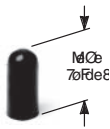


NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

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

AVAILABLE HARDWARE

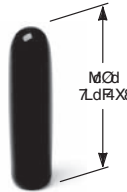
Cap



PART NO.
896801000 WHITE
896802000 BLACK
896803000 RED

Material: Polyethylene
 Finish: Matte

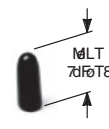
Cap



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

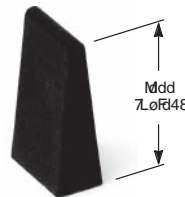
L41 Lever handle



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



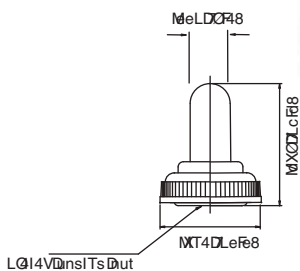
PART NO.
530100000

Available in loose pieces.

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

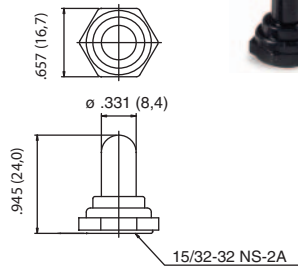
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



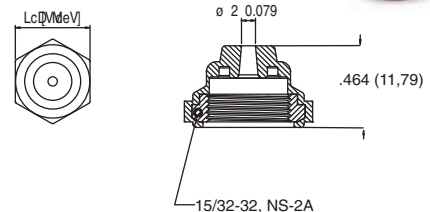
NOTE: For use with S actuator style when combined with D, H, H3, Y, and Y4 bushings

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

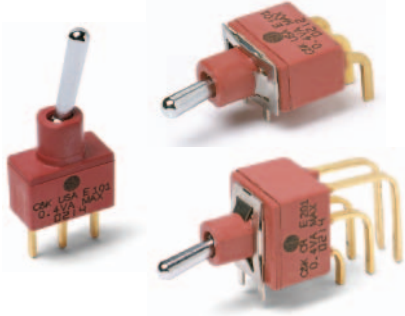


NOTE: For use with T, TP and T2P style actuators. Can not be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, and 7407.



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

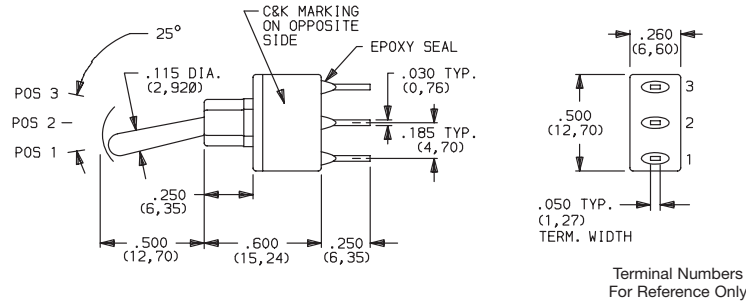


E Series Sealed Miniature Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	E101	ON	NONE	ON	2-3	N/A	2-1	
	E103	ON	OFF	ON	2-3	OPEN	2-1	
	E105	MOM.	OFF	MOM.				
	E107	ON	OFF	MOM.				
	E108	ON	NONE	MOM.				
SPDT								

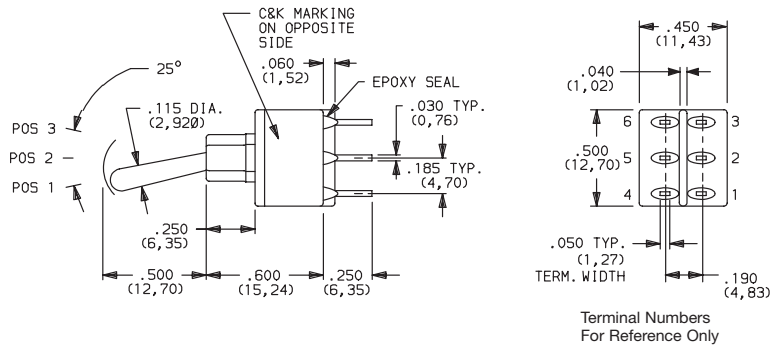
SPDT



Part number shown: E101SD1CBE

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

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



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	<p>3PDT</p>
3PDT								

Part number shown: E301SD1CBE

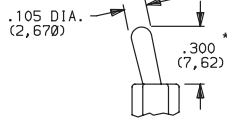
MOM. = Momentary

** 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.

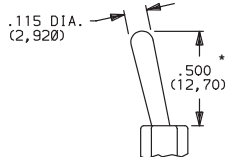
ACTUATOR

M .300" HIGH



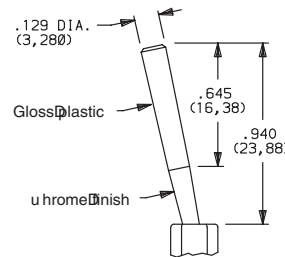
Standard when ordered with A, A3, AV2, AV3, V2-V61 terminations. Finish: Chrome.

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.

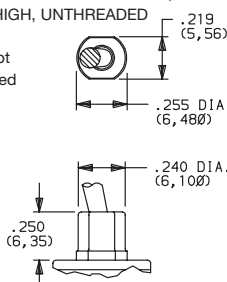
* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

BUSHING

D1 .250" HIGH, UNTHREADED

F1 ESD CONDUCTIVE BUSHING, .250" HIGH, UNTHREADED

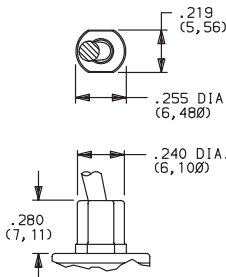
F1 bushing is not UL/CSA approved



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.

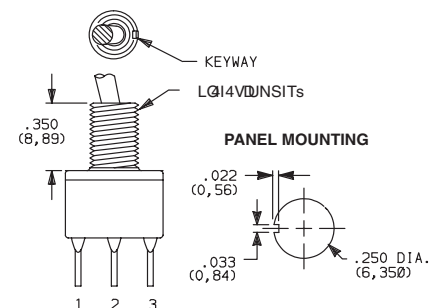
D9 .280" HIGH, UNTHREADED



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.



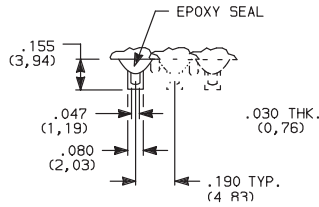
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E Series Sealed Miniature Toggle Switches

TERMINATIONS

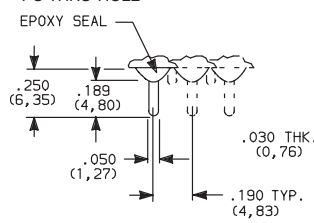
Z SOLDER LUG



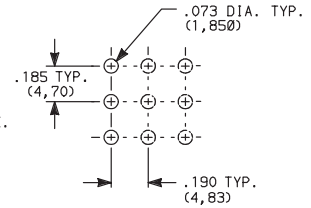
Not available with F1 conductive bushing or P, R or S contact material.

SPDT thru 3PDT

C PC THRU-HOLE



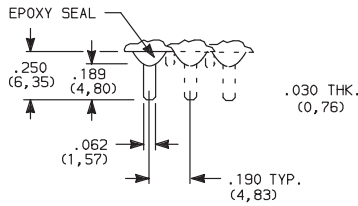
PC MOUNTING



SPDT thru 3PDT

Not available with F1 conductive bushing.

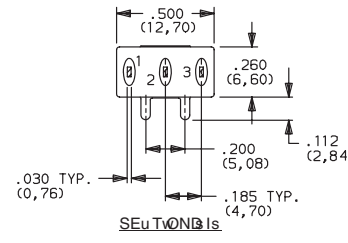
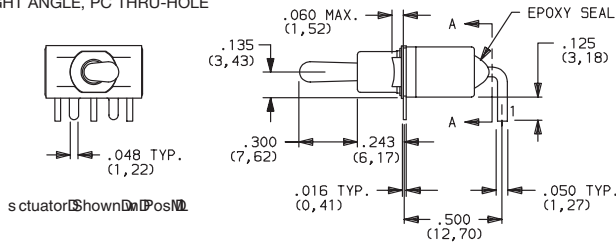
Z3 QUICK CONNECT



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

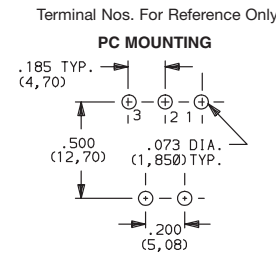
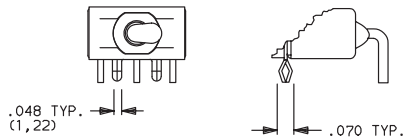
SPDT thru 3PDT

A RIGHT ANGLE, PC THRU-HOLE



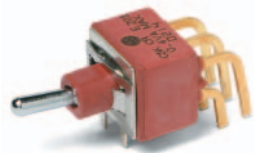
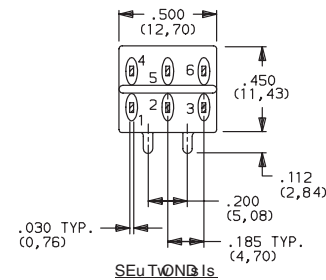
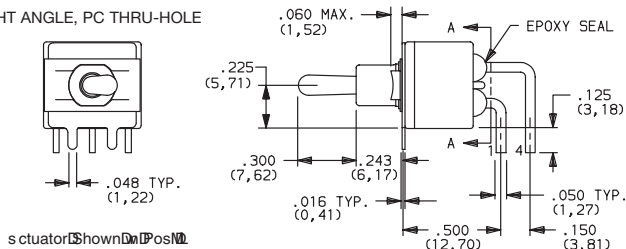
E101MD1ABE
Horizontal Actuation
SPDT

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



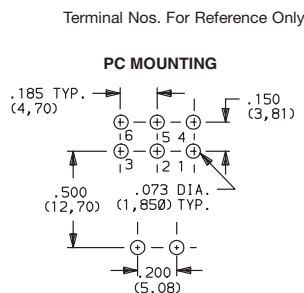
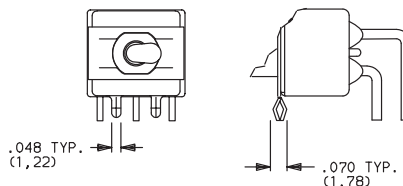
Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

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.



