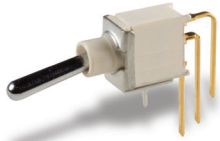
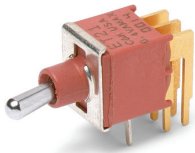


# ET Series Sealed Subminiature Toggle Switches



## 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  $\Omega$  typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

**INSULATION RESISTANCE:**  $10^9 \Omega$  min.

**ELECTROSTATIC DISCHARGE (ESD) RESISTANT OPTION:** M3 & S3 insulating actuator only: 9,000 V DC min. @ sea level, actuator to terminals.

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

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

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

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

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

## Materials

**CASE & BUSHING:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) or glass filled 4/6 nylon, flame retardant, heat stabilized (UL 94V-0).

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

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

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

**TERMINAL SEAL:** Epoxy.

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

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

## Build-A-Switch

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

### Switch Function

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

### Actuator

- M** .240" high
- M3** Plastic, anti-static, .240" high
- S** .400" high
- L** .320" high
- S1** .540" high

### Bushing

- D1** .177" High, Unthreaded

### Terminations

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

### Contact Material

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

### Seal

- E** Epoxy

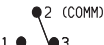
### Plastic Actuator Color

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

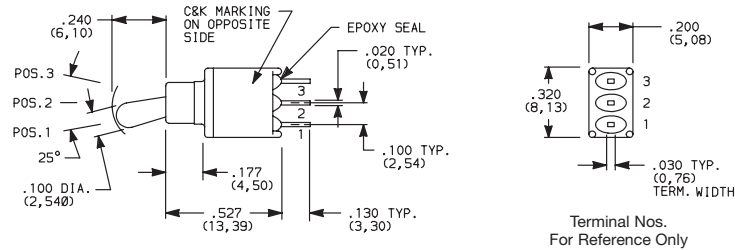
# ET Series Sealed Subminiature Toggle Switches

## 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                                                                                 | SPDT                                                                                     |
|           | ET02      | OFF                                                                               | NONE                                                                              | ON                                                                                | OPEN                                                                              | N/A                                                                               | 3-1                                                                                 | SPST  |

### SPDT



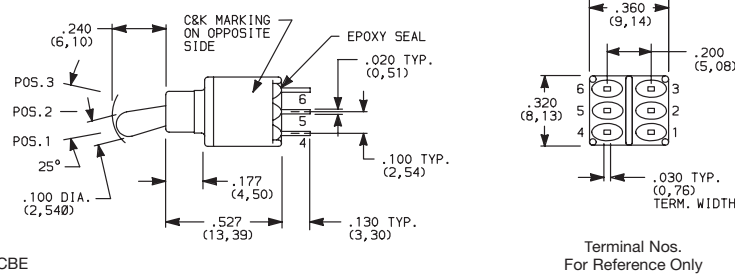
Part number shown: ET01MD1CBE

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

### 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.



F

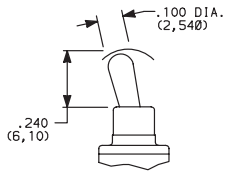
Toggle

# ET Series Sealed Subminiature Toggle Switches

## ACTUATOR

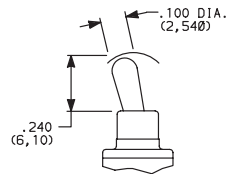
ACTUATOR COLOR

**M** .240" HIGH



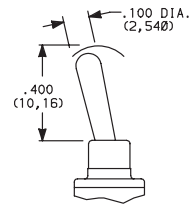
Standard with A, AV, V3 & V31 terminations.

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



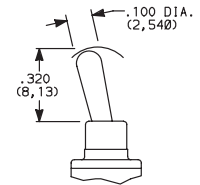
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not UL approved.

**S** .400" HIGH

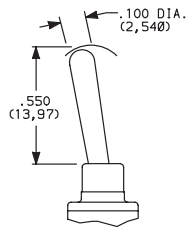


Standard with C or W terminations.

