

## Industrial

### 16mm Diameter

### Carbon Composition

### Rotary Potentiometer

#### Features

- Versatile Mounting Styles
  - Bushing
  - Twist or Bend Tab
  - Snap-in PC Bracket
  - PC Terminal
- Single, Tandem, or Concentric Units
- Power Switch Available
- Panel Seal Available
- Wide Resistance Range
- Low Noise
- RoHS compliant



#### Electrical and Mechanical Specifications

##### Resistance Range

500 ohms through 2 Megohms, linear  
5K ohms through 200K ohms, audio

##### Resistance Tolerance

±30%, ±20%, ±10%

##### Power Rating

1/4 watts @ 55°C (Resistance up to 100K ohms)  
1/5 watts @ 55°C (Resistance above 100K ohms)

##### Dielectric Strength

750 VAC for 1 minute

##### Maximum Operating Voltage

500 VDC

##### Insulation Resistance

100 Megohms minimum @ 250 VDC

##### Angle of Rotation

Total Rotation (Potentiometer and Switch)

Without Switch: 300°

With Switch: 315°

Effective Electrical Angle (Potentiometer)

Without Switch: 300°

With Switch: 290°

##### Rotational Torque

36-360 gf-cm

##### Stop Strength

5.76 kgf-cm minimum

##### Push-Pull Strength of Shaft

10 kg for 10 seconds

##### Rotational life

10K cycles

##### Operating temperature

-10°C to +70°C

##### Solder Heat Resistance

260°C for 5 seconds

##### Mounting Information

- Bushing
- Twist Tab
- Bend Tab
- Snap-in PC Bracket
- PC Terminal

## Electrical and Mechanical Specifications

### Shaft and Bushing Information

#### Metal Shaft and Bushing

*Single or Dual Section Potentiometer with One Shaft*

| Shaft Diameter |      | Bushing Diameter |           |
|----------------|------|------------------|-----------|
| inch           | mm   | inch             | mm        |
| .125           | 3.20 | 1/4" – 32UNEF-2A | M7 X .75P |
| .156           | 4.00 | 1/4" – 32UNEF-2A | M7 X .75P |
| .187           | 4.70 | 3/8" – 32UNEF-2A | M7 X .75P |
| .236           | 6.00 | 3/8" – 32UNEF-2A | M8 X .75P |
| .250           | 6.35 | 3/8" – 32UNEF-2A | M9 X .75P |

*Concentric Tandem Potentiometer with Two Shafts*

| Outer Shaft Diameter |      | Inner Shaft Diameter |     | Bushing Diameter |           |
|----------------------|------|----------------------|-----|------------------|-----------|
| inch                 | mm   | inch                 | mm  | inch             | mm        |
| .236                 | 6.00 | .156                 | 4.0 | 3/8" – 32UNEF-2A | M8 X .75P |
| .250                 | 6.35 | .125                 | 3.2 | 3/8" – 32UNEF-2A | M9 X .75P |

#### Molded Shaft and Bushing

*Single Section Potentiometer with One Shaft*

| Shaft Diameter |      | Bushing Diameter |           |
|----------------|------|------------------|-----------|
| inch           | mm   | inch             | mm        |
| .156           | 4.00 | 1/4" – 32UNEF-2A | M7 X .75P |
| .187           | 4.70 | 3/8" – 32UNEF-2A | M7 X .75P |
| .236           | 6.00 | 3/8" – 32UNEF-2A | M8 X .75P |
| .250           | 6.35 | 3/8" – 32UNEF-2A | M9 X .75P |

#### Shaft with Twist Tab, Bend Tab, Snap-in PC Bracket, or PC Terminal

*All metal or molded shaft diameters can be used except .187" (4.7mm), which can be used with snap-in PC bracket only.*

### Terminal Information

#### Standard:

- T: Solder lug formed 90° to the rear on single and multi-section.
- X: PC terminals standard .438" (11.1mm) from center line of control to PC board, straight terminals extend .156" (4.0mm) into PC board.
- U: PC terminals formed 90° forward toward mounting surface. Terminals extend .187" (4.7mm) beyond mounting surface.
- V: PC terminals formed 90° to the rear, away from panel mounting. Terminals extend .442" (11.2mm) from mounting surface.