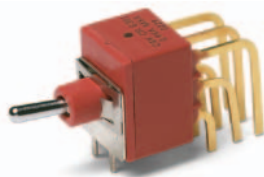
Third Angle
Projection

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

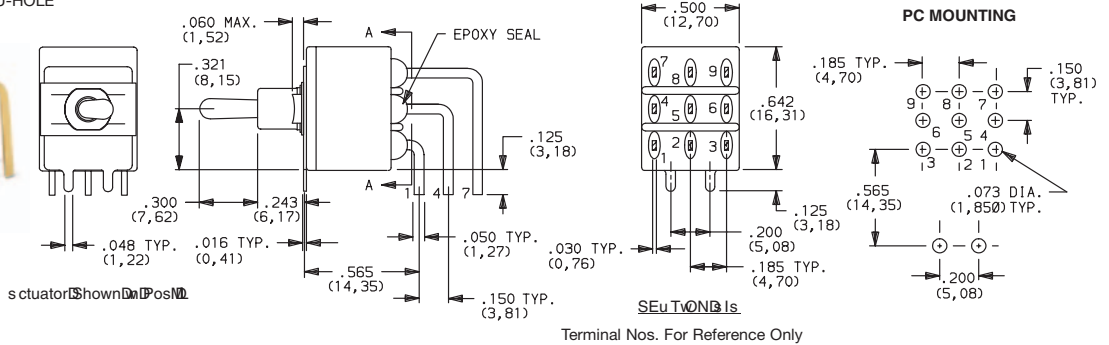
E Series Sealed Miniature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE



E301MD1ABE
Horizontal Actuation
3PDT

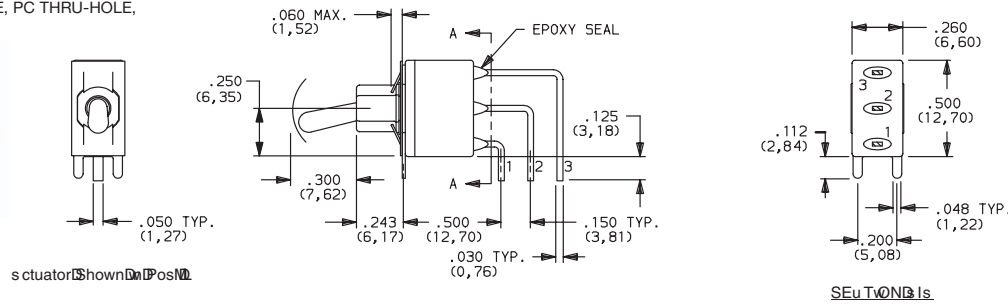


Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

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



E101MD1AV2BE
Vertical Actuation
SPDT



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

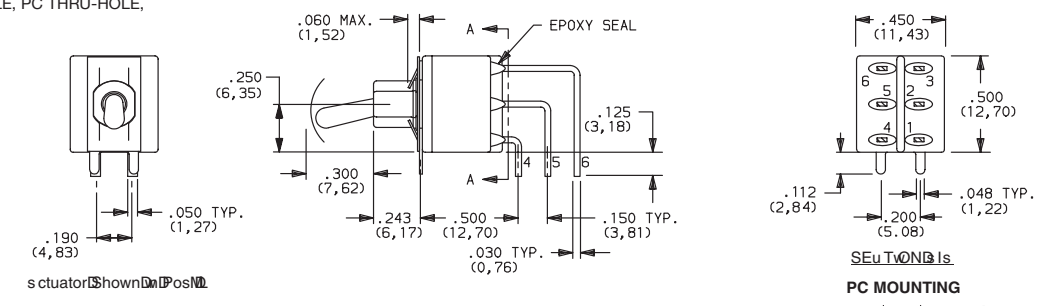


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

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



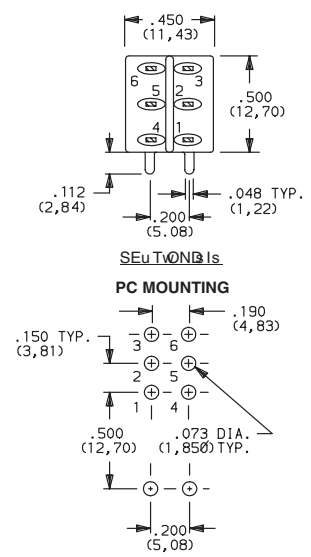
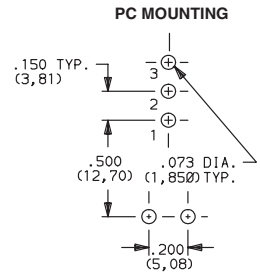
E201MD1AV2BE
Vertical Actuation
DPDT



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



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



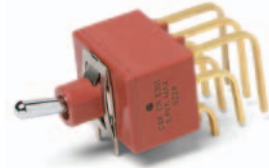
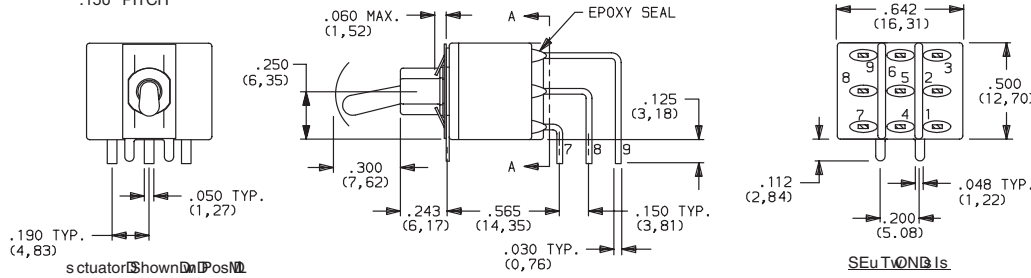
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



E Series Sealed Miniature Toggle Switches

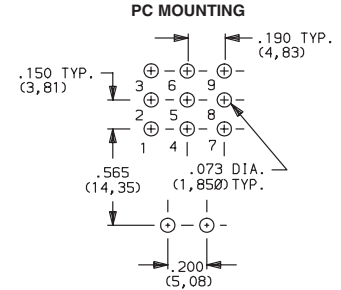
TERMINATIONS

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



E301MD1AV2BE
Vertical Actuation
3PDT

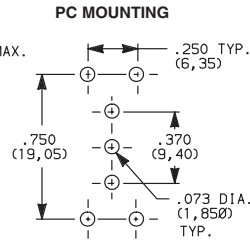
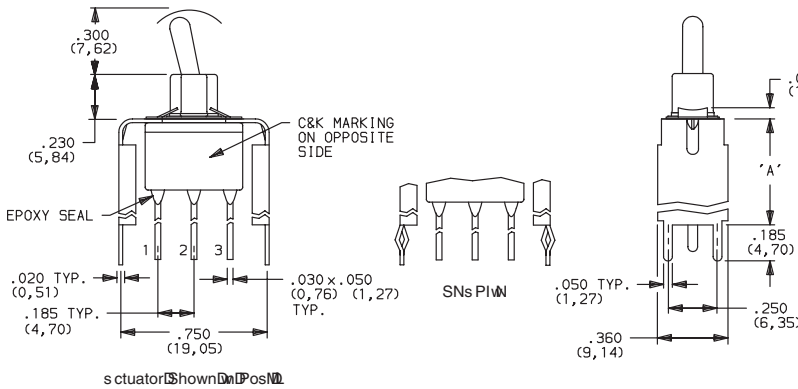
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



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



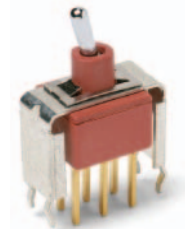
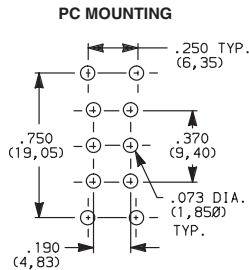
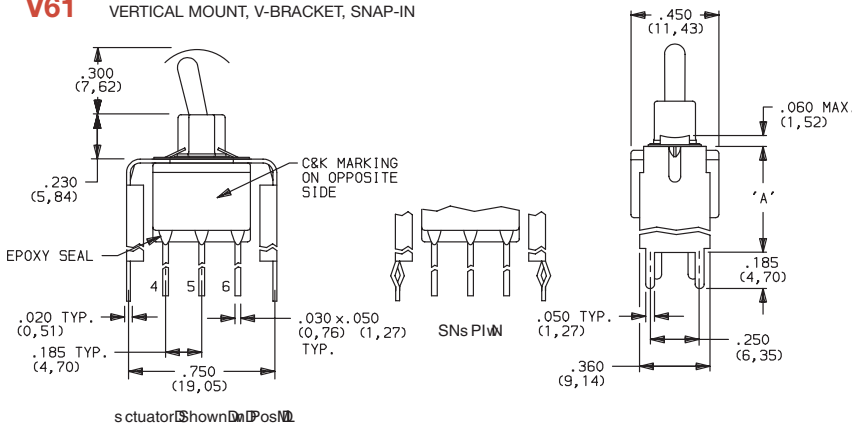
E101MD1_BE
SPDT

OPTION CODE	DIM 'A'
V6, V61	.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'
V6, V61	.460 (11,68)



Third Angle Projection

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

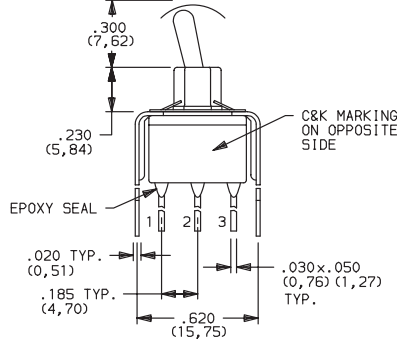
www.ck-components.com

E Series Sealed Miniature Toggle Switches

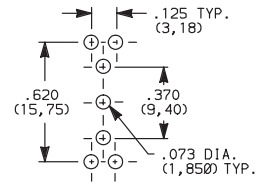
TERMINATIONS

V3, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING



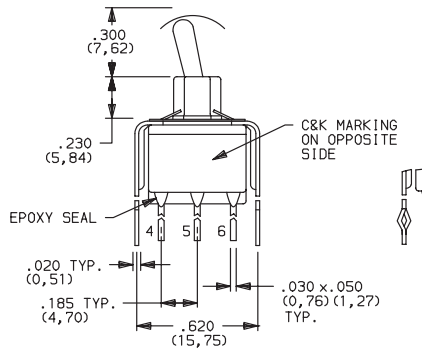
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

actuator shown in position

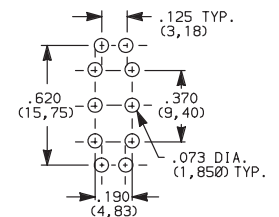
Not available with Y bushing.

V3, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING

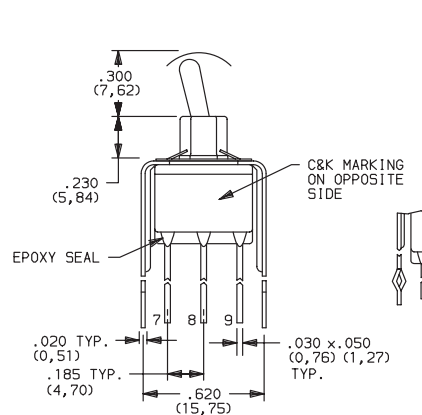
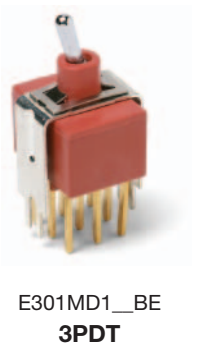


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

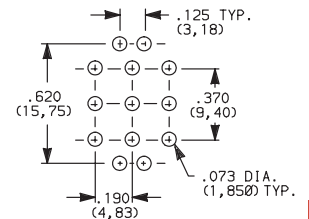
actuator shown in position

Not available with Y bushing.

V9 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



OPTION CODE	DIM 'A'
V9	1.150 (29,21)

actuator shown in position

Not available with D9 & Y bushings.



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



E Series Sealed Miniature Toggle Switches

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	E1XX AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 7.5 AMPS @125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. DC E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
R		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, with gold flash over silver plate. Or copper alloy, silver plated.

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

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

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

B contact material standard with all terminations.

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



F

Toggle

C&K



Third Angle
Projection

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

ET Series Sealed Subminiature Toggle Switches

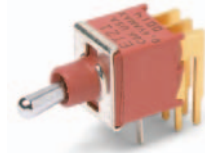
Features/Benefits

- 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: 10⁹ 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.

