

# ET Series Sealed Subminiature Toggle Switches

## Features/Benefits

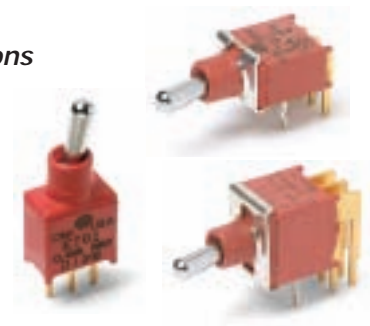
- Sealed against solder and cleaning process contaminants
- ESD protection available
- Thru-hole and surface mount models
- Compact size and small footprint save PCB space
- RoHS compliant models available



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-32 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 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

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

**ELECTROSTATIC DISCHARGE (ESD) 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 G-35 for drawings and reel information.

## Materials

**CASE & BUSHING:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). SA surface mount: High temperature material, 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 G-35 for additional contact materials.

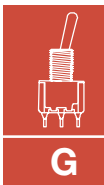
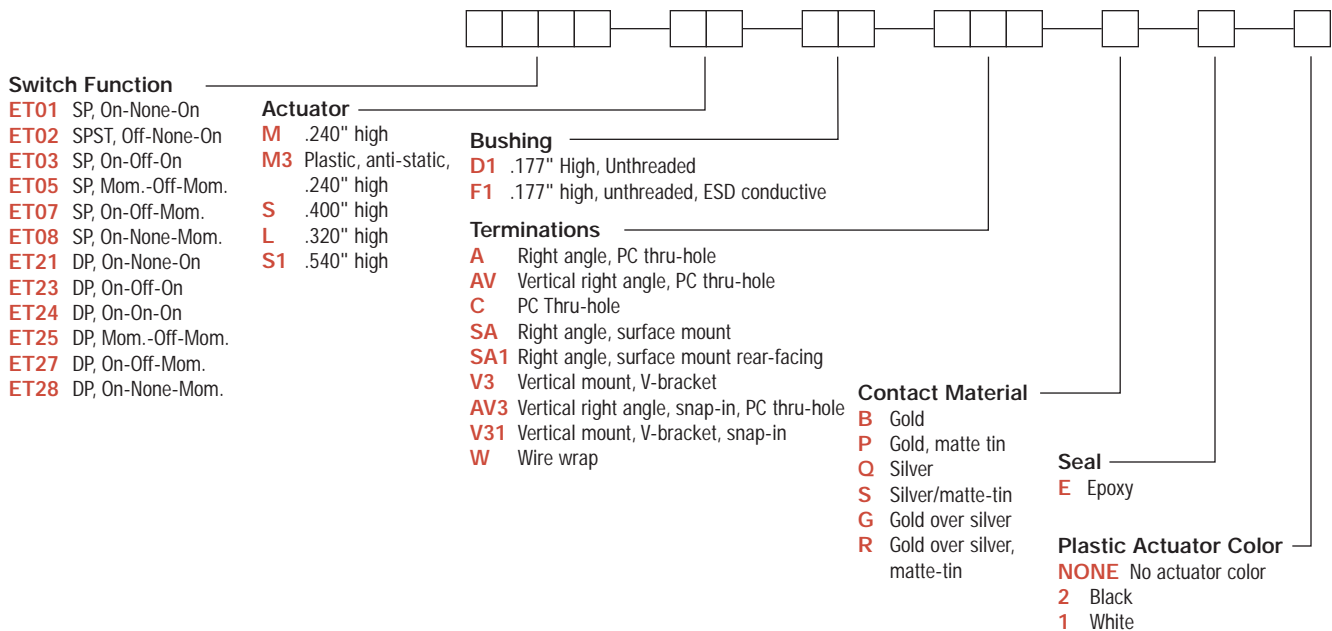
**TERMINAL SEAL:** Epoxy.

**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 G-31 thru G-35. 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.