#### Special:

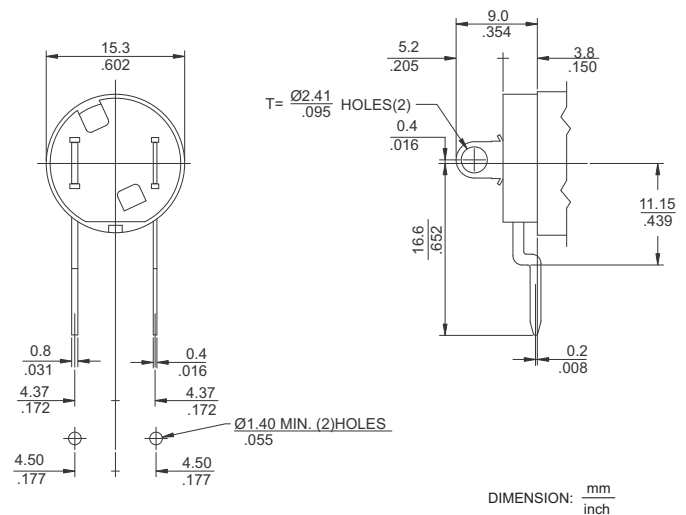
- T: Solder lug perpendicular to shaft. Or, solder lug formed 60° to the rear.
- W: Wire wrap terminals — .156" (4.0mm) terminal extension beyond base, formed 60° to the rear.

## Electrical and Mechanical Specifications

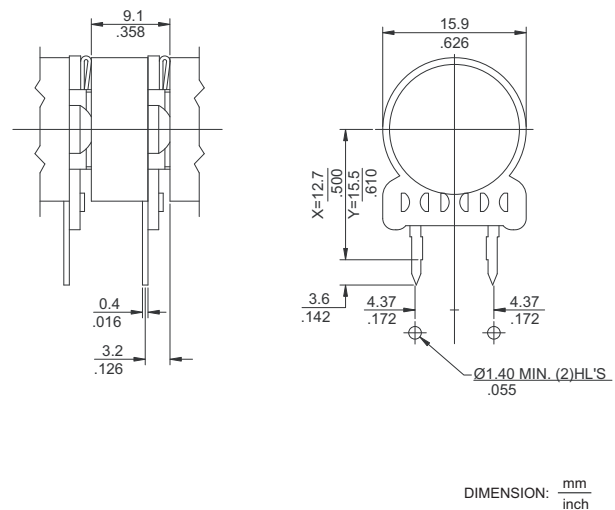
## Optional Power Switches (All SPST)

| SERIES | TYPE   | ELECTRICAL RATING               |
|--------|--------|---------------------------------|
| 057    | Rotary | 5A @ 20 VDC                     |
|        |        | 3A @ 125 VAC<br>(UL Recognized) |

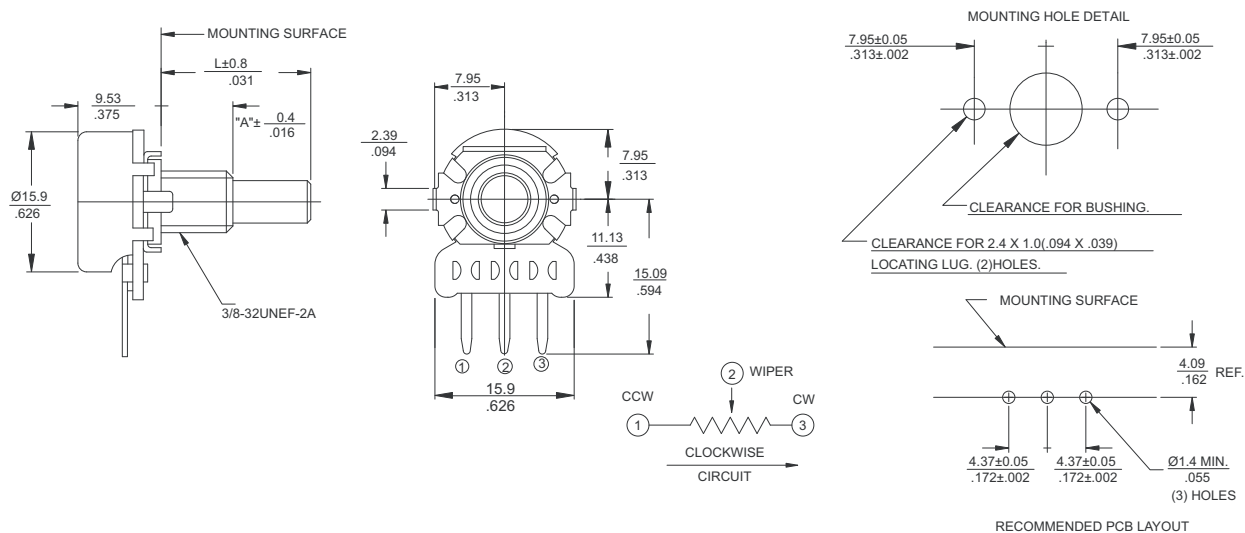
Switch Actuating Angle -25°  
Switch Actuating Torque - 2 to 10 in. oz.  
(144 to 720gf-cm)