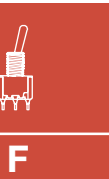
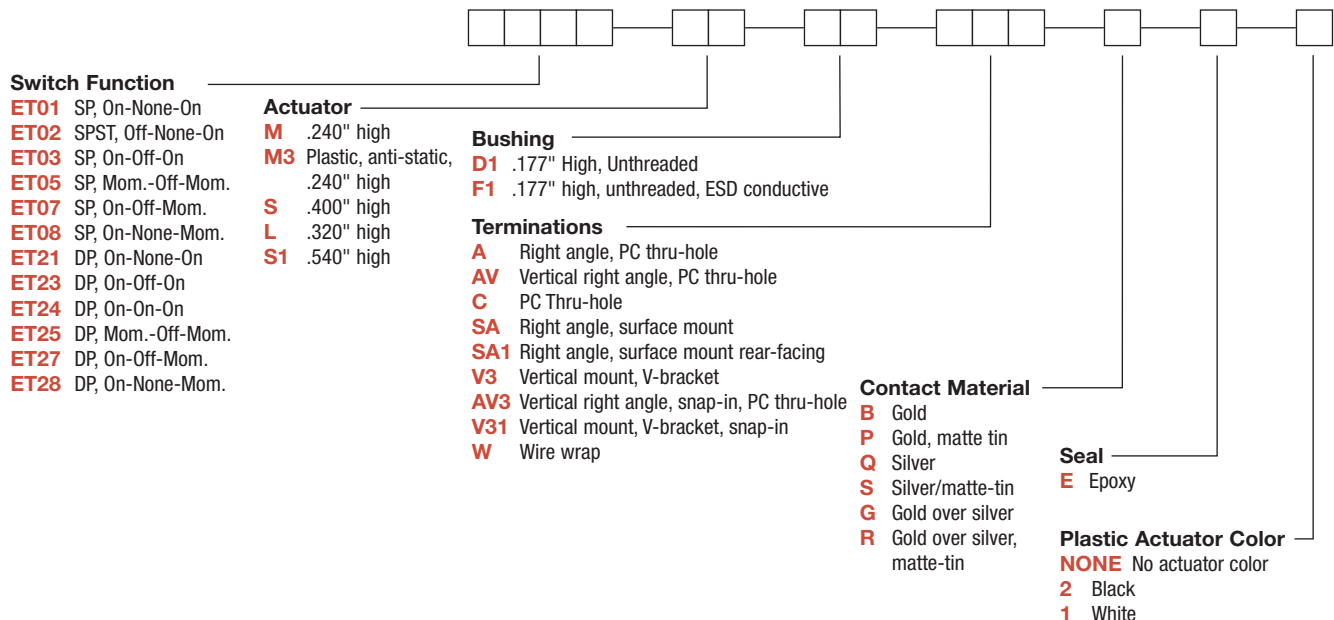
TERMINAL SEAL: Epoxy.

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	ET01	ON	NONE	ON	2-3	N/A	2-1	
	ET03	ON	OFF	ON	2-3	OPEN	2-1	
	ET05	MOM.	OFF	MOM.				
	ET07	ON	OFF	MOM.				
	ET08	ON	NONE	MOM.	2-3	N/A	2-1	
	ET02	OFF	NONE	ON	OPEN	N/A	3-1	
<p>SPDT</p> <p>Part number shown: ET01MD1CBE ET02 Models: Omit terminal 2</p>								
DP	ET21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	ET23	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	ET25	MOM.	OFF	MOM.				
	ET27	ON	OFF	MOM.				
	ET28	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	ET24**	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	DPDT
<p>DPDT</p> <p>Part number shown: ET21MD1CBE</p>								

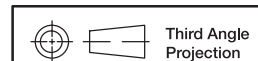
MOM. = Momentary

** 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.



Toggle

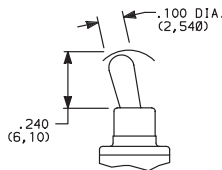


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series Sealed Subminiature Toggle Switches

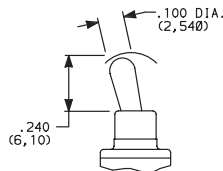
ACTUATOR

M .240" HIGH



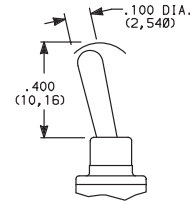
Standard with A, AV, V3 & V31 terminations.

M3 PLASTIC, ANTISTATIC, .240" HIGH



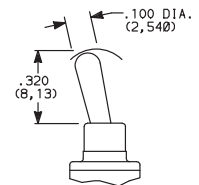
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not available with F1 conductive bushing option. Not UL approved.

S .400" HIGH

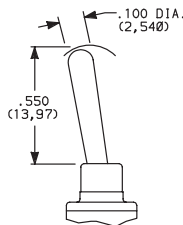


Standard with C or W terminations.

L .320" HIGH



S1 .540" HIGH



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

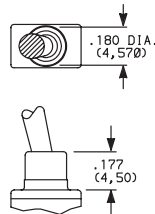
NOTE: All actuators have chrome finish (except M3 & S3).

BUSHING

D1 .177" HIGH, UNTHREADED

F1 ESD, CONDUCTIVE BUSHING UNTHREADED, .177" HIGH

F1 bushing is not UL/CSA approved



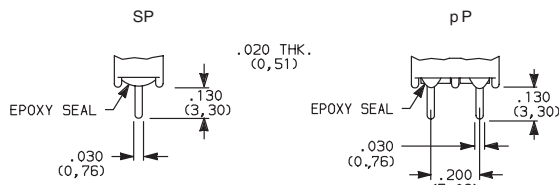
NOTE: ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

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

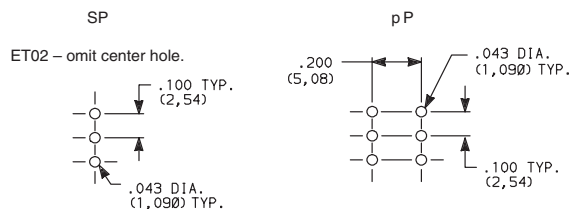
Internal actuator o-ring seal standard.

TERMINATIONS

C PC THRU-HOLE



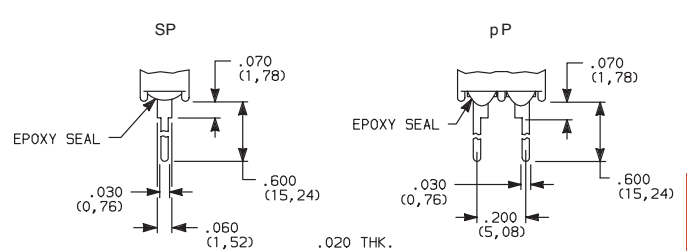
PC MOUNTING



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



F

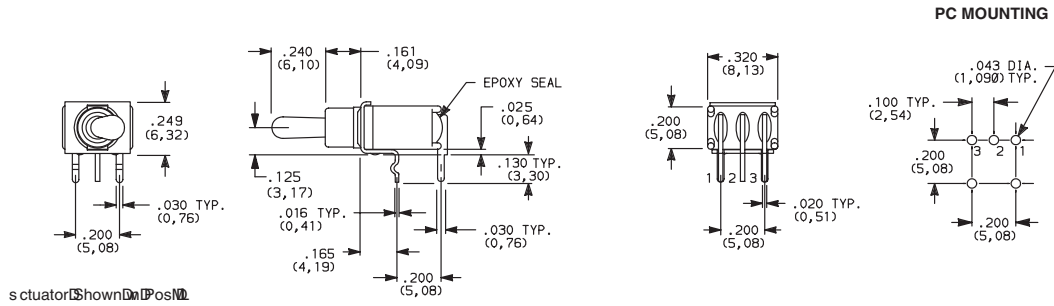
Toggle

ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

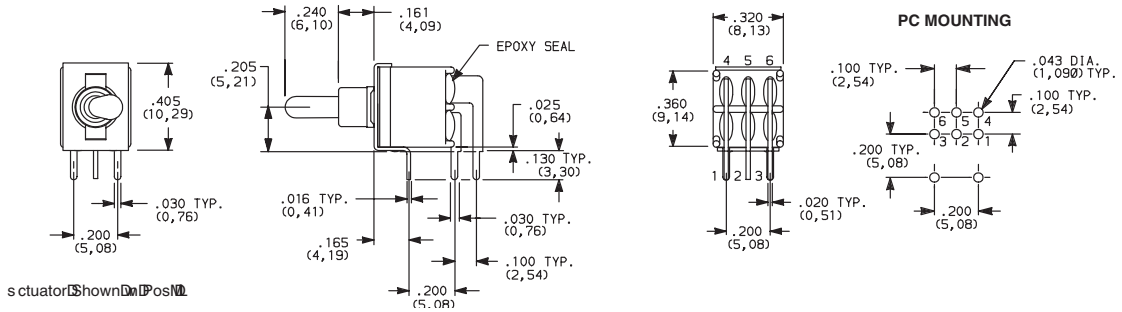
ET01MD1ABE
Horizontal Actuation
SPDT



Not available with ET02 model.

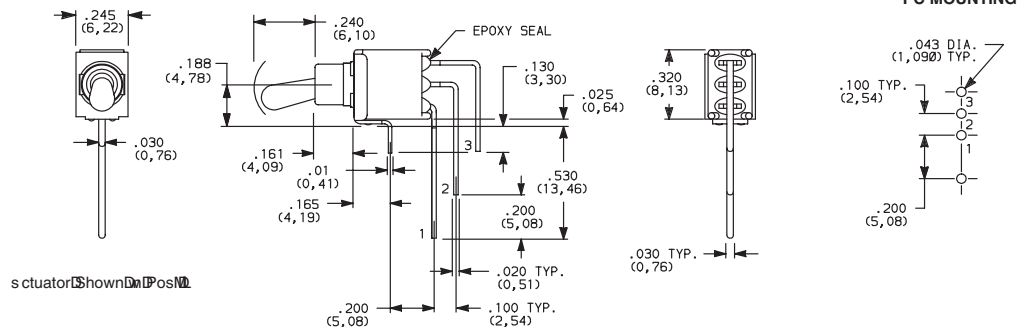
A RIGHT ANGLE, PC THRU-HOLE

ET21MD1ABE
Horizontal Actuation
DPDT



AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET01MD1AVBE
Vertical Actuation
SPDT

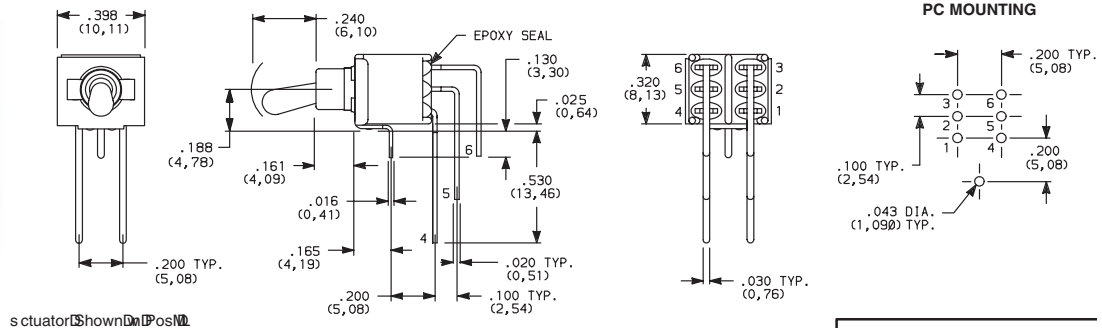


ET02 - omit terminal 2.

