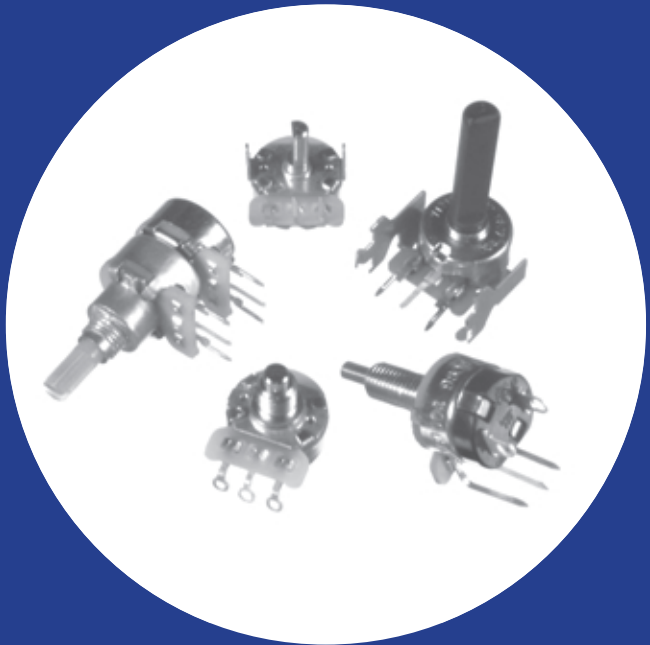


## Commercial Miniature 5/8" (16mm) Diameter Composition Variable Resistors

### Features

- Miniature 5/8" (16mm) size
- Versatile mounting styles:
  - bushing
  - twist tab
  - bend tab
  - snap-in PC bracket
  - solder lug or PC terminals  
(shaft parallel or perpendicular to the panel)
- 100  $\Omega$  to 5 Meg  $\Omega$  resistance range
- Molded or metal shafts
- SPST power switches
- Single, tandem, or concentric units
- Panel seal
- Rear extended shaft
- RoHs compliant



## Electrical and Mechanical Specifications

### Resistance Range

100 ohms through 5 megohms (linear taper).

### Resistance Tolerance

Standard:  $\pm 20\%$

Special: Other tolerances available in most resistance values.

### Power Rating, Watts

$\frac{1}{4}$  watt per section through 100K

$\frac{1}{5}$  watt per section above 100K

Full rating @ 55°C derated to no load at 85°C,  
linear taper, bushing mounted control on steel panel  
4" x 4" x .050" (101.6mm x 101.6mm x 1.27mm).  
(Derating required on two section controls.)

### Voltage Rating

#### Bushings to Terminals:

High pot test, one minute — 750 VAC

Operating maximum — 500 VDC

#### Across End Terminals:

350 VDC, load not to exceed listed wattage ratings.

### Resistance Tapers

Standard: Linear, 10% Audio and 10% CCW Audio  
Special tapers available to meet most requirements

### Rotational Angle

#### Total Rotation

Without Switch:  $300^\circ \pm 5^\circ$

With Switch:  $315^\circ \pm 5^\circ$

#### Effective Rotation

Without Switch:  $300^\circ$  (approximate)

With Switch:  $290^\circ$  (approximate)

### Panel Mounting Information

#### Bushing Mount

Standard: Brass

(continued on next page)

## Electrical and Mechanical Specifications (continued)

### All Other Mounts

Standard: Twist tab (designated by "1")  
 Special: Bend tab — 2 or 3 ears  
 Bracket mounted

### Suggested Panel for Twist Tab

.042" thick (1.07mm)

### Locating Lugs (Bushing Mount)

Standard: .312" (7.9mm) radius from center of control.  
 Special: .375" (9.53mm) radius from center of control.  
 Standard Position: Left side supplied unless otherwise specified.

Other Positions: Available with lug right side, without lugs, or with lugs both left and right sides.

### Water Seal Construction

Controls are also available to prevent water from entering the control through either the O.D. of shaft and/or the bushing.

## Shaft and Bushing Information

### Bushing Lengths Available

Standard: .187" or .250" (4.75mm or 6.35mm)  
 Special: .125" increments (3.2mm increments)

### Thread Size

Standard: 1/4" – 32NEF-2A  
 3/8" – 32NEF-2A  
 M7 x .75P  
 M8 x .75P  
 Special: As required

### Molded Shafts Available

(Shown with preferred diameter bushing)

#### Bushing Mounted or Ear Mounted

SHAFT DIAMETER		BUSHING DIAMETER	
INCH	mm	INCH	mm
.156	4.0	1/4" – 32NEF-2A	M7X.75P
.187	4.7	3/8" – 32NEF-2A	M7X.75P
.236	6.0	3/8" – 32NEF-2A	M8X.75P
.250	6.35	3/8" – 32NEF-2A	M9X.75P

### Metal Shafts Available

(Shown with preferred diameter bushing)

#### Single or Dual Units

SHAFT DIAMETER		BUSHING DIAMETER	
INCH	mm	INCH	mm
.125	3.2	1/4" – 32NEF-2A	M7X.75P
.156	4.0	1/4" – 32NEF-2A	M7X.75P
.187	4.7	3/8" – 32NEF-2A	M7X.75P
.236	6.0	3/8" – 32NEF-2A	M8X.75P
.250	6.35	3/8" – 32NEF-2A	M9X.75P

### Concentric Tandem Units

Available in two combinations:

- A** – .125" (3.2mm) diameter rear shaft  
 .250" (6.35mm) panel shaft  
 (3/8 – 32NEF-2A or M9X.75P)
- B** – .156" (4.0mm) diameter rear shaft  
 .236" (6.0mm) diameter panel shaft  
 (3/8 – 32NEF-2A or M8X.75P)

Most metal shaft diameters can be used with twist tab mountings. With bracket mount, only .187 diameter shafts are used, with turn-down available to obtain smaller diameters.

### Metal

Lengths: Minimum .125" (3.2mm) beyond bushing; special lengths as required.  
 Trims: Plain round, screwdriver slotted, flatted, or knurled. Other trims available upon request.

### Molded

Flatted and