| SERIES | TYPE                      | ELECTRICAL RATING |
|--------|---------------------------|-------------------|
| DEMI   | Push On-Pull Off          | 3A @ 20 VDC       |
| DEMI   | Momentary Contact Push On | 3A @ 20 VDC       |

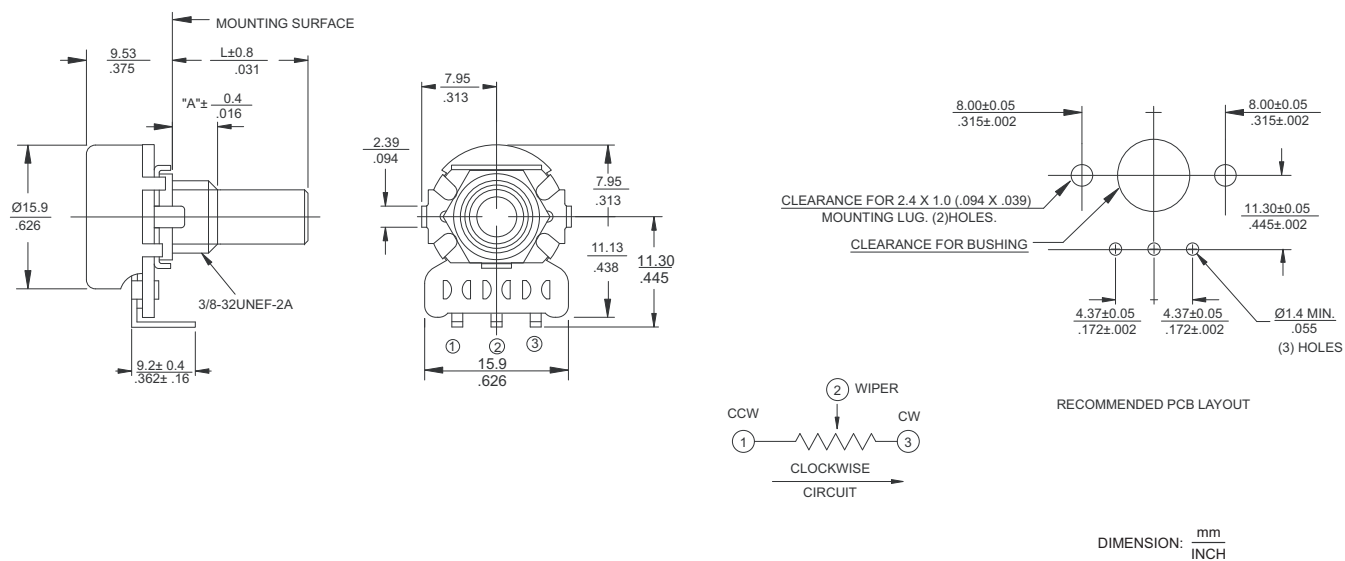


## 270X Metal Shaft, Bushing Mount, Printed Circuit “X” Type Terminals



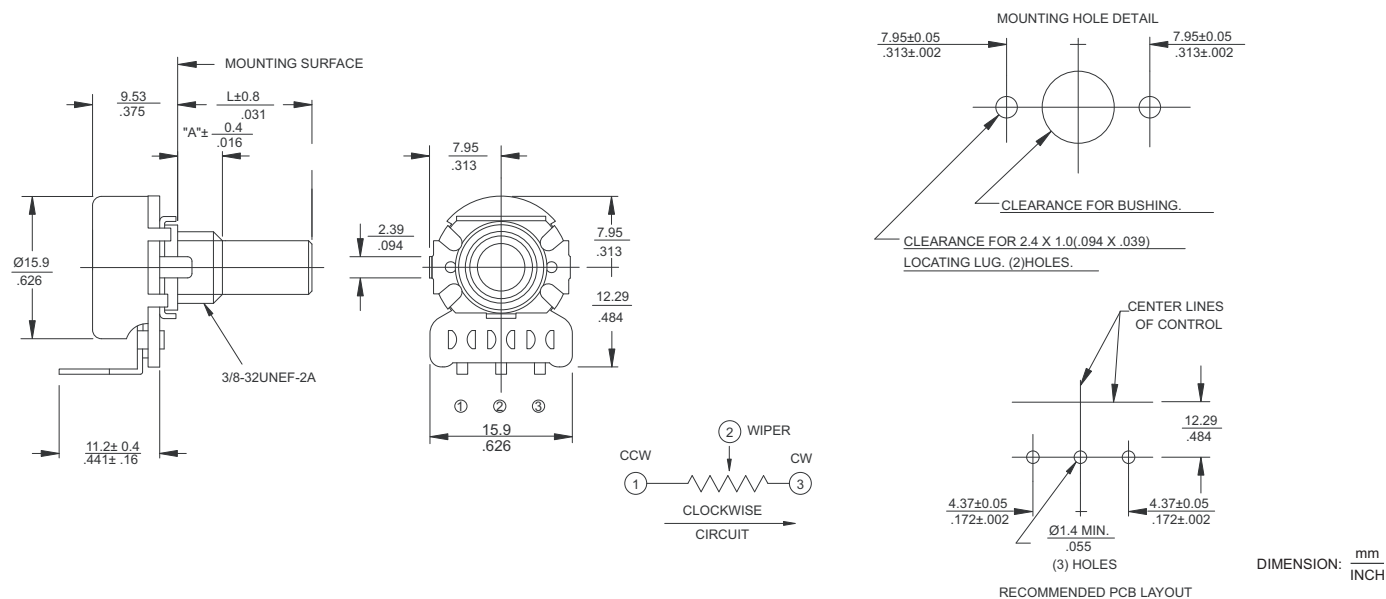
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## 270U Metal Shaft, Bushing Mount, Printed Circuit “U” Type Terminals