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

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET21MD1AVBE
Vertical Actuation
DPDT



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



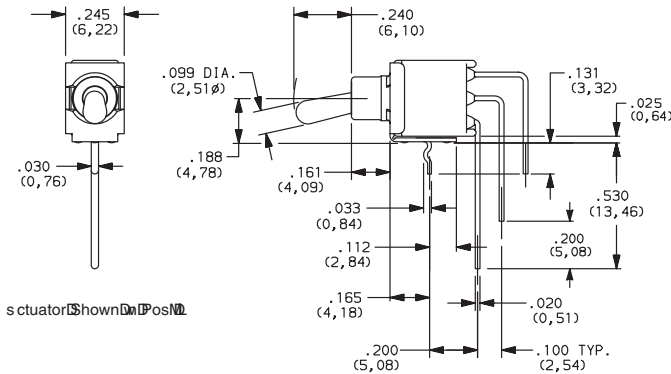
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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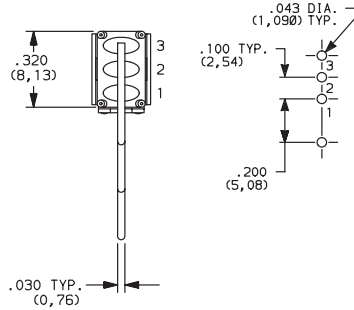
ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

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

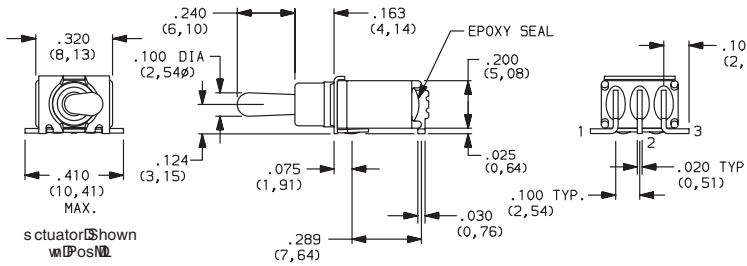


PC MOUNTING

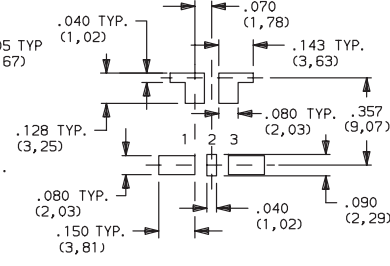


ET01SD1AV2BE
Vertical Actuation
SPDT

SA RIGHT ANGLE, SURFACE MOUNT



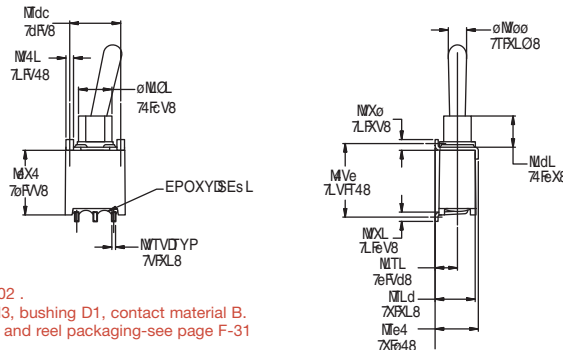
PC MOUNTING



ET01M3D1SAPE
Horizontal Actuation
SPDT Only

Not available with S and S1 actuators. Standard with tape & reel packaging. See page F-31.

SA1 RIGHT ANGLE, SURFACE MOUNT

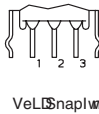
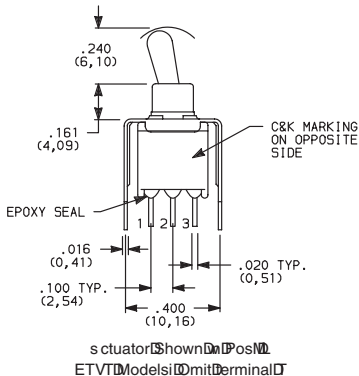


ET01M3D1SA1BE
Horizontal Actuation
SPDT Only

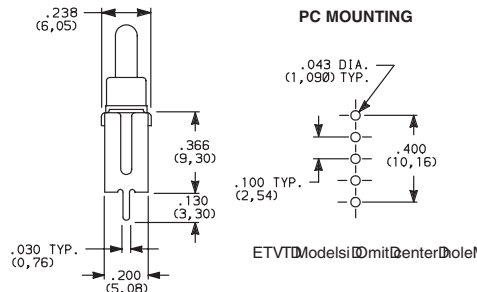
Not available in ET02.
Actuators M and M3, bushing D1, contact material B.
Standard with tape and reel packaging-see page F-31

V3 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING



ET01MD1V3BE
SPDT



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



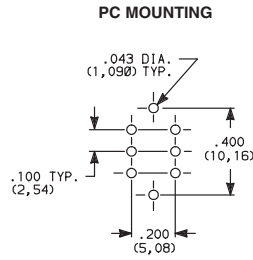
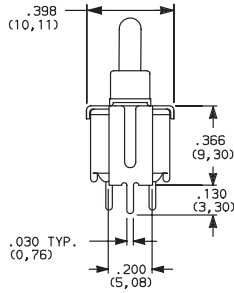
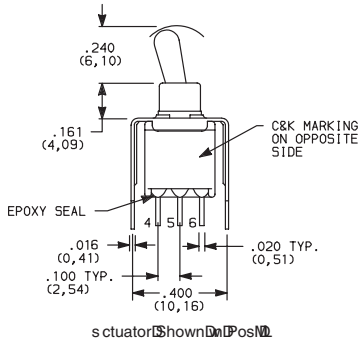
F

Toggle

ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

V3 VERTICAL MOUNT, V-BRACKET



ET21MD1V3BE
DPDT

CONTACT MATERIAL

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

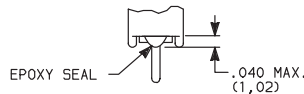
⁶ TERMINALS: Copper alloy, with matte tin over nickel plate.

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

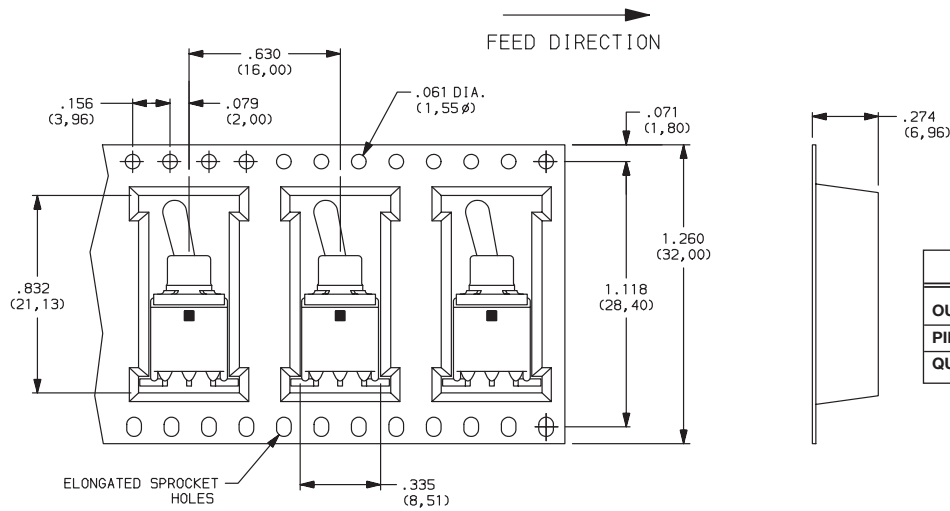
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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ET Series Sealed Subminiature Toggle Switches

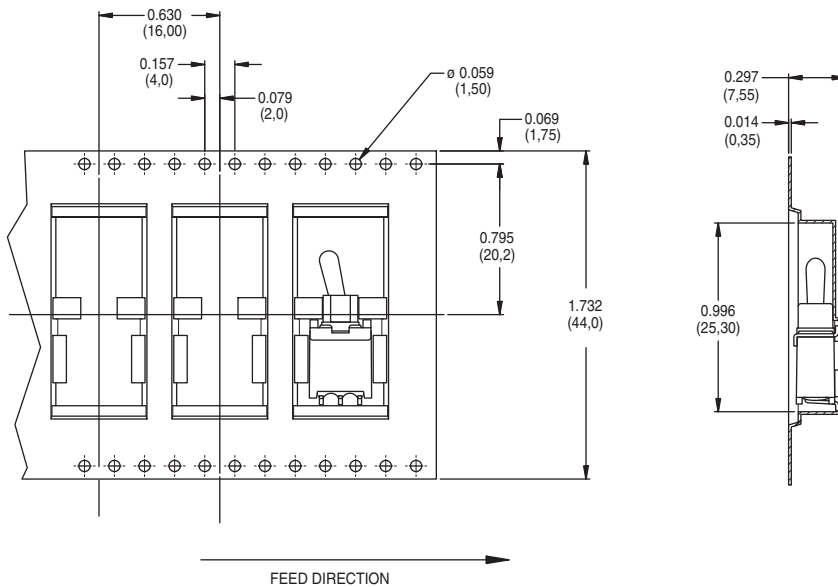
TAPE & REEL

For part number ET01M3D1SAKE

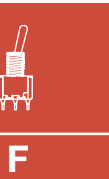


REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part number ET01M3D1SA1BE



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



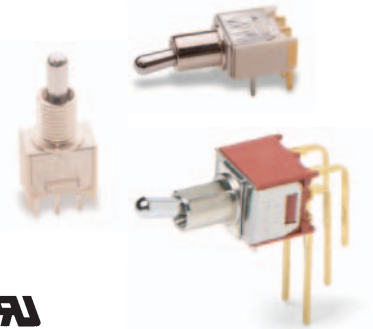
T Series Subminiature Toggle Switches

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: 10⁹ 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.

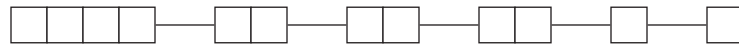
TERMINAL SEAL: Epoxy.

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



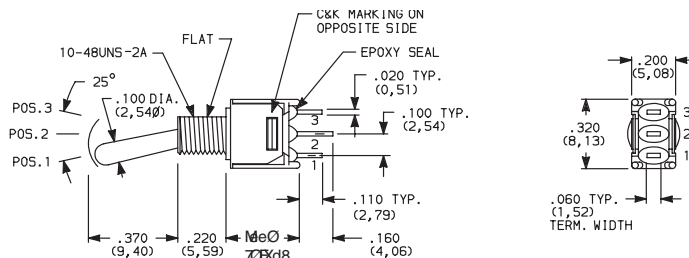
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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	

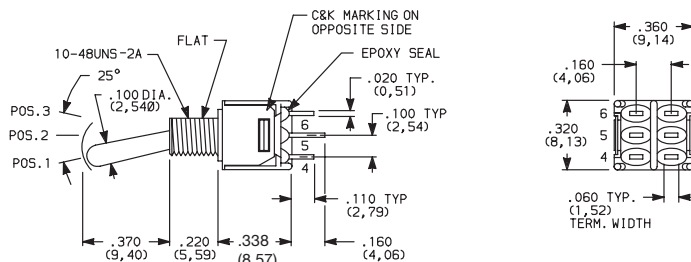
SPDT



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.



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

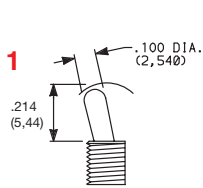
www.ck-components.com



T Series Subminiature Toggle Switches

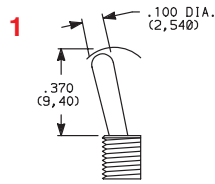
ACTUATOR

M .210" HIGH



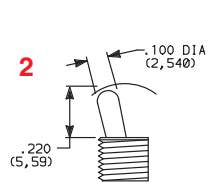
Standard with A, AV or V3 terminations.

S .370" HIGH

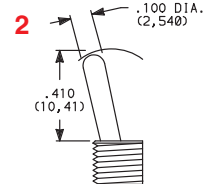


Standard with Z, C or W terminations.

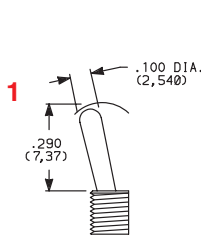
M1 .220" HIGH
(with "T" bushing)



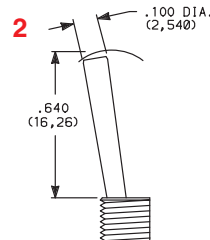
S1 .410" HIGH
(with "T" bushing)



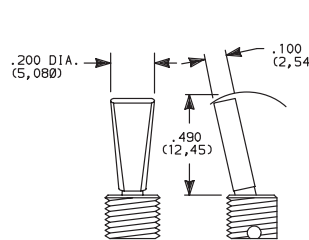
L .290" HIGH



L1 .620" HIGH



P3 ANTI-ROTATION, FLATTED,
.450" HIGH



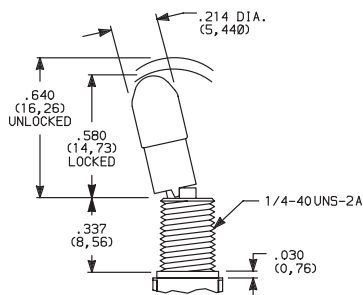
1 Actuator shown with standard H bushing. Subtract .040 (1,02) for TD and D9 bushings, subtract .090 (2,29) for T, T9, TK, K9 & CF bushings.