Toggle



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

# ET Series Sealed Subminiature Toggle Switches

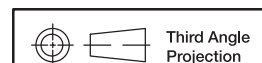
## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION			CONNECTED TERMINALS			SCHEMATIC
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
		C&K marking on opposite side			C&K marking on opposite side			
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	SPST
<b>SPDT</b> <div style="display: flex; justify-content: space-around;"> <div> </div> <div> </div> </div> <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	
<b>DPDT</b> <div style="display: flex; justify-content: space-around;"> <div> </div> <div> </div> </div> <p>Part number shown: ET21MD1CBE</p>								

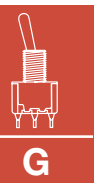
MOM. = Momentary

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

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



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



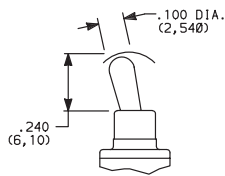
G

Toggle

# ET Series Sealed Subminiature Toggle Switches

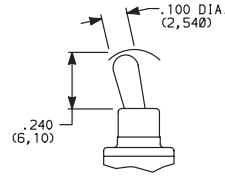
## ACTUATOR

**M** .240" HIGH



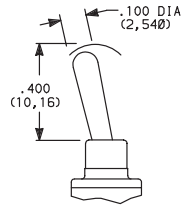
Standard with A, AV, V3 & V31 terminations.

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



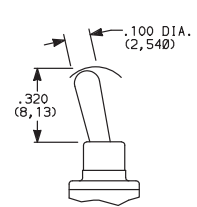
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not available with F1 conductive bushing option. Not UL approved.

**S** .400" HIGH

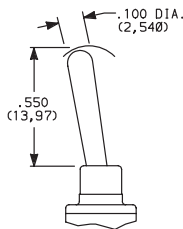


Standard with C or W terminations.

**L** .320" HIGH



**S1** .540" HIGH



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

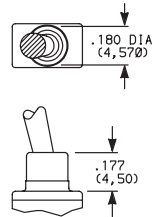
NOTE: All actuators have chrome finish (except M3 & S3).

## BUSHING

**D1** .177" HIGH, UNTHREADED

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

F1 bushing is not UL/CSA approved



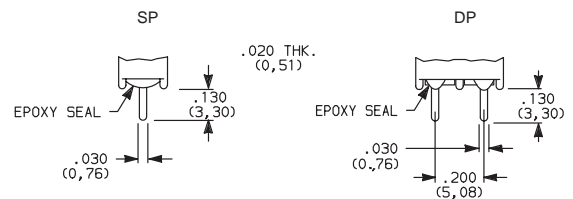
NOTE: ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

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

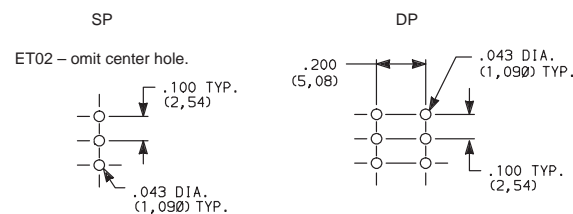
Internal actuator o-ring seal standard.

## TERMINATIONS

**C** PC THRU-HOLE



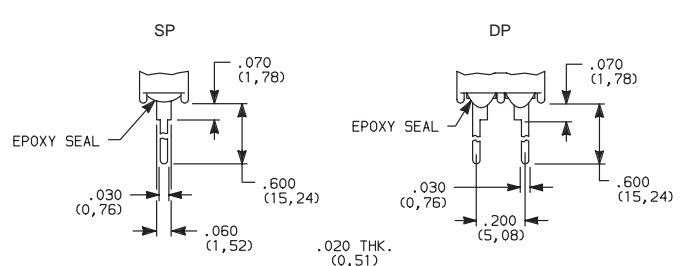
PC MOUNTING



SP and DP

Not available with F1 conductive bushing.

**W** WIRE WRAP



SP and DP

Not available with F1 conductive bushing.