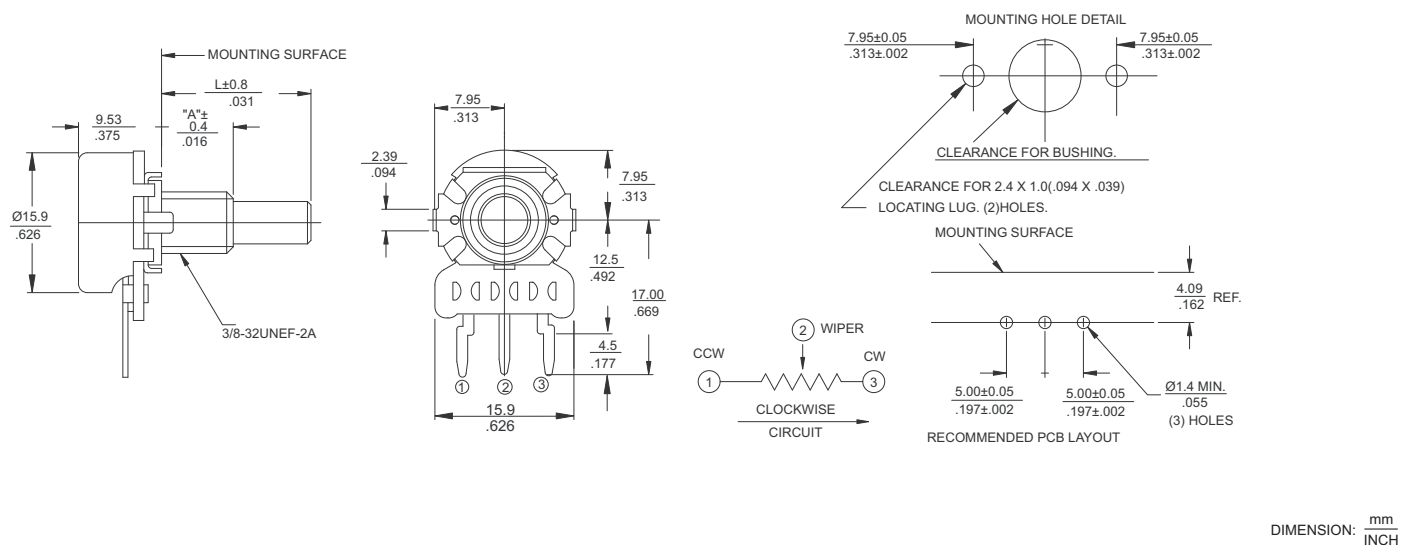


DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

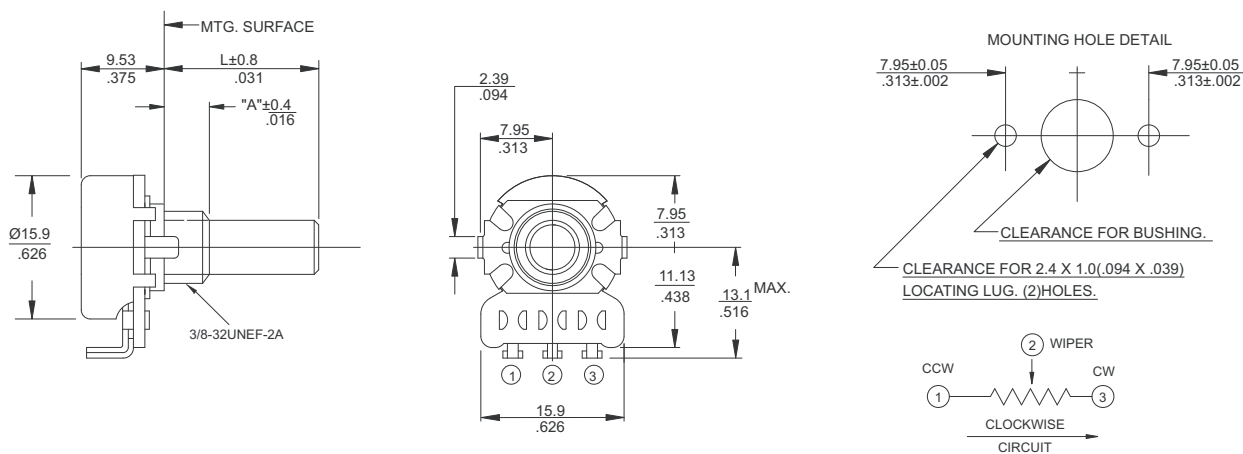
## 270V Metal Shaft, Bushing Mount, Printed Circuit “V” Type Terminals