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).

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

K LOCKING LEVER



Locking Positions



-01 & -02 Models
2 Position lock



-03 & -11 Models
3 Position lock



-08 Models
1 Position lock

K actuators have natural aluminum finish.

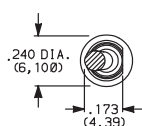
Keyway on right side. To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Overtightening mounting nut may cause actuator to bind.

Not available with CF bushing option.

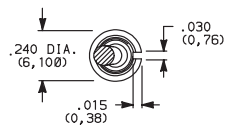
Bushing option code not required. Not available with TX05 & TX07 models.

BUSHING

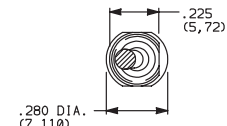
H .220" HIGH THREADED, FLAT



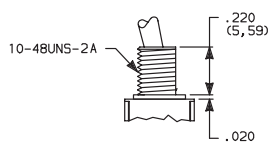
Y .220" HIGH THREADED, KEYWAY



T .310" HIGH THREADED, FLAT



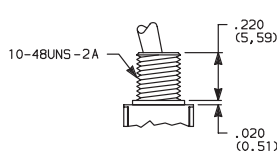
H9 .220" HIGH UNTHREADED, FLAT



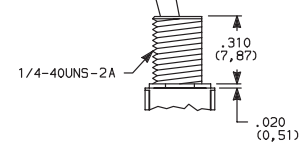
H standard with C, W & Z terminations.

H9 standard with A, AV & V3 terminations.

Y9 .220" HIGH UNTHREADED, KEYWAY



T9 .310" HIGH UNTHREADED, FLAT



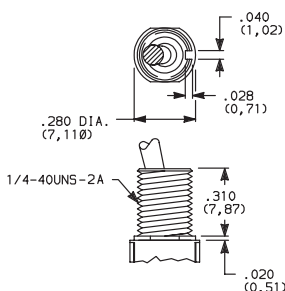
Third Angle
Projection

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

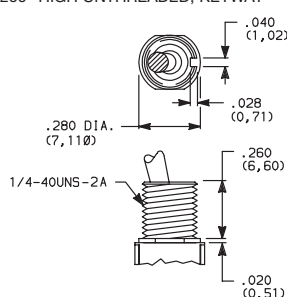
T Series Subminiature Toggle Switches

BUSHING

TK .310" HIGH THREADED, KEYWAY

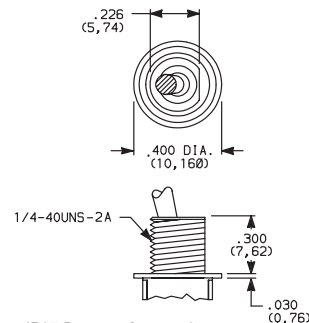


TD .260" HIGH THREADED, KEYWAY



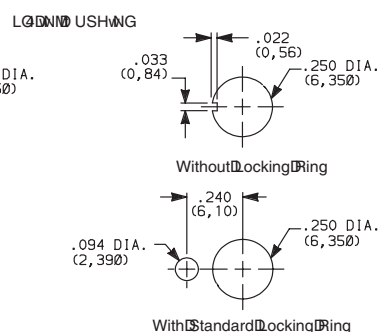
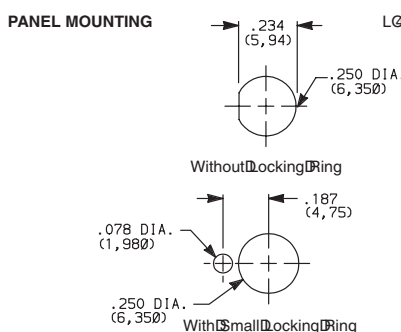
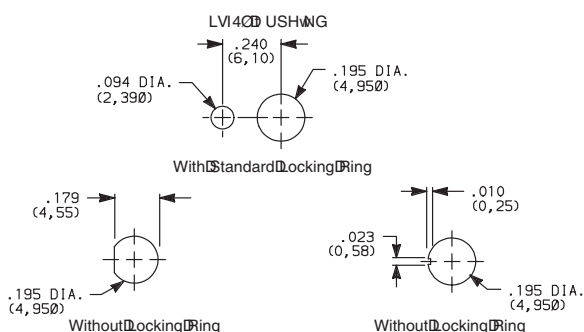
D9 .260" HIGH UNTHREADED, KEYWAY

CF SPLASHPROOF, .310" HIGH THREADED, FLAT



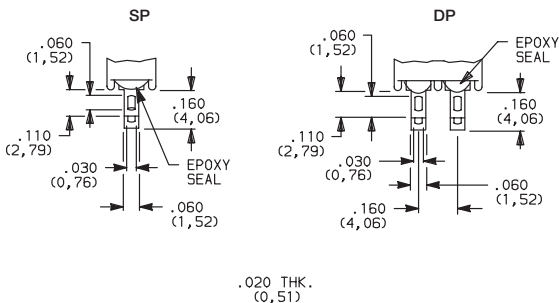
IP67 Degree of protection.
Internal o-ring actuator seal and external bushing seal washer standard.

Not available with K locking lever option.



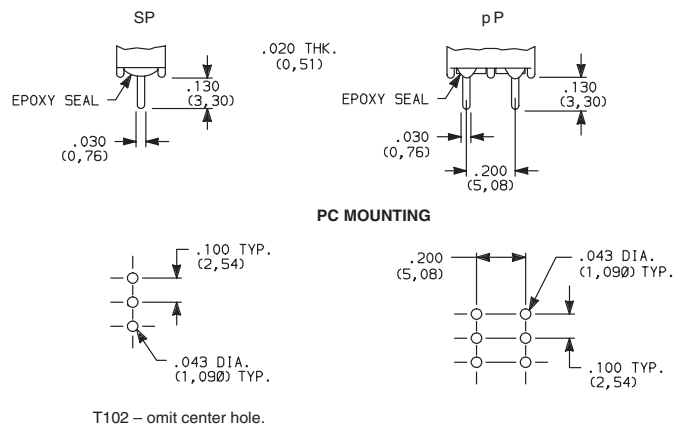
TERMINATIONS

Z SOLDER LUG

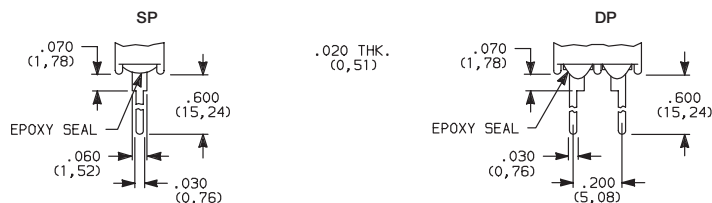


Not available with P or R contact materials.

C PC THRU-HOLE



W WIRE WRAP



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

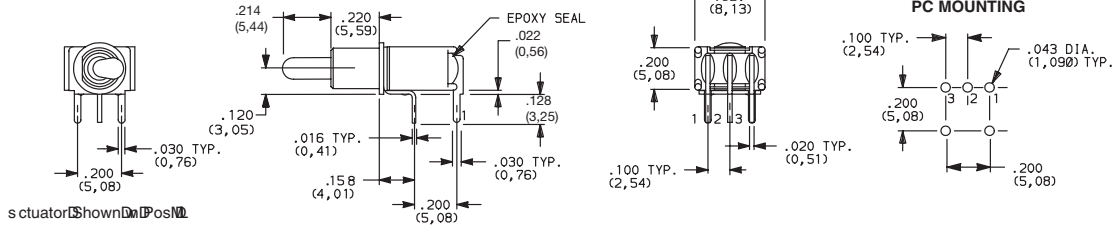


Toggle

T Series Subminiature Toggle Switches

TERMINATIONS

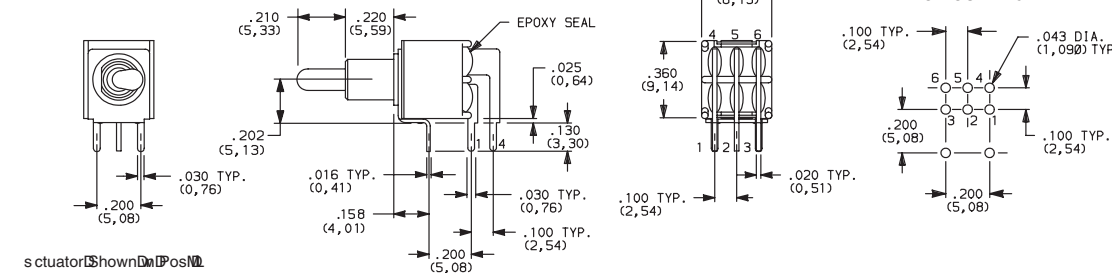
A RIGHT ANGLE, PC THRU-HOLE



T101MH9ABE
Horizontal Actuation
SPDT

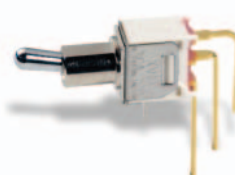
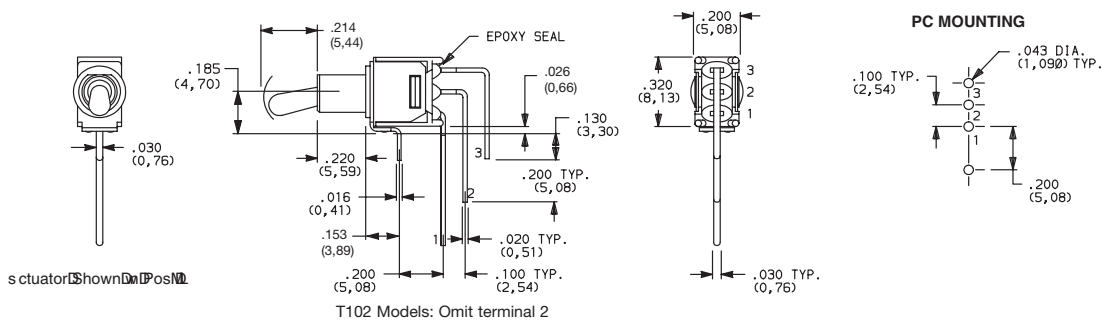
Not available with T102 model.

