

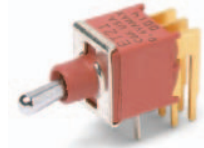
ET Series Sealed Subminiature Toggle Switches

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-30 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.

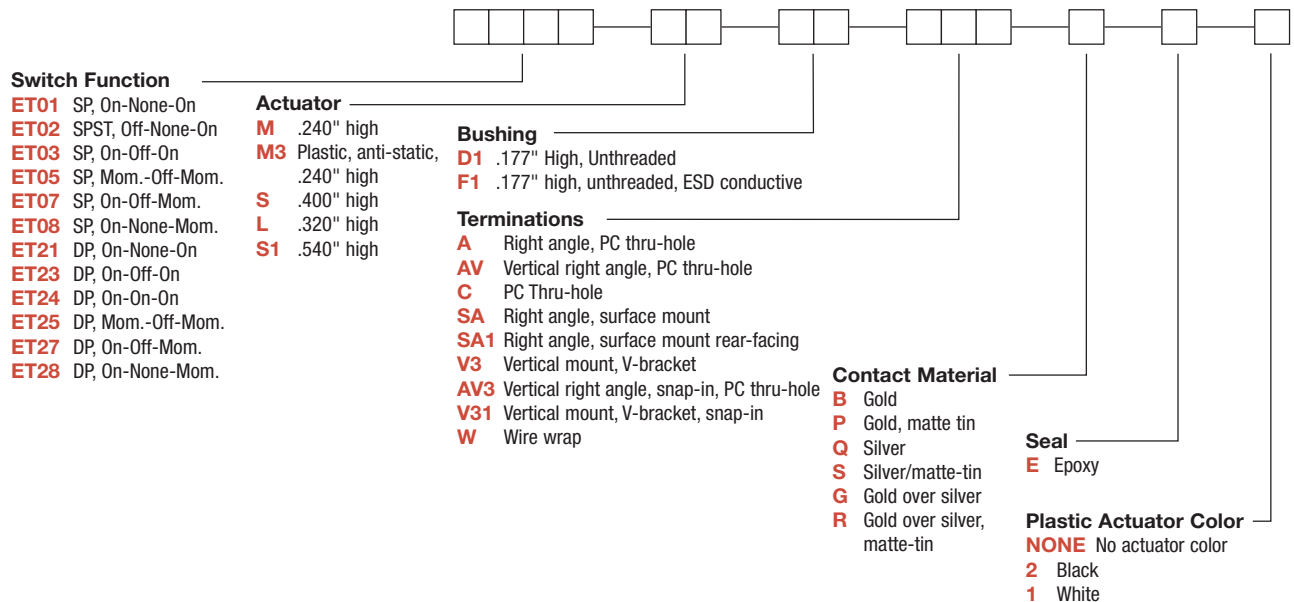
TERMINAL SEAL: Epoxy.

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.



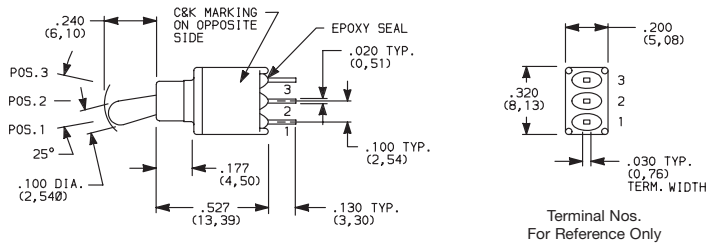
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

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		

SPDT

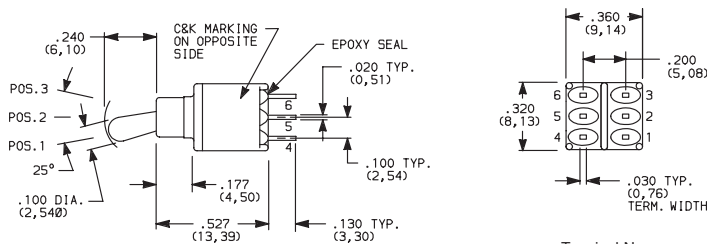


Part number shown: ET01MD1CBE

ET02 Models: Omit terminal 2

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



Part number shown: ET21MD1CBE

MOM. = Momentary

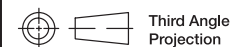
** Wiring for 3-way switch, see Section N.