## 275X Metal Shaft, Bushing Mount, Printed Circuit "X" Type Terminals

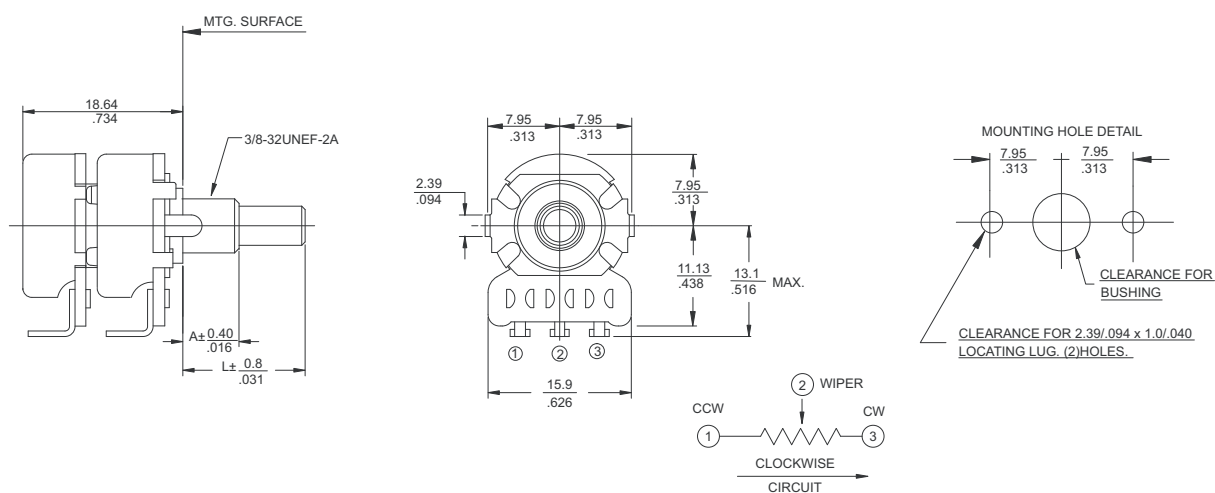


## 270T Metal Shaft, Bushing Mount, Solder Lug “T” Type Terminals



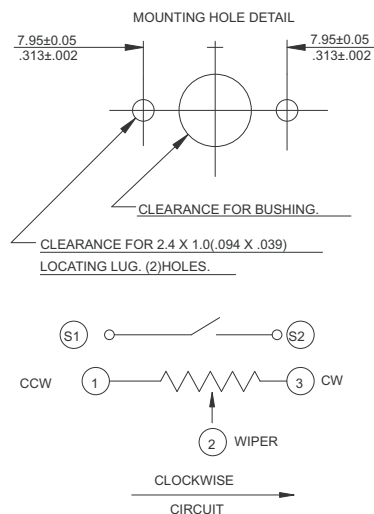
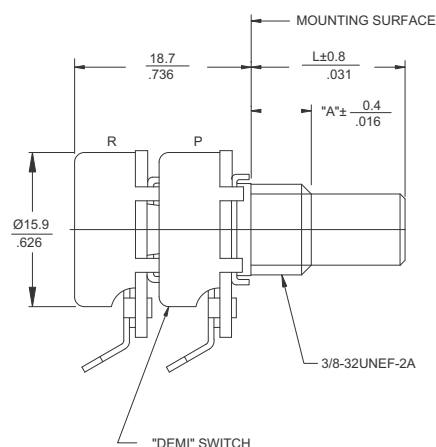
DIMENSION:  $\frac{\text{mm}}{\text{inch}}$

## 270T-2 Dual Section, Metal Shaft, Bushing Mount, Solder Lug “T” Type Terminals



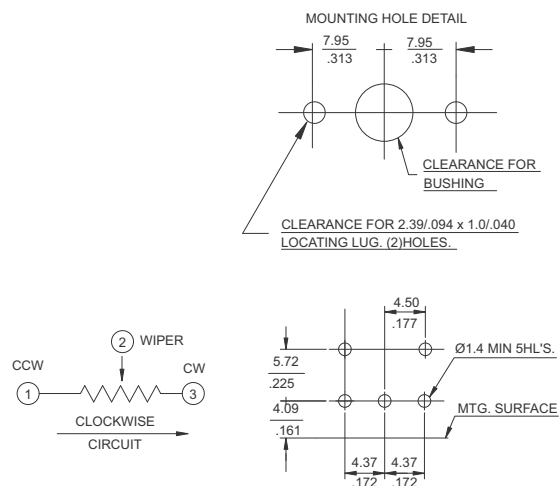
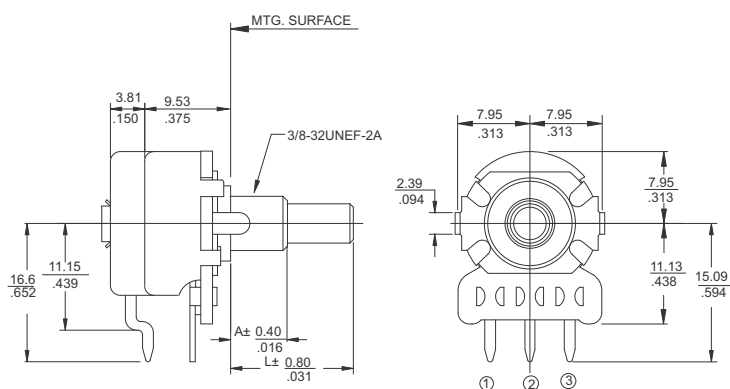
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## 270T-DEMIT Metal Shaft, Bushing Mount, Solder Lug “T” Type Terminals, DEMI Switch.



DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## 270X-057X Metal Shaft, Bushing Mount, Printed Circuit “X” Type Terminals, Rotary 057 Switch



DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

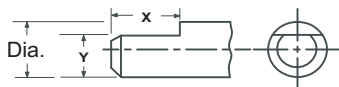
## Shaft Diameter and Trim

ROUND



| Type | Diameter        |
|------|-----------------|
| A    | .125" (3.18 mm) |
| R    | .156" (3.96 mm) |
| G    | .187" (4.75 mm) |
| X    | .236" (6.00 mm) |
| P    | .250" (6.35 mm) |

FLATTED

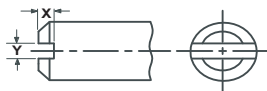


| Type | Diameter        | X               | Y               |
|------|-----------------|-----------------|-----------------|
| B    | .125" (3.18 mm) | .250" (6.35 mm) | .109" (2.77 mm) |
| D    | .250" (6.35 mm) | .375" (9.52 mm) | .156" (3.96 mm) |
| H    | .187" (4.75 mm) | .250" (6.35 mm) | .156" (3.96 mm) |
| F    | .156" (3.96 mm) | .250" (6.35 mm) | .109" (2.77 mm) |
| L    | .236" (6.00 mm) | .472" (12.0mm)  | .177" (4.50 mm) |
| V*   | .187" (4.75 mm) | .313" (7.95 mm) | .156" (3.96 mm) |
| W**  | .236" (6.00 mm) | .472" (12.0 mm) | .177" (4.50 mm) |