Third Angle Projection

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G

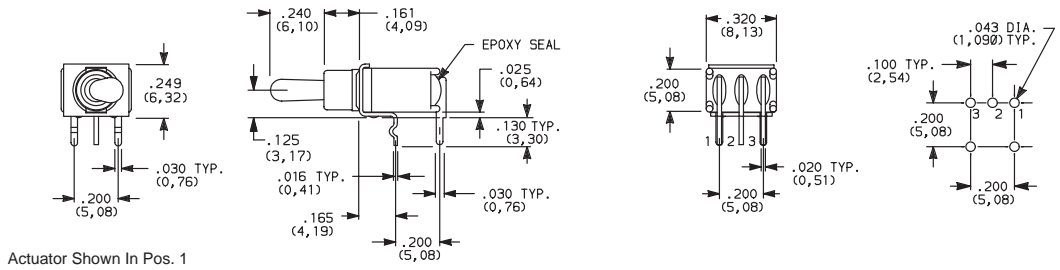
Toggle

**C&K**

# ET Series Sealed Subminiature Toggle Switches

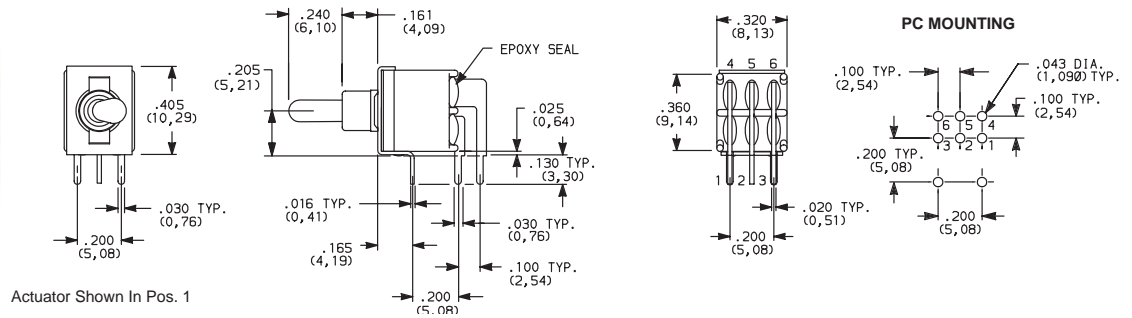
## TERMINATIONS

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

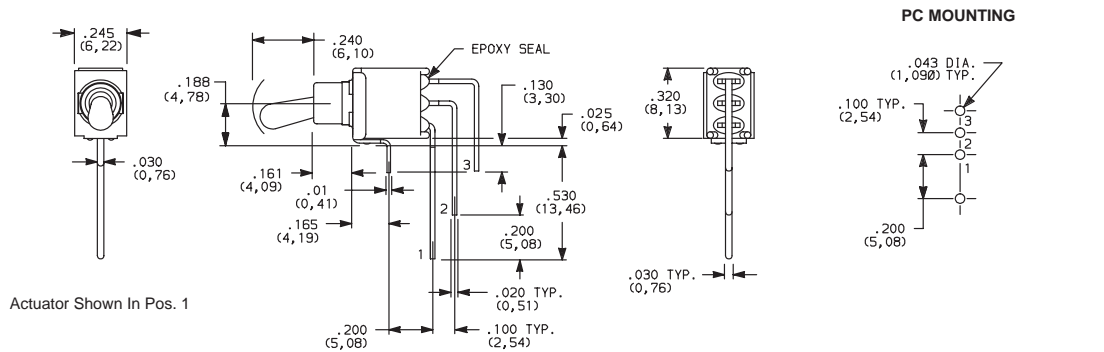


Not available with ET02 model.

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



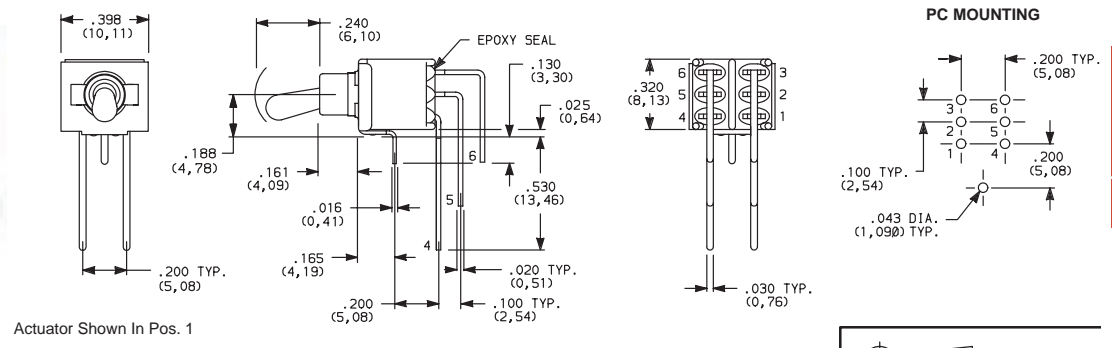
**AV** VERTICAL RIGHT ANGLE, PC THRU-HOLE



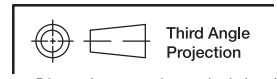
ET02 - omit terminal 2.