**L** .320" HIGH



**S1** .540" HIGH

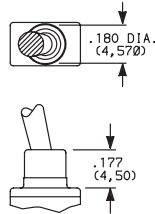


| OPTION CODE | PLASTIC ACTUATOR COLOR |
|-------------|------------------------|
| (NONE)      | BLACK (M3 & S3 only)   |
| 1           | WHITE (M3 & S3 only)   |

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

## BUSHING

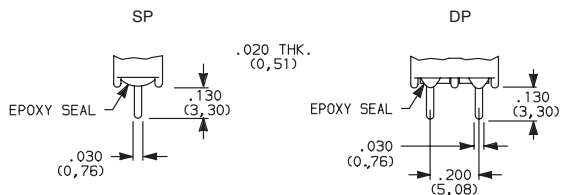
**D1** .177" HIGH, UNTHREADED



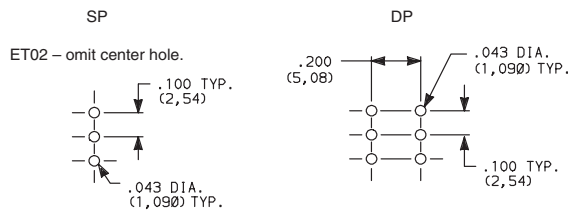
**NOTE:** Internal actuator o-ring seal standard.

## TERMINATIONS

**C** PC THRU-HOLE

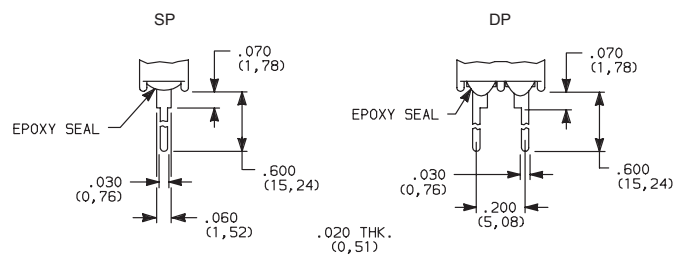


PC MOUNTING



SP and DP

**W** WIRE WRAP



SP and DP



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

**C&K**

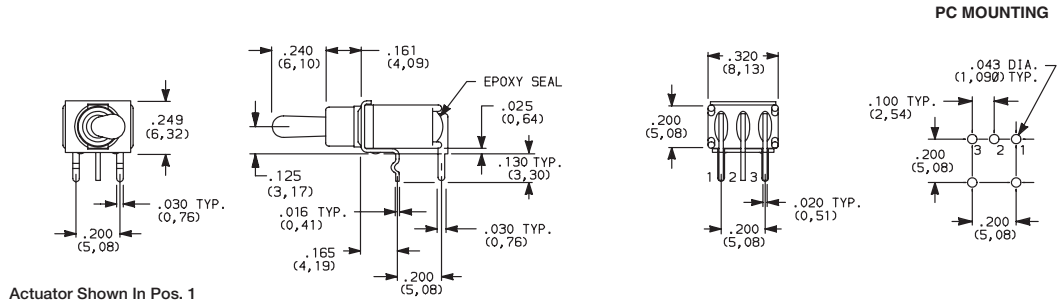
7 dec 18

# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

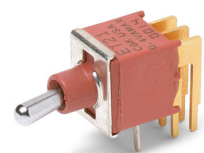
**A** RIGHT ANGLE, PC THRU-HOLE

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

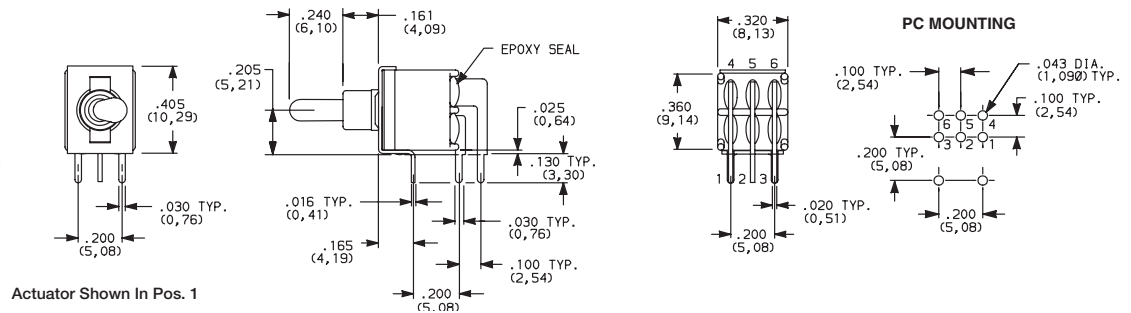


Not available with ET02 model.