\*Molded Shaft, FMS .875" (22.2 mm), not available with switch

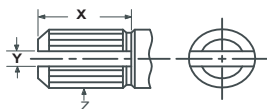
\*\*Molded Shaft, FMS .984" (25.0 mm), with rotary switch only

SLOTTED



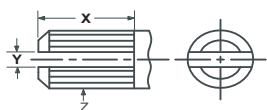
| Type | Diameter        | X               | Y               |
|------|-----------------|-----------------|-----------------|
| C    | .125" (3.18 mm) | .047" (1.19 mm) | .039" (1.00 mm) |
| S    | .156" (3.96 mm) | .047" (1.19 mm) | .039" (1.00 mm) |
| J    | .187" (4.75 mm) | .047" (1.19 mm) | .039" (1.00 mm) |
| M    | .236" (6.00 mm) | .047" (1.19 mm) | .039" (1.00 mm) |
| E    | .250" (6.35 mm) | .047" (1.19 mm) | .039" (1.00 mm) |

KNURLED & SLOTTED  
(Metal Shaft)



| Type | Diameter        | X               | Y               | Z        |
|------|-----------------|-----------------|-----------------|----------|
| N    | .236" (6.00 mm) | .342" (8.70 mm) | .039" (1.00 mm) | 18 Teeth |
| T    | .236" (6.00 mm) | .279" (7.10 mm) | .062" (1.57 mm) | 24 Teeth |

KNURLED & SLOTTED  
(Molded Shaft)



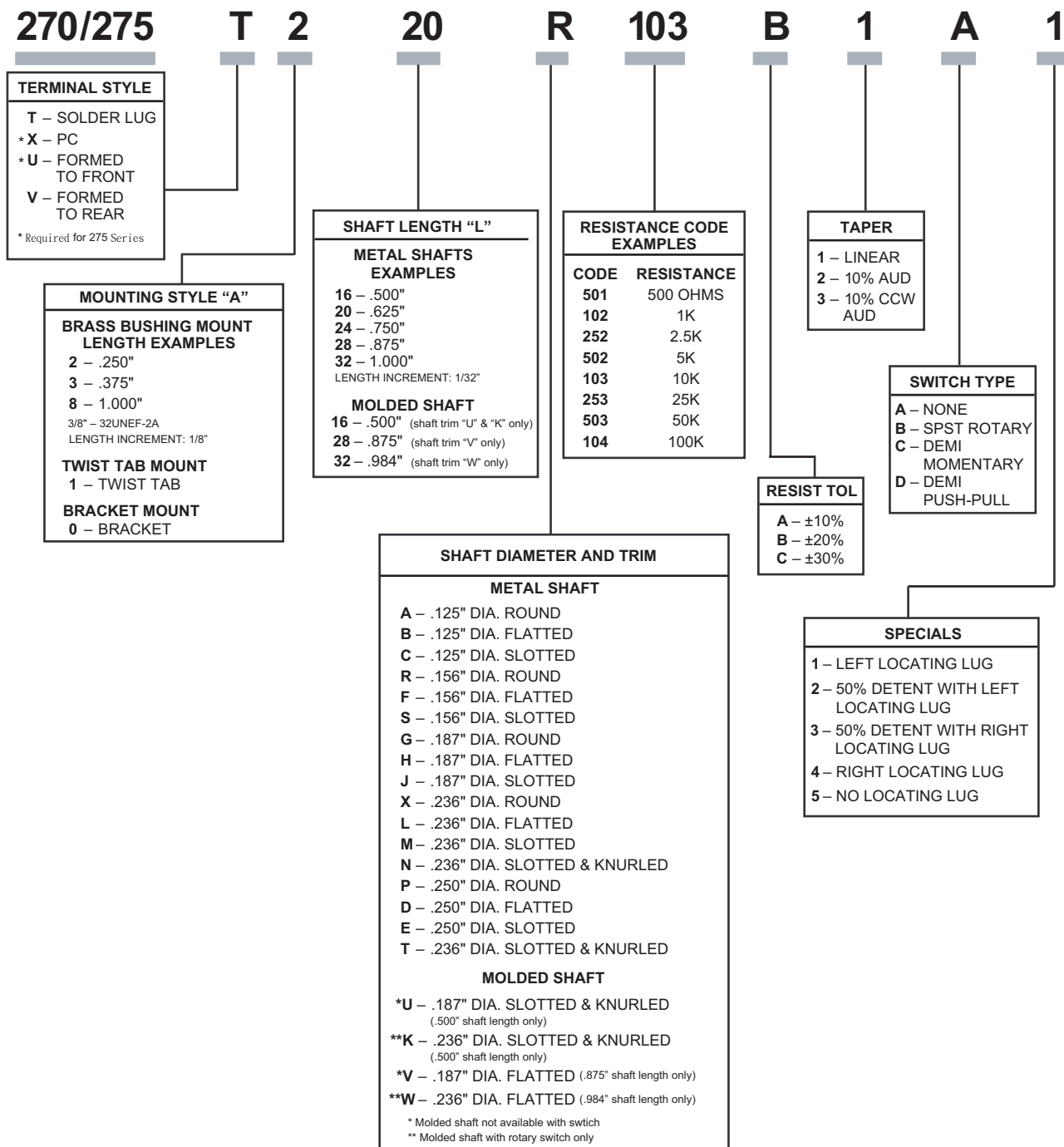
| Type | Diameter        | X               | Y               | Z        |
|------|-----------------|-----------------|-----------------|----------|
| U*   | .187" (4.75 mm) | .062" (1.57 mm) | .046" (1.17 mm) | 18 Teeth |
| K**  | .236" (6.00 mm) | .200" (5.08 mm) | .046" (1.17 mm) | 18 Teeth |