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

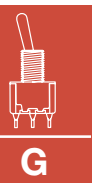
**AV** VERTICAL RIGHT ANGLE, PC THRU-HOLE



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



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

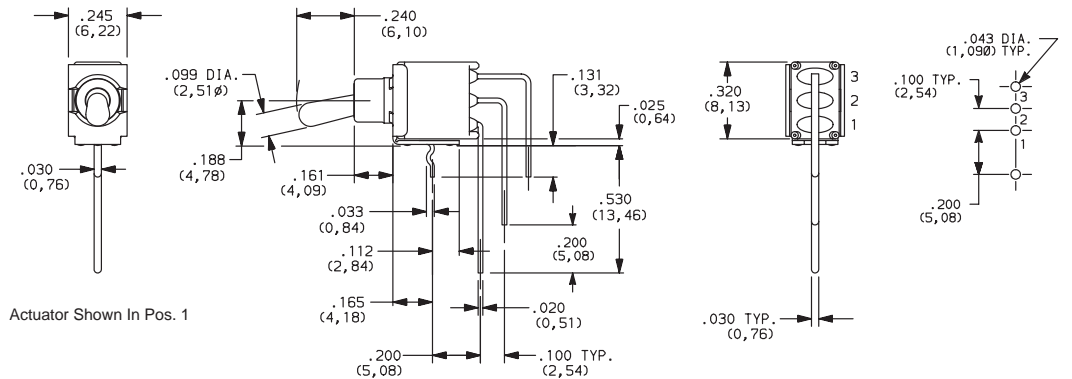


Toggle

# ET Series Sealed Subminiature Toggle Switches

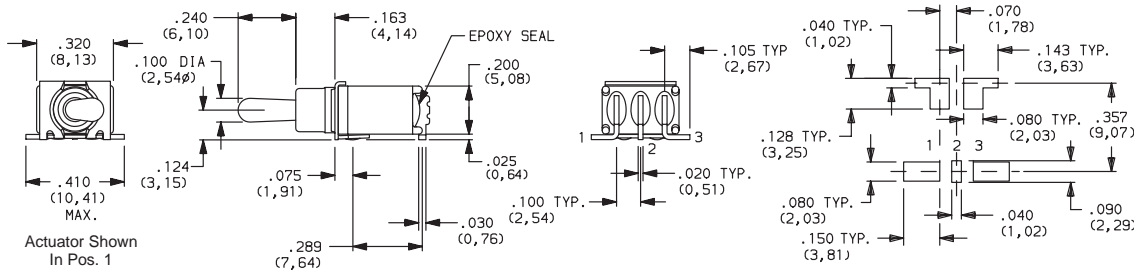
## TERMINATIONS

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



ET01SD1AV2BE  
Vertical Actuation  
SPDT

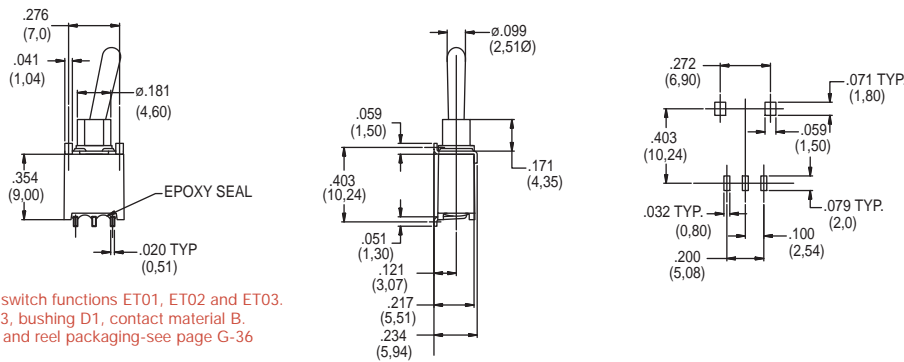
### SA RIGHT ANGLE, SURFACE MOUNT



ET01M3D1SAKE  
Horizontal Actuation  
SPDT Only

Not available with S and S1 actuators. Standard with tape & reel packaging. See page G-35.