A RIGHT ANGLE, PC THRU-HOLE



T201MH9ABE
Horizontal Actuation
DPDT

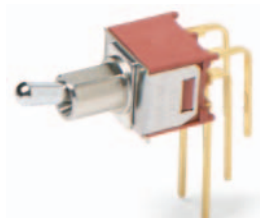
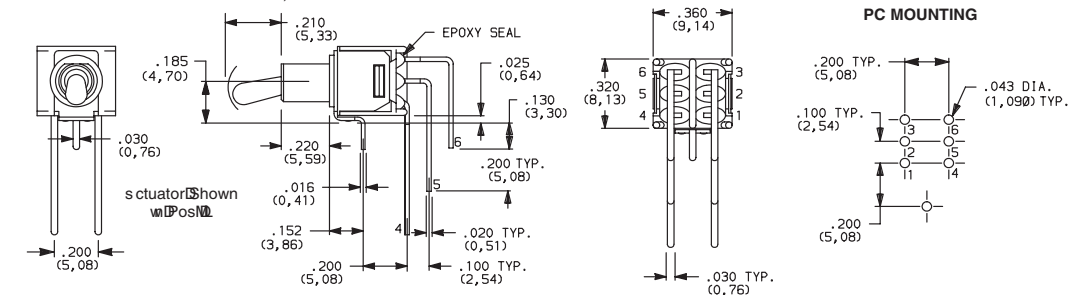
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



T101MH9AVBE
Vertical Actuation
SPDT

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

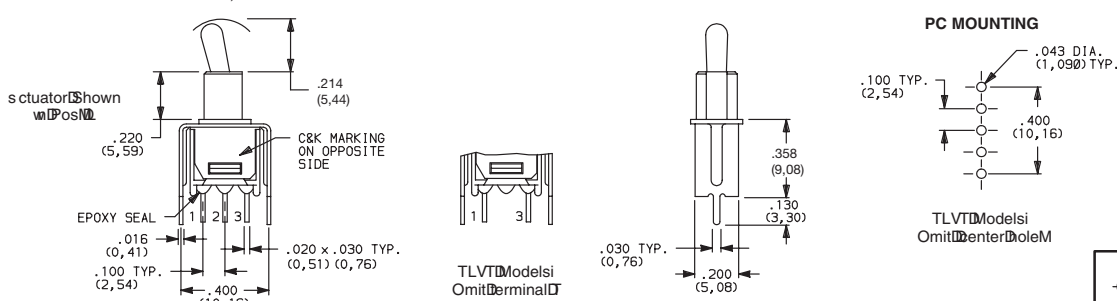
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



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

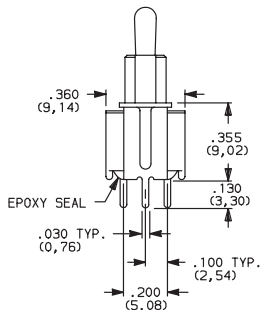
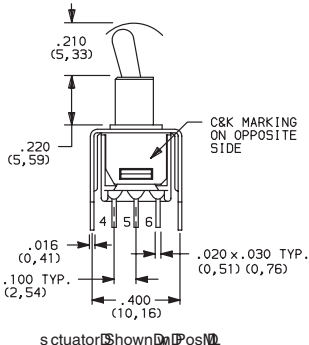
T Series Subminiature Toggle Switches

TERMINATIONS

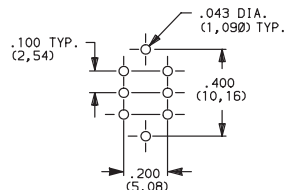
V3 VERTICAL MOUNT, V-BRACKET



T201MH9V3BE
DPDT



PC MOUNTING



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD 1	GOLD 1	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN 6		
Q	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.
G	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.
R		MATTE-TIN 6		

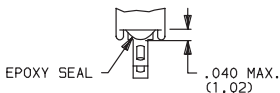
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

- 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

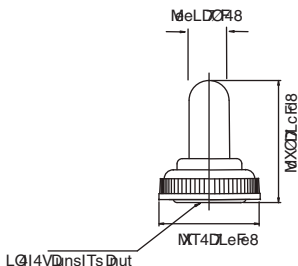


AVAILABLE HARDWARE

759D02000 SEALING BOOT

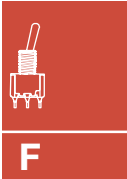


* Note: For use with S1 actuator style when combined with T, TK, and CF bushings.



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: 10⁹ 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.

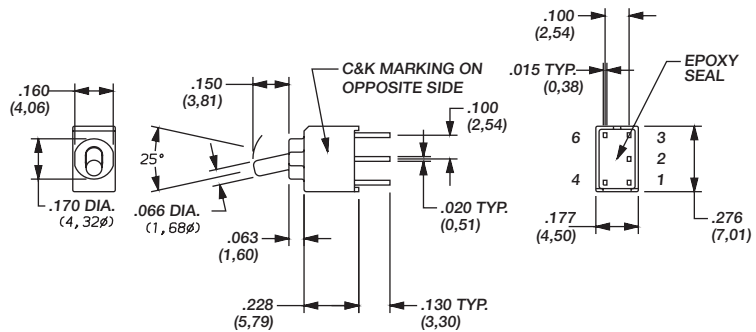
How To Order

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

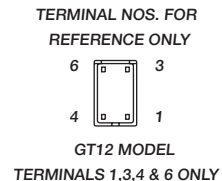
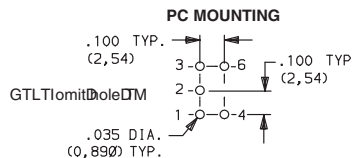


GT11MCBE
SPDT

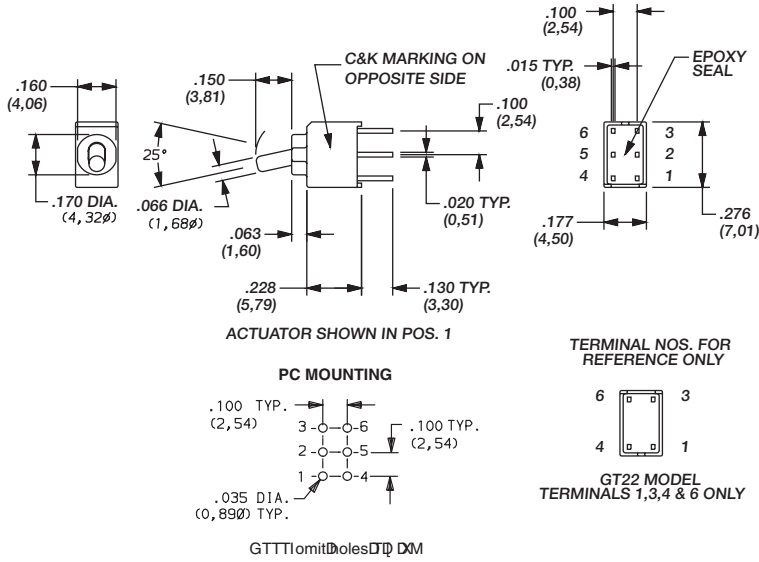
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT11MCBE	ON	NONE	ON
GT13MCBE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MCBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



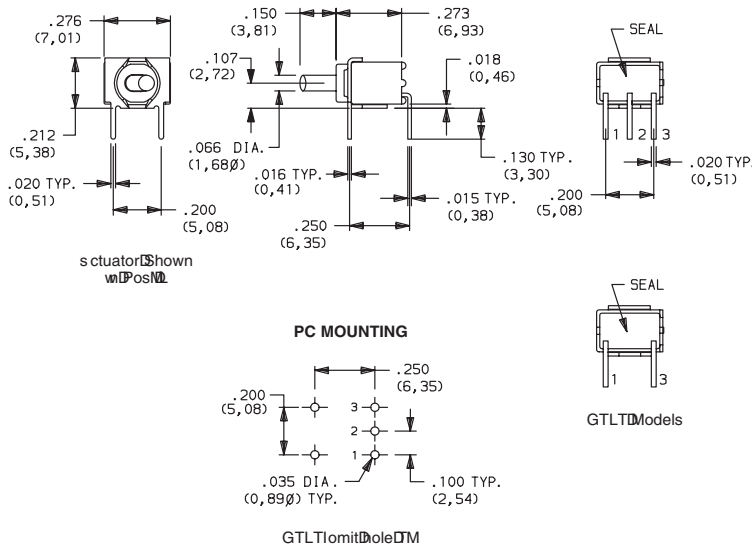
ACTUATOR SHOWN IN POS. 1



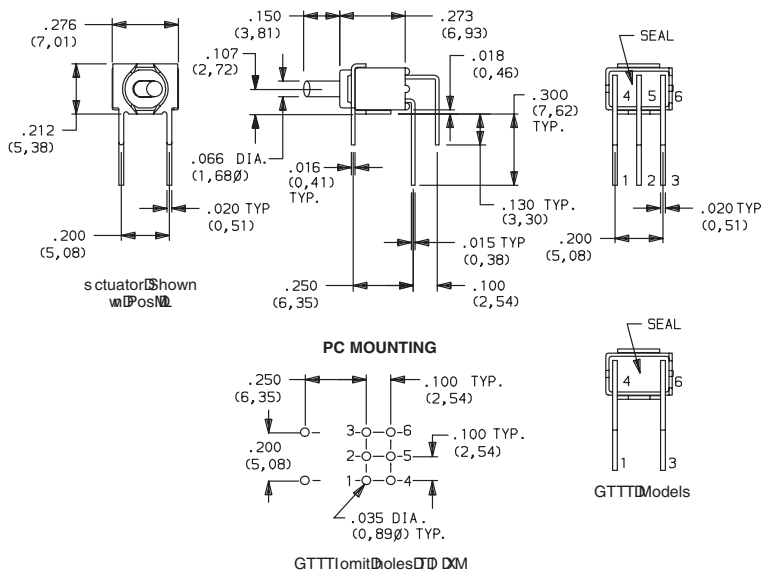
GT Series Sealed Ultraminiature Toggle Switches



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT21M/CBE	ON	NONE	ON
GT23M/CBE	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22M/CBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
DPST			



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT11M/CBE	ON	NONE	ON
GT13M/CBE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12M/CBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			



PART NUMBER	SWITCH FUNCTION		
	POS.1	POS. 2	POS. 3
GT21M/CBE	ON	NONE	ON
GT23M/CBE	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22M/CBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



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



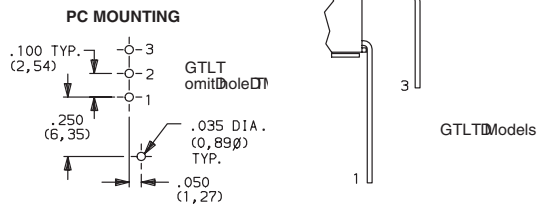
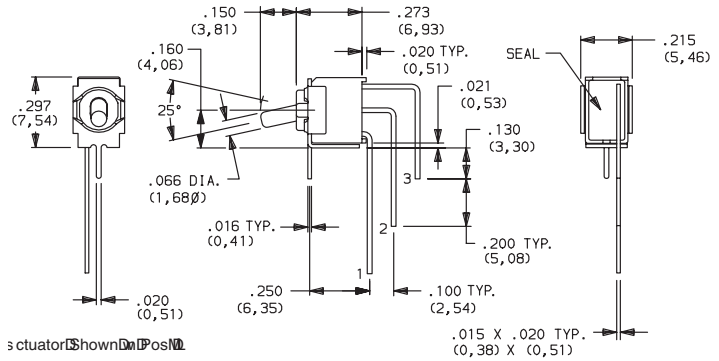
Toggle

GT Series Sealed Ultraminiature Toggle Switches



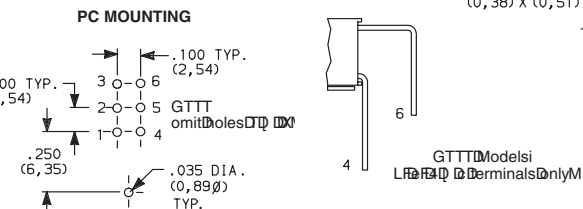
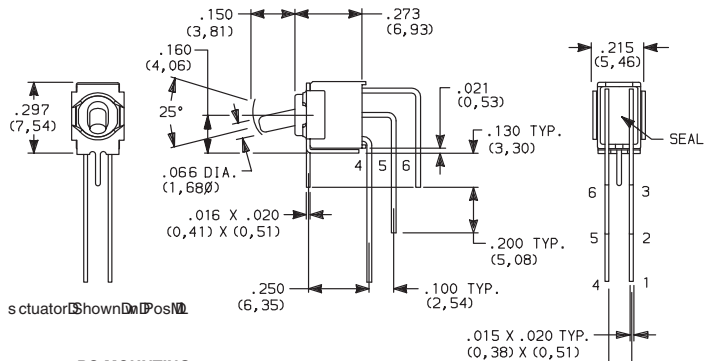
GT11MAVBE
Vertical
Actuation
SPDT