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



F

Toggle

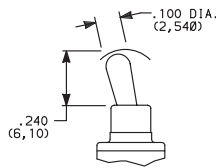


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series Sealed Subminiature Toggle Switches

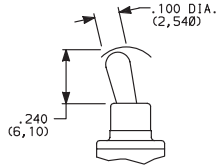
ACTUATOR

M .240" HIGH



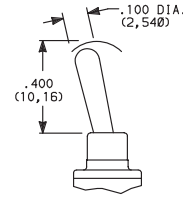
Standard with A, AV, V3 & V31 terminations.

M3 PLASTIC, ANTISTATIC,
.240" HIGH



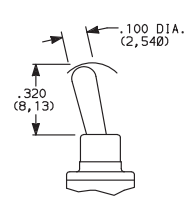
Material: Nylon 4/6 (UL 94V-0), black standard.
Static resistance: 9,000 V DC min. @ sea level,
actuator to terminals. Not available with F1
conductive bushing option. Not UL approved.

S .400" HIGH

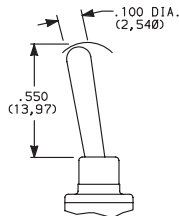


Standard with C or W terminations.

L .320" HIGH



S1 .550" HIGH



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

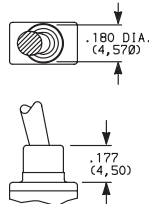
NOTE: All actuators have chrome finish (except M3 & S3).

BUSHING

D1 .177" HIGH, UNTHREADED

F1 ESD, CONDUCTIVE BUSHING
UNTHREADED, .177" HIGH

F1 bushing is not UL approved



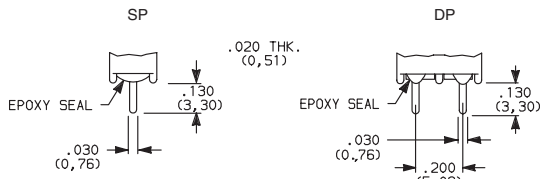
NOTE: ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

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

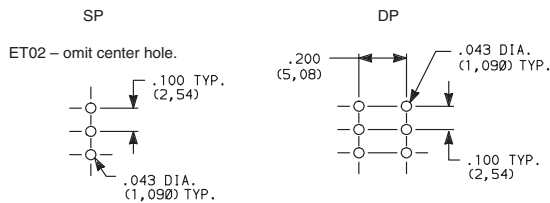
Internal actuator o-ring seal standard.

TERMINATIONS

C PC THRU-HOLE



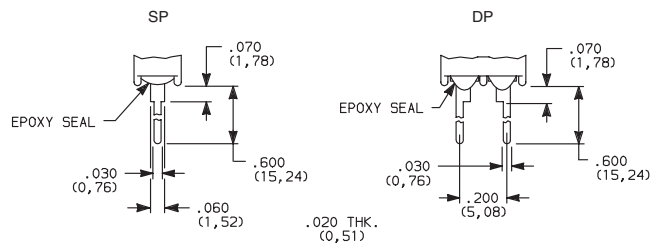
PC MOUNTING



SP and DP

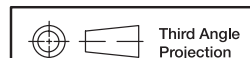
Not available with F1 conductive bushing.

W WIRE WRAP



SP and DP

Not available with F1 conductive bushing.