\*Molded Shaft, FMS .500" (12.7 mm), not available with switch

\*\*Molded Shaft, FMS .500" (12.7 mm), with rotary switch only



## Ordering Information



Note :

Consult CTS for custom or not listed features including shaft, bushing, longer life cycles, solderable cover, anti-static design, etc.

# Mouser Electronics

Authorized Distributor

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## CTS:

|                                        |                                        |                                        |                                        |                                        |
|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <a href="#"><u>270X232A102B1B1</u></a> | <a href="#"><u>270X232A102B2A1</u></a> | <a href="#"><u>270X232A102B2B1</u></a> | <a href="#"><u>270X232A103B1A1</u></a> | <a href="#"><u>270X232A103B1B1</u></a> |
| <a href="#"><u>270X232A103B2A1</u></a> | <a href="#"><u>270X232A103B2B1</u></a> | <a href="#"><u>270X232A104B1A1</u></a> | <a href="#"><u>270X232A104B1B1</u></a> | <a href="#"><u>270X232A104B2A1</u></a> |
| <a href="#"><u>270X232A104B2B1</u></a> | <a href="#"><u>270X232A105B1A1</u></a> | <a href="#"><u>270X232A105B1B1</u></a> | <a href="#"><u>270X232A105B2A1</u></a> | <a href="#"><u>270X232A105B2B1</u></a> |
| <a href="#"><u>270X232A252B1A1</u></a> | <a href="#"><u>270X232A252B1B1</u></a> | <a href="#"><u>270X232A252B2A1</u></a> | <a href="#"><u>270X232A253B1A1</u></a> | <a href="#"><u>270X232A253B1B1</u></a> |
| <a href="#"><u>270X232A253B2A1</u></a> | <a href="#"><u>270X232A253B2B1</u></a> | <a href="#"><u>270X232A254B1A1</u></a> | <a href="#"><u>270X232A254B1B1</u></a> | <a href="#"><u>270X232A254B2A1</u></a> |
| <a href="#"><u>270X232A254B2B1</u></a> | <a href="#"><u>270X232A501B1A1</u></a> | <a href="#"><u>270X232A501B1B1</u></a> | <a href="#"><u>270X232A501B2A1</u></a> | <a href="#"><u>270X232A502B1A1</u></a> |
| <a href="#"><u>270X232A502B1B1</u></a> | <a href="#"><u>270X232A502B2A1</u></a> | <a href="#"><u>270X232A502B2B1</u></a> | <a href="#"><u>270X232A503B1A1</u></a> | <a href="#"><u>270X232A503B1B1</u></a> |
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| <a href="#"><u>270X232A252B2B1</u></a> | <a href="#"><u>270X232A102B1A1</u></a> | <a href="#"><u>270X232A503B2B1</u></a> |                                        |                                        |