### SA1 RIGHT ANGLE, SURFACE MOUNT

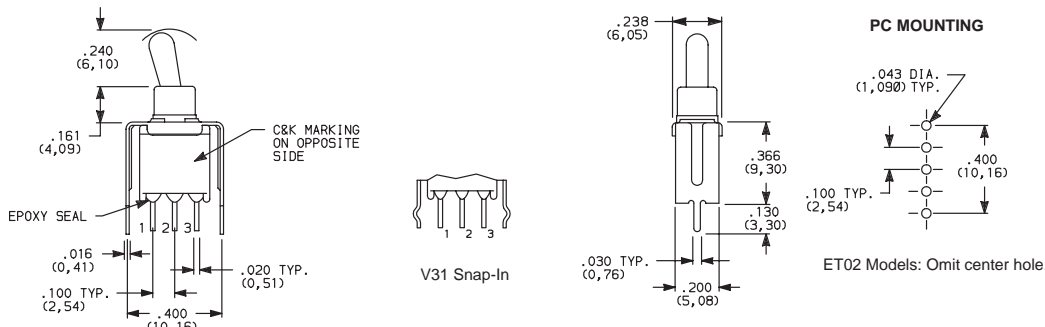


ET01M3D1SA1BE  
Horizontal Actuation  
SPDT Only

Only available with switch functions ET01, ET02 and ET03. Actuators M and M3, bushing D1, contact material B. Standard with tape and reel packaging-see page G-36

### V3 VERTICAL MOUNT, V-BRACKET

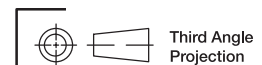
### V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



ET01MD1V3BE  
SPDT

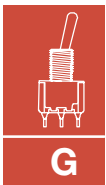
Actuator Shown In Pos. 1  
ET02 Models: Omit terminal 2

ET02 Models: Omit center hole.



Third Angle Projection

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



G

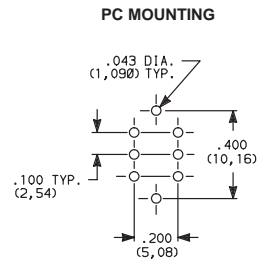
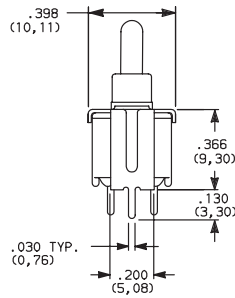
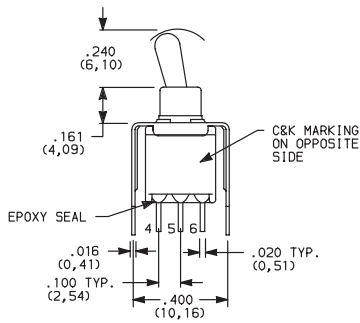
Toggle



# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

### V3 VERTICAL MOUNT, V-BRACKET



ET21MD1V3BE  
DPDT

## CONTACT MATERIAL

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

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

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

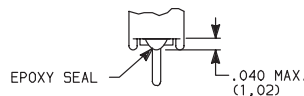
**NOTE:** Any models supplied with Q, B, G, P or R contact material are RoHS compliant.

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

K, L and M options represent Non RoHS tin lead product and are not recommended for new designs. For additional information please contact Customer Service.

## SEAL

### E EPOXY SEAL



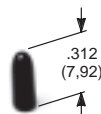
## AVAILABLE HARDWARE

### Cap

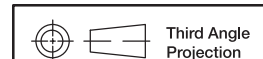
#### PART NO.