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



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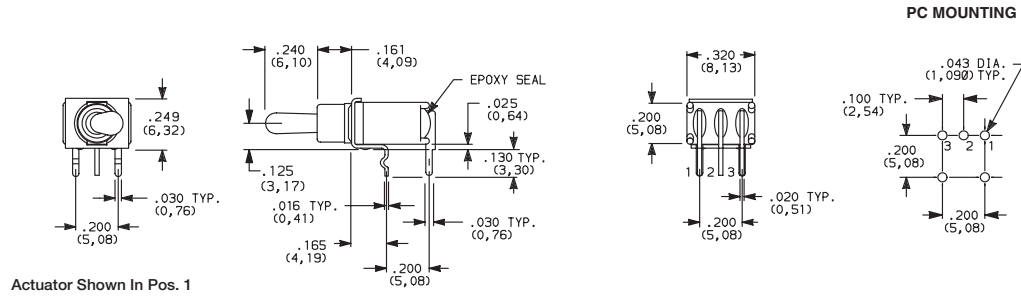
Toggle

ET Series Sealed Subminiature Toggle Switches

TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

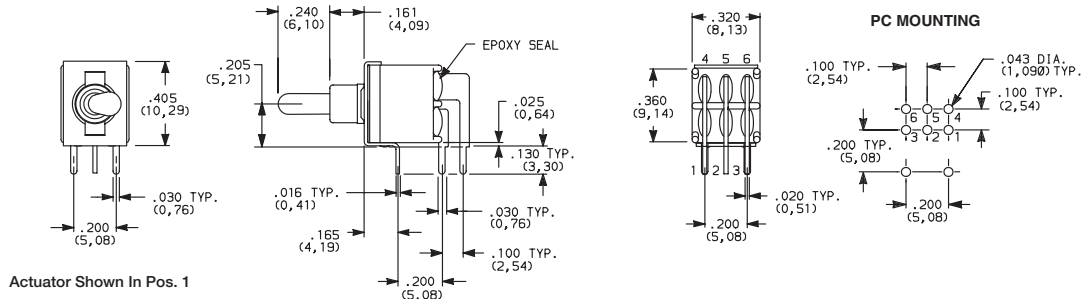
ET01MD1ABE
Horizontal Actuation
SPDT



Not available with ET02 model.

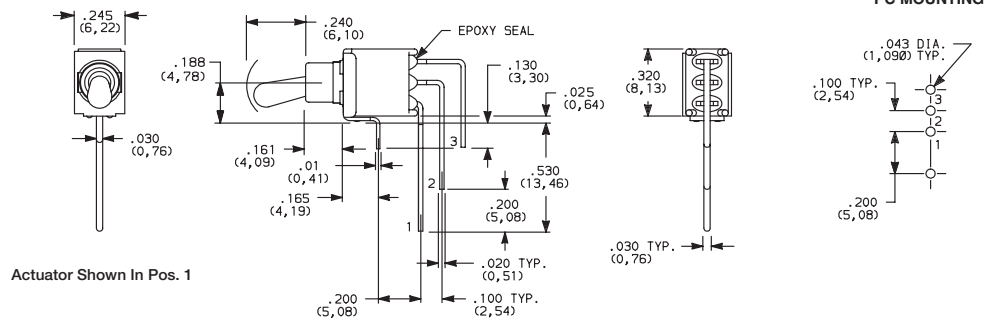
A RIGHT ANGLE, PC THRU-HOLE

ET21MD1ABE
Horizontal Actuation
DPDT



AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET01MD1AVBE
Vertical Actuation
SPDT

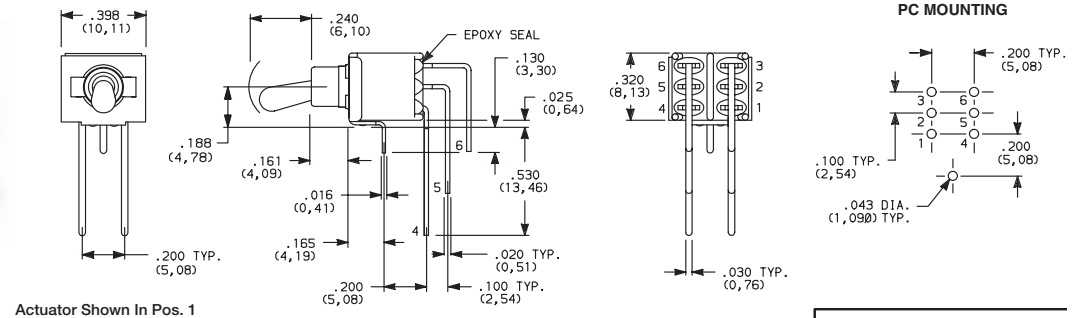


ET02 - omit terminal 2.