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



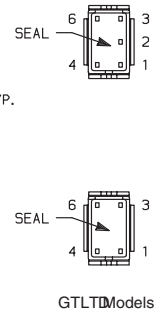
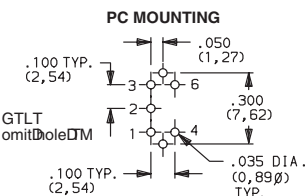
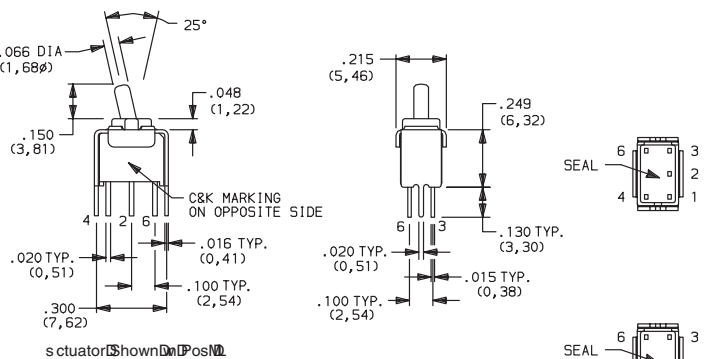
GT21MAVBE
Vertical
Actuation
DPDT

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MAVBE GT23MAVBE	ON	NONE	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MAVBE	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
GT11MV3BE GT13MV3BE	ON	NONE	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



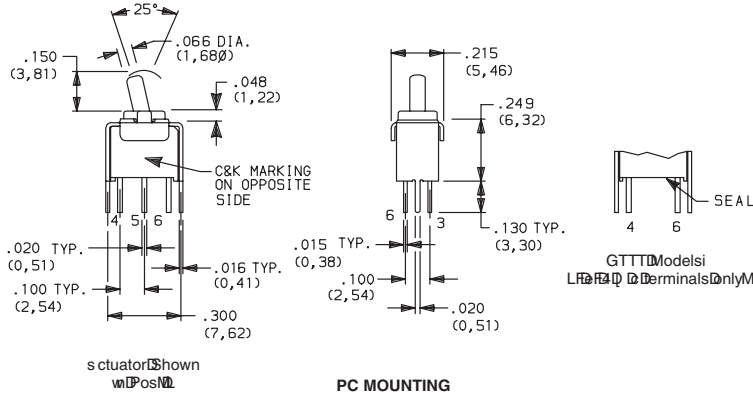
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Toggle



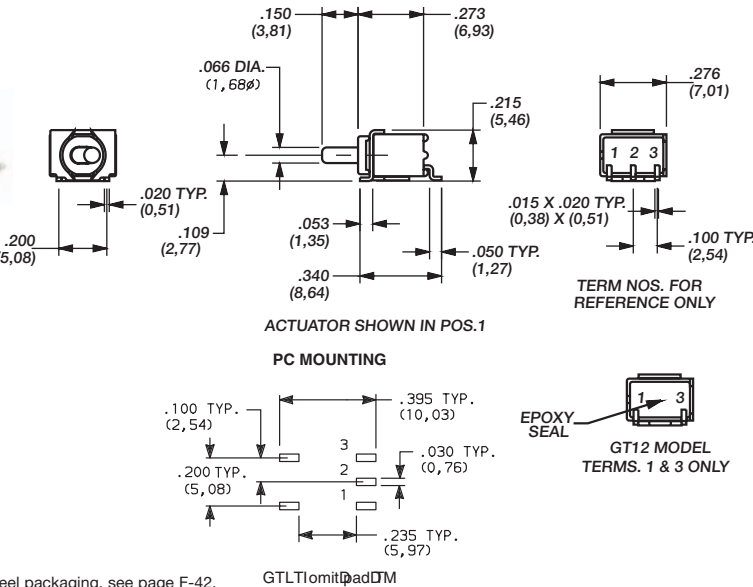
GT Series Sealed Ultraminiature Toggle Switches

GT21MV3BE
DPDT



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

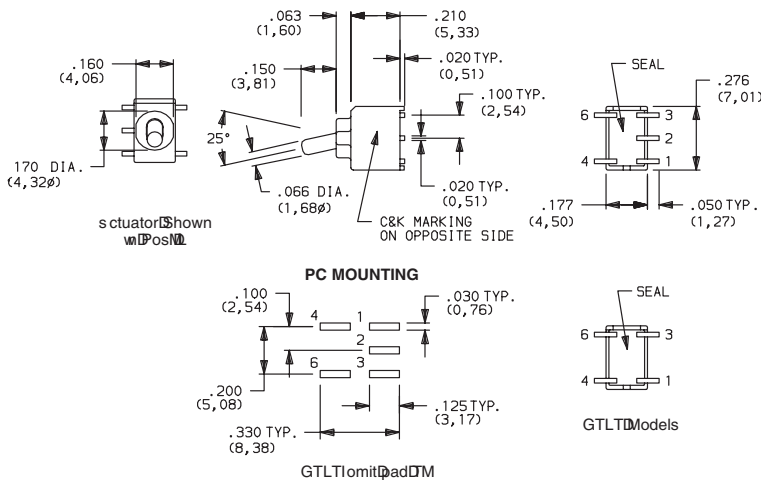
GT11MSABE
Horizontal
Actuation
SPDT



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

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

GT11MSCBE
SPDT



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

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

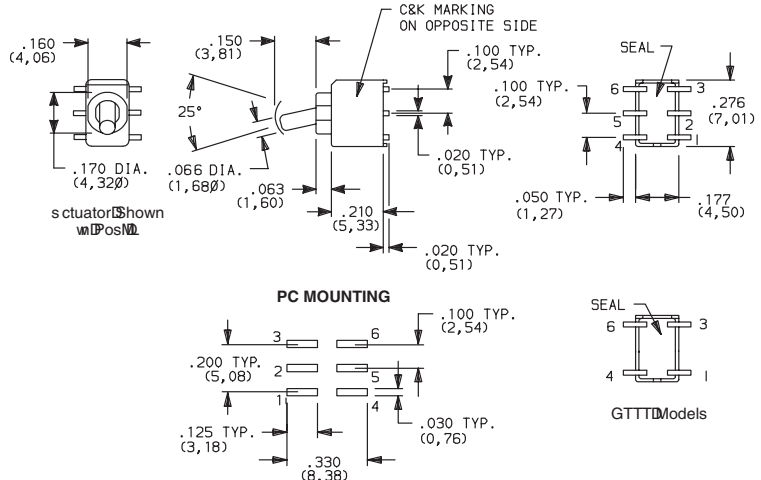


GT Series Sealed Ultraminiature Toggle Switches



GT21MSCBE
DPDT

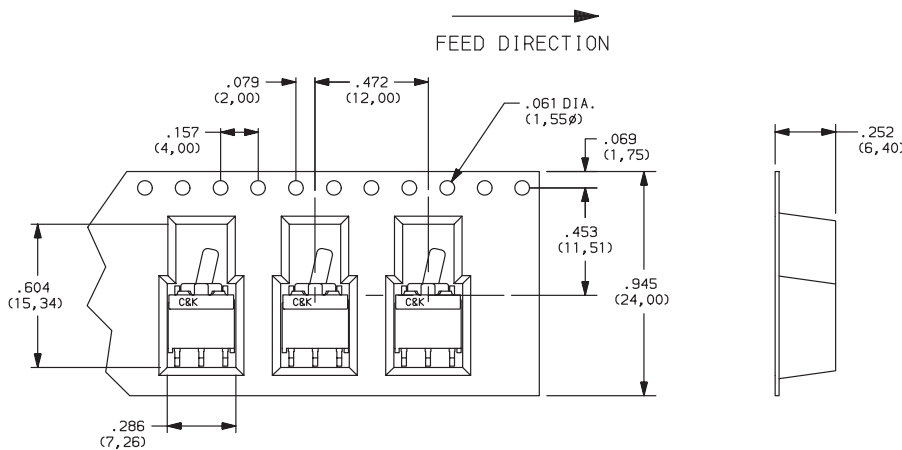
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
GT21MSCBETR	ON	NONE	ON
GT23MSCBETR	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



Standard with tape & reel packaging

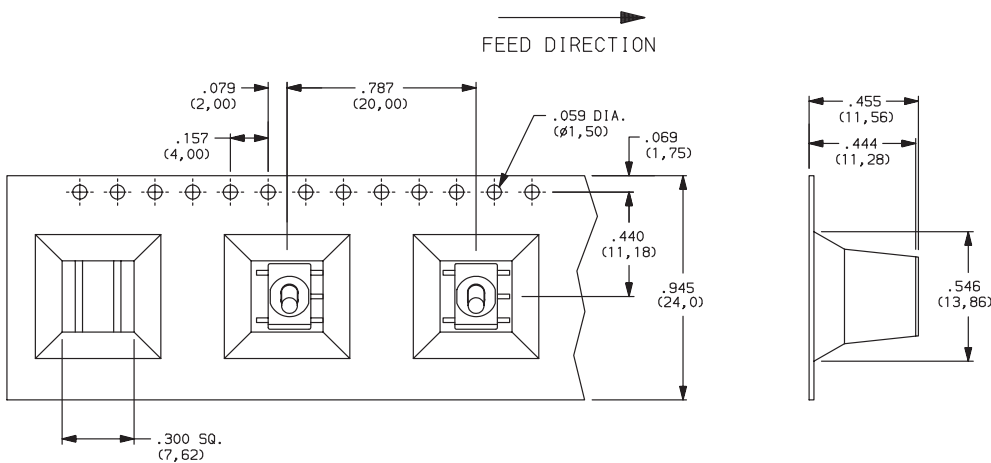
TAPE & REEL

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

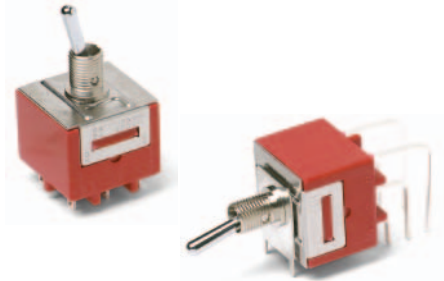
9000 Series Power Toggle Switches

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: 10⁹ 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.

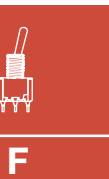
Build-A-Switch

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.

<p>Switch Function</p> <p>9201 DPDT, On-On, 6 Amps 9221 DPDT, On-On, 10 Amps</p> <p>Actuator</p> <p>S Antirotation, .410" high K Locking lever, .650" high K1 Locking lever, .680" high L43 Lever handle with cap P3 Flatted, anti-rotation, .450" high T .687" high, 15/32 bushing T1 .460" high, 15/32 bushing</p> <p>Bushing</p> <p>H3 .296" high, keyway CW Splashproof H .296" high, flat</p> <p>Terminations</p> <p>Z Solder lug Z4 Quick connect (9221 only) AV2 Vert. right angle, PC thru-hole (9201 only) C PC Thru-hole</p>	<p>Contact Material</p> <p>Q Silver</p> <p>Seal</p> <p>E Epoxy D No epoxy</p> <p>Actuator Color/Finish</p> <p>NONE Bright chrome 2 Black</p> <p>Bushing Finish</p> <p>NONE Nickel 2 Black</p> <p>KXX Actuator Color/Finish</p> <p>NONE Natural aluminum 2 Black anodized aluminum</p>
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Dimensions are shown: Inches (mm)
 Specifications and dimensions subject to change



Toggle

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

Terminal Nos. Molded On Side Of Case

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

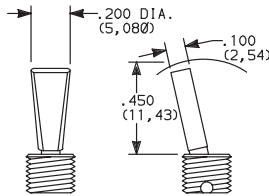
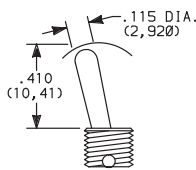
All 9000 Series models meet international dimensional and electrical requirements.