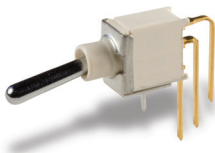
**A** RIGHT ANGLE, PC THRU-HOLE



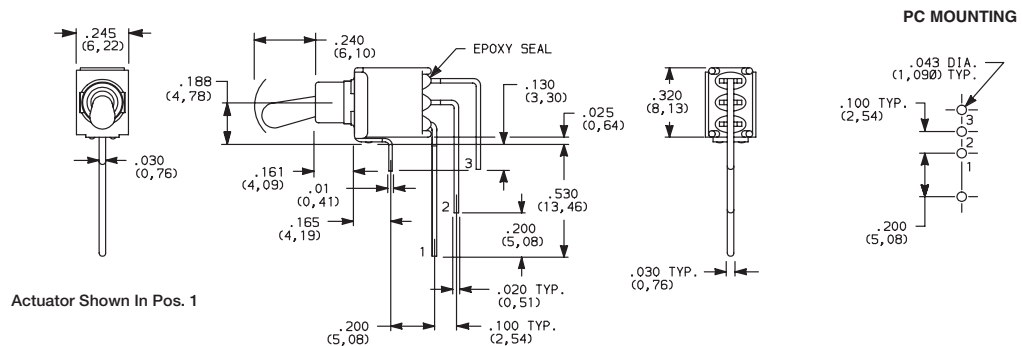
**ET21MD1ABE**  
Horizontal Actuation  
**DPDT**



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



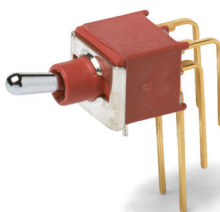
**ET01MD1AVBE**  
Vertical Actuation  
**SPDT**



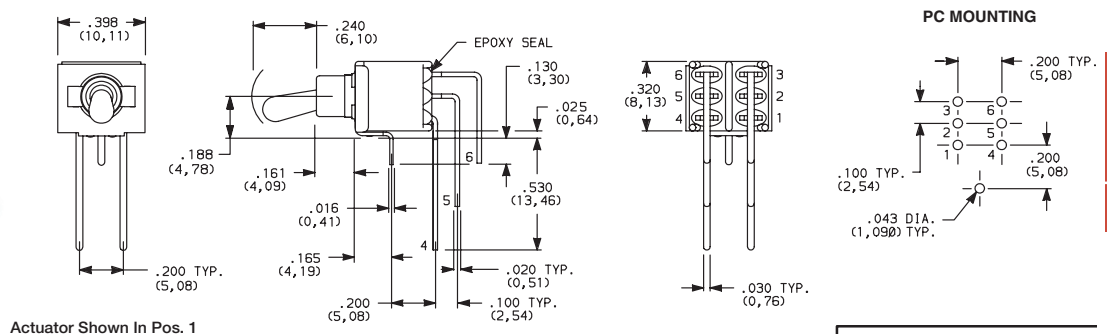
ET02 - omit terminal 2.

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

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



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



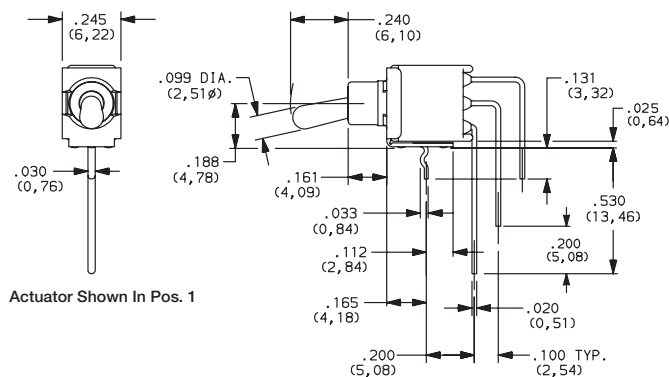
**NOTE:** Terminal bend radii and lead-in manufacturing option.