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

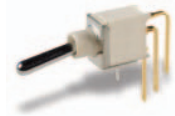
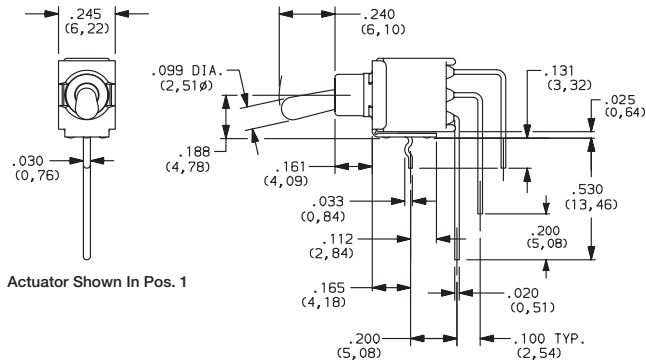
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ET Series Sealed Subminiature Toggle Switches

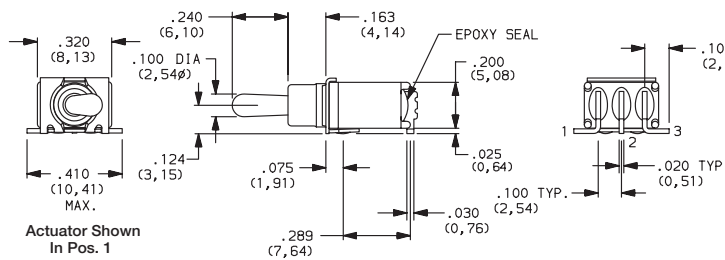
TERMINATIONS

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



ET01SD1AV2BE
Vertical Actuation
SPDT

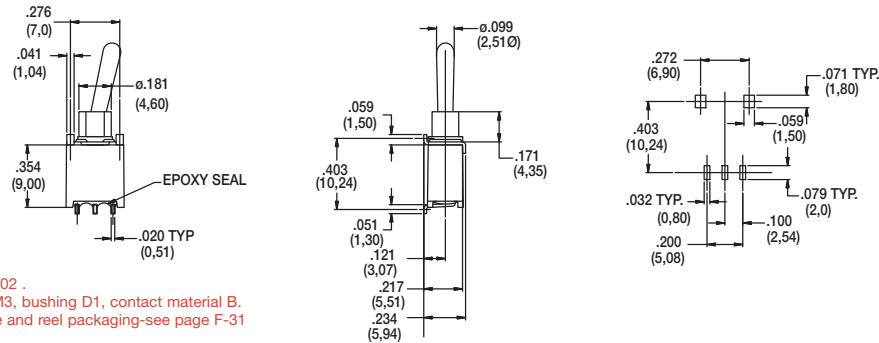
SA RIGHT ANGLE, SURFACE MOUNT



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

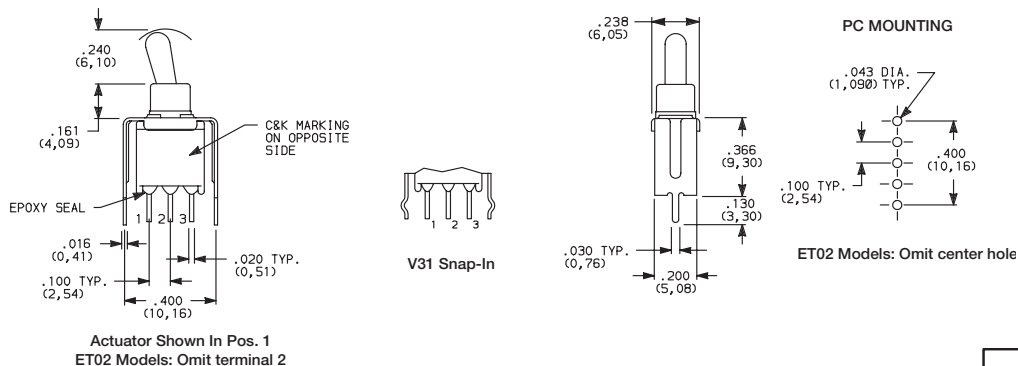


ET01M3D1SA1BE
Horizontal Actuation
SPDT Only

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



ET01MD1V3BE
SPDT



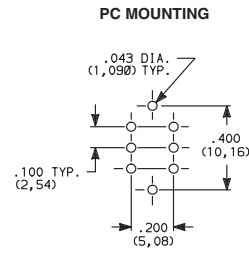
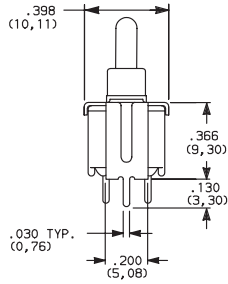
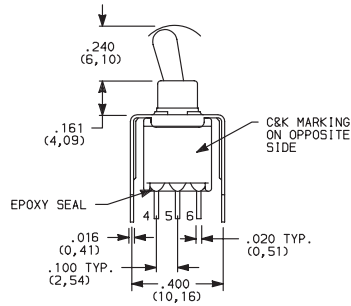
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



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.