- 706201000 WHITE
- 706202000 BLACK
- 706203000 RED

Material: Vinyl  
Finish: Matte



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



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



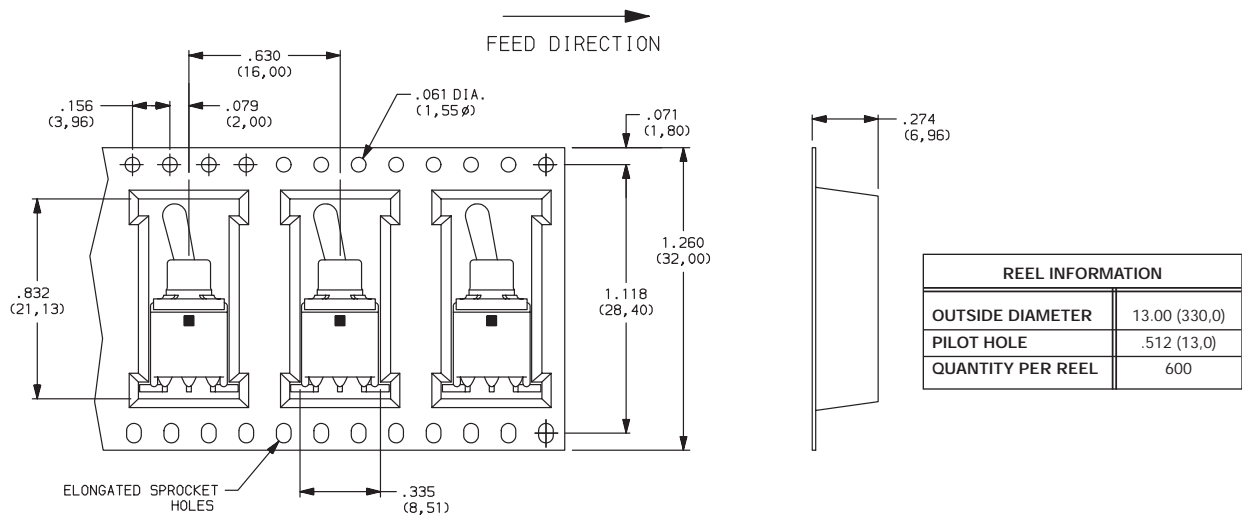
G

Toggle

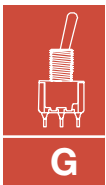
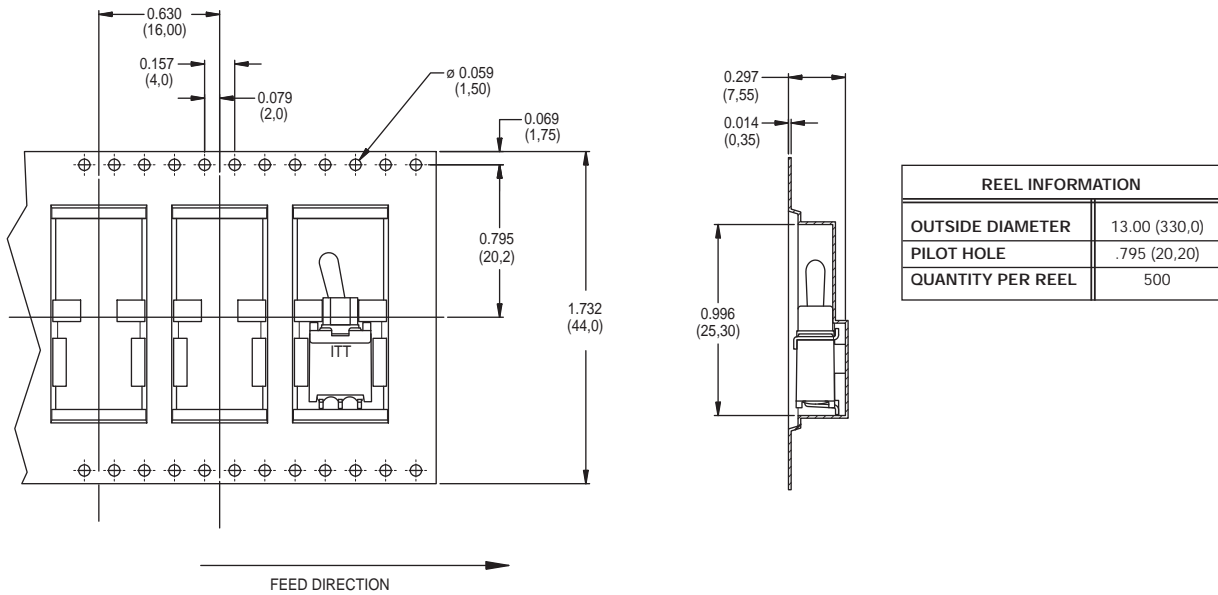
# ET Series Sealed Subminiature Toggle Switches

## TAPE & REEL

For part number ET01M3D1SAKE



For part number ET01M3D1SA1BE



Toggle



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