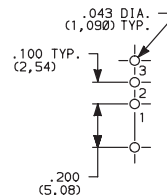
# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

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

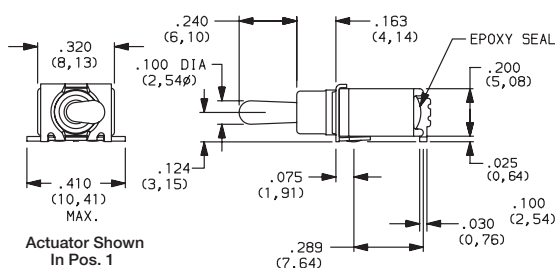


#### PC MOUNTING

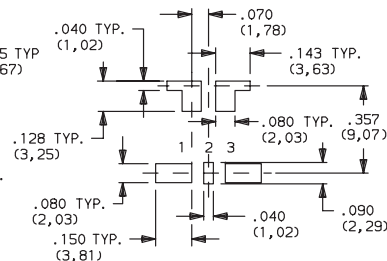


ET01SD1AV2BE  
Vertical Actuation  
SPDT

### SA RIGHT ANGLE, SURFACE MOUNT



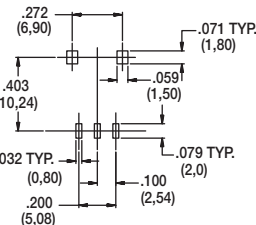
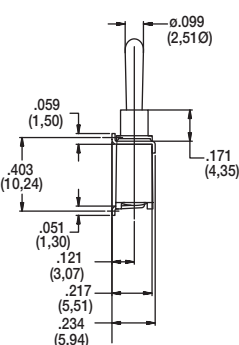
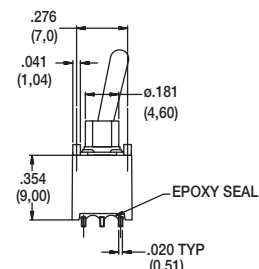
#### PC MOUNTING



ET01M3D1SAPE  
Horizontal Actuation  
SPDT Only

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

### SA1 RIGHT ANGLE, SURFACE MOUNT

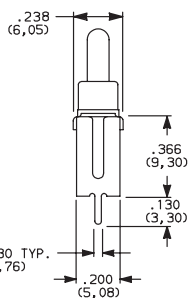
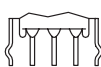
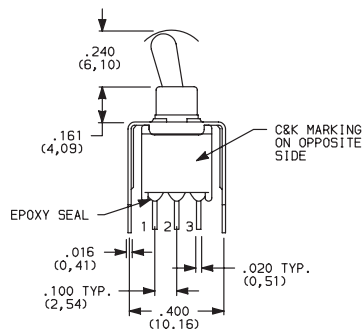


ET01M3D1SA1BE  
Horizontal Actuation  
SPDT Only

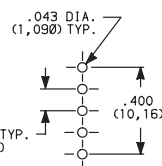
Not available in ET02.  
Actuators M and M3, bushing D1, contact material B.  
Standard with tape and reel packaging-see page F-36.

### V3 VERTICAL MOUNT, V-BRACKET

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



#### PC MOUNTING



ET02 Models: Omit center hole

ET01MD1V3BE  
SPDT

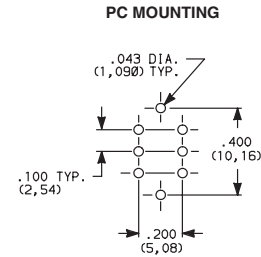
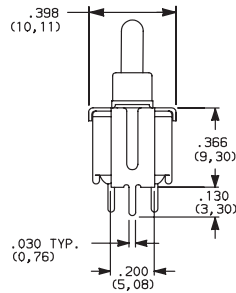
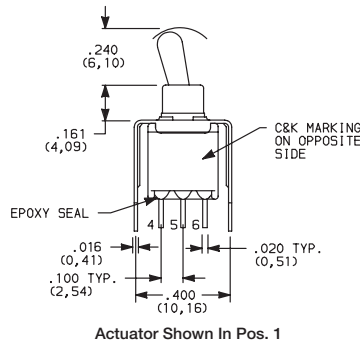


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# ET Series Sealed Subminiature Toggle Switches

## TERMINATIONS

### V3 VERTICAL MOUNT, V-BRACKET



ET21MD1V3BE  
DPDT

## CONTACT MATERIAL

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

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

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

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

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

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

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

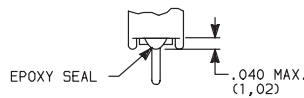
<sup>6</sup> TERMINALS: Copper alloy, with matte tin over nickel plate.