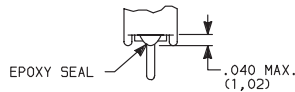
- 1 CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- 2 END CONTACTS: Coin silver, with gold plate over nickel plate.
- 3 CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
- 4 END CONTACTS: Coin silver, silver plated.
- 5 CENTER CONTACT & ALL TERMINALS: 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 **C&K** with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

SEAL

E EPOXY SEAL



AVAILABLE HARDWARE

Cap

PART NO.
706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
 Finish: Matte



NOTE: Other colors available, consult Customer Service Center.



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

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F

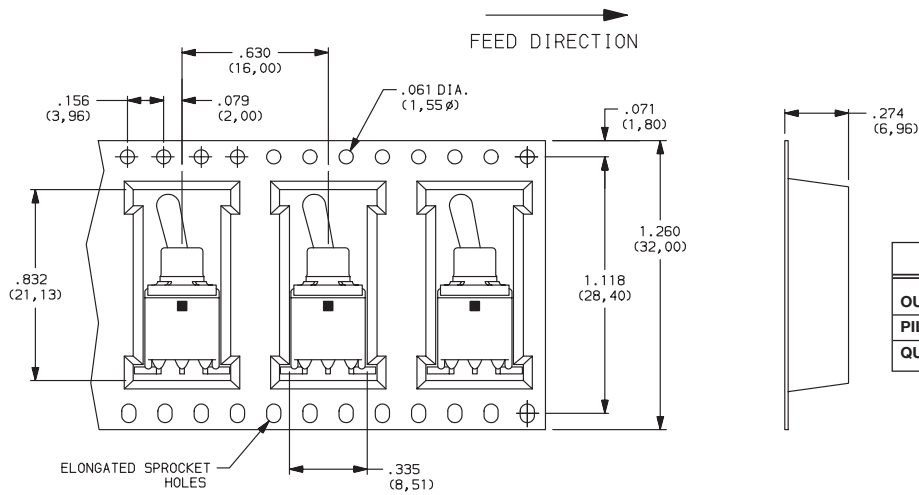
Toggle



ET Series Sealed Subminiature Toggle Switches

TAPE & REEL

For part number ET01M3D1SAKE



For part number ET01M3D1SA1BE