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

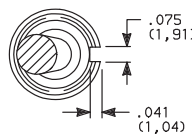
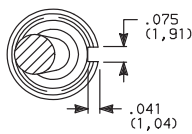
NOTE: Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

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

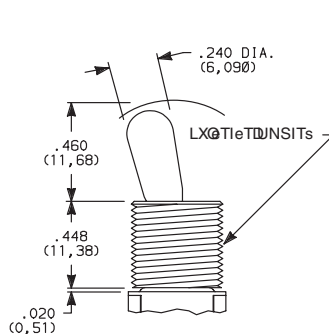
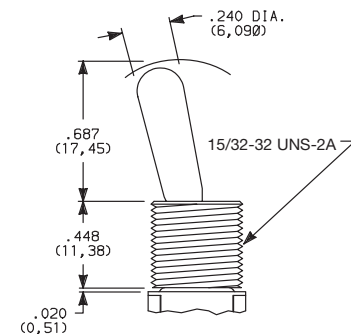
NOTE: Bushing option code not required for T & T1 actuators unless CW splashproof bushing ordered.

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.



F
Toggle



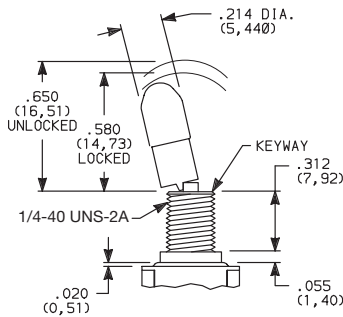
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



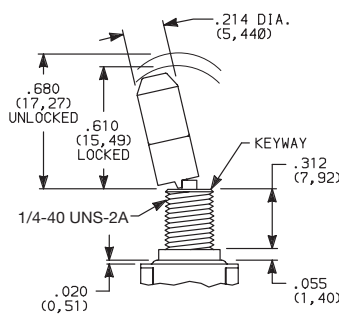
9000 Series Power Toggle Switches

ACTUATOR ACTUATOR FINISH

K LOCKING LEVER, .650" HIGH, THREADED



K1 LOCKING LEVER, .680" HIGH, THREADED



Locking Positions

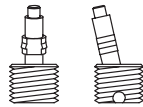


TPositionLock

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.

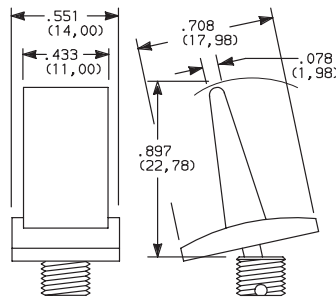
OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK ANODIZED ALUMINUM

L40 LEVER HANDLE WITHOUT CAP



No color choice required.

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



Finish: Matte

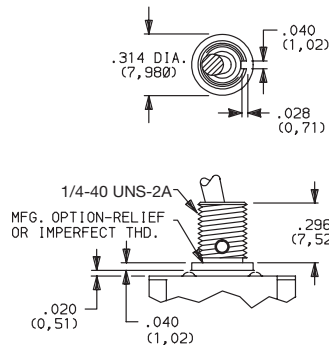
OPTION CODE	ACTUATOR CAP COLOR
2	BLACK
NONE	No Actuator Color (L40 option)

Other colors available, consult Customer Service Center.

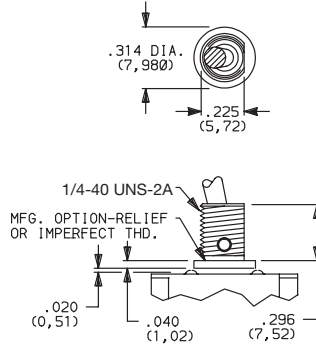
NOTE: Lever handle actuator L43 supplied, but not installed. For interchangeability, order L40 actuator option and order lever handles separately, see page F-47. Antirotation is standard on all actuators, provides 'anti-push-in' feature.

BUSHING BUSHING FINISH

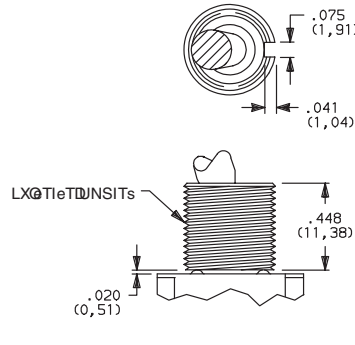
H3 .296" HIGH, THREADED, KEYWAY



H .296" HIGH, THREADED, FLAT



CW SPLASHPROOF, 15/32 BUSHING



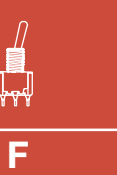
Will withstand 12 in./lbs. of torque with no distortion.

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.

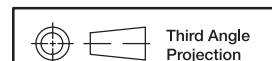
Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.

OPTION CODE	BUSHING FINISH
NONE	NICKEL
2	BLACK



F

Toggle



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



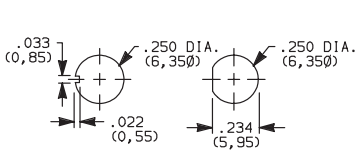
9000 Series Power Toggle Switches

BUSHING

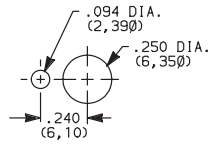
PANEL MOUNTING

1/4-40 UNS-2A

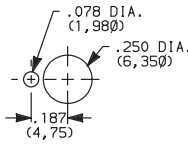
15/32-32 UNS-2A



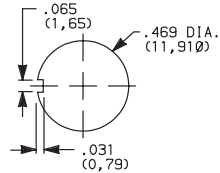
Without Docking Ring M



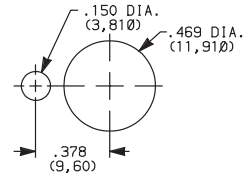
With Standard Docking Ring M



With Small Docking Ring M



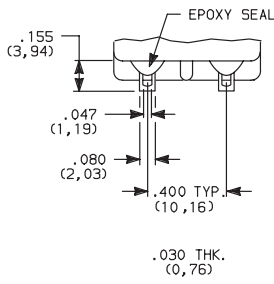
Without Docking Ring M



With Standard Docking Ring M

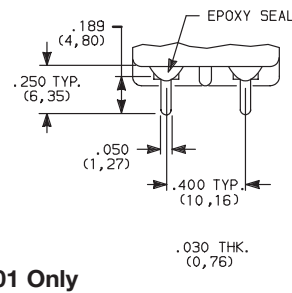
TERMINATIONS

Z SOLDER LUG



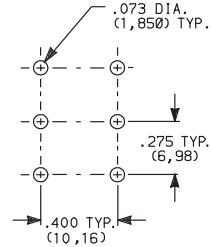
9201 Only

C PC THRU-HOLE



9201 Only

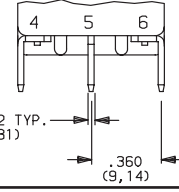
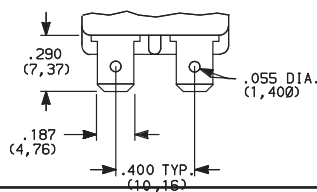
PC MOUNTING



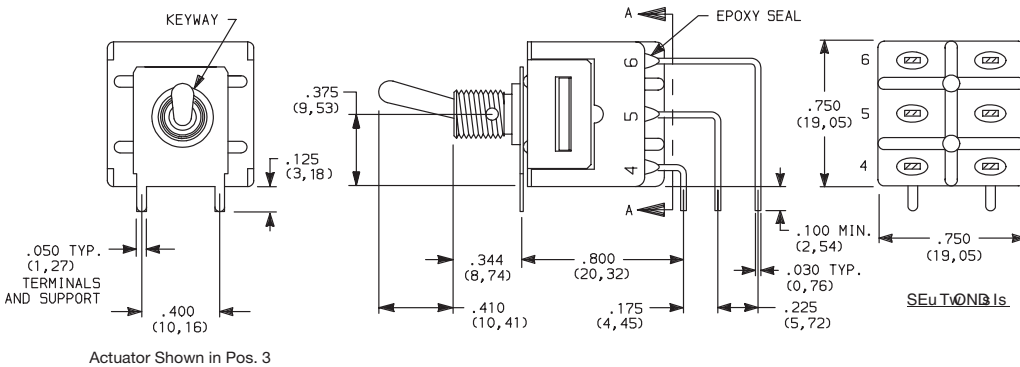
Z4 .187" QUICK CONNECT

9221 Only

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



AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE

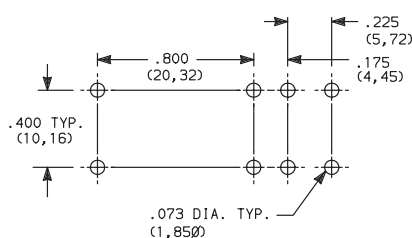


Actuator Shown in Pos. 3



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 ^{1,2}	SILVER OR TIN ^{2,5}	POWER	6 AMPS @120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
	9221	SILVER CADMIUM OXIDE ^{3,4,6}	TIN ⁵		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.

¹ END CONTACTS: Coin silver, silver plated.

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

³ END CONTACTS: Silver cadmium oxide.

⁴ CENTER CONTACTS: Copper alloy, silver plated.

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

⁶ Cadmium in electrical switch contacts is exempt from RoHS.

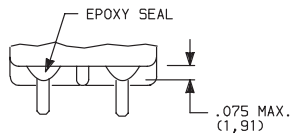
NOTE: Any models supplied with Q contact material are RoHS compliant.

All 9000 Series models meet international dimensional and electrical requirements. 

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

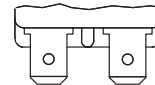
SEAL

E EPOXY SEAL



Not available with 9221 model or Z4 terminations.

D NO EPOXY SEAL



Must be ordered with 9221 model and Z4 termination.

AVAILABLE HARDWARE

Cap
Compatible with S actuator



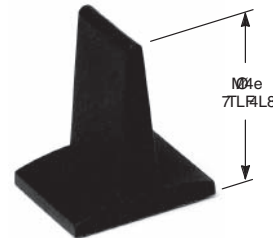
PART NO.
896801000 WHITE
896802000 BLACK
896803000 RED
 Material: Polyethylene
 Finish: Matte

Cap
Compatible with S actuator



PART NO.
706201000 WHITE
706202000 BLACK
706203000 RED
 Material: Vinyl
 Finish: Matte

L43 Actuator

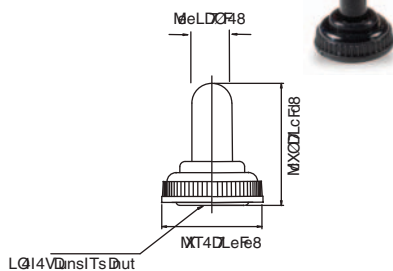


PART NO.
481202000 BLACK
481203000 RED
 Material: Nylon
 Finish: Matte

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

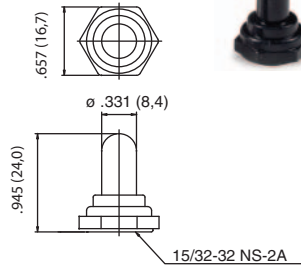
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



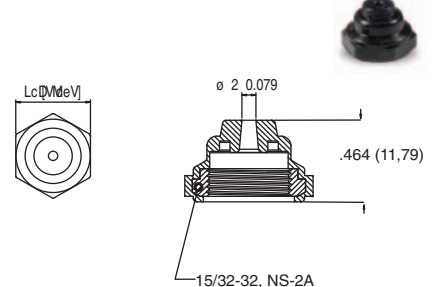
NOTE: For use with S actuator style when combined with H3 and H bushings

703D02000 Sealing Boot

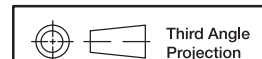


NOTE: For use with T style actuator

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 «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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