**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.

## SEAL

### E EPOXY SEAL



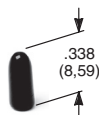
## AVAILABLE HARDWARE

### Cap

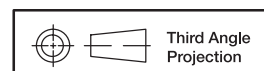
#### PART NO.

**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



7 dec 18



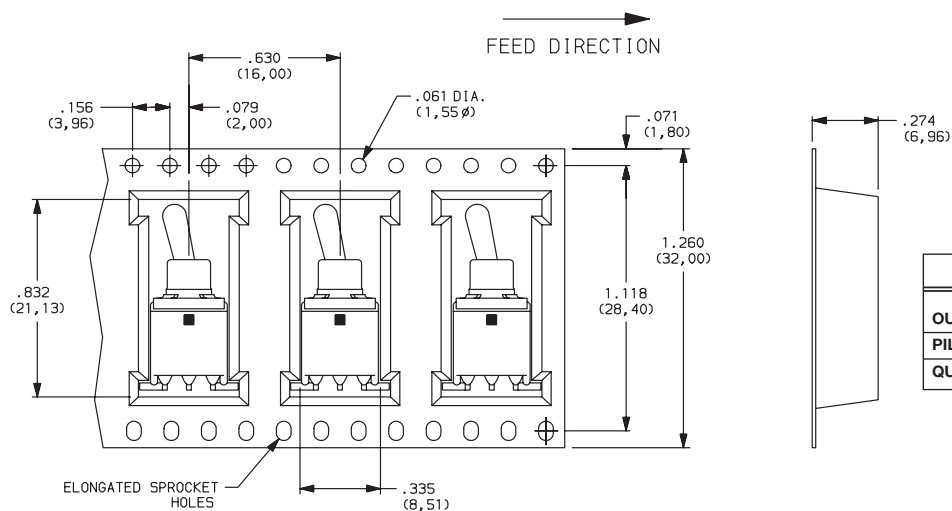
F

Toggle

# ET Series Sealed Subminiature Toggle Switches

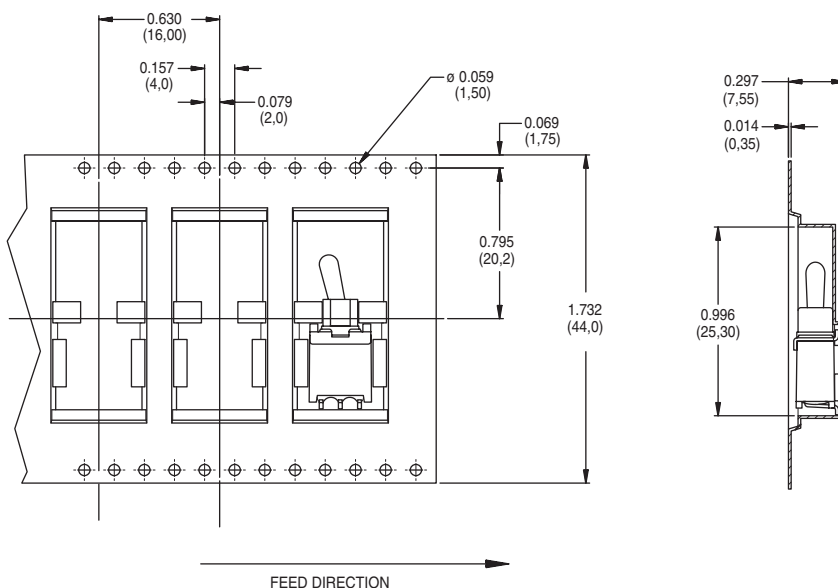
## TAPE & REEL

For part number ET01M3D1SAPE



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

For part number ET01M3D1SA1BE



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



T

Toggle

**C&K**

7 dec 18



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

[www.ckswitches.com](http://www.ckswitches.com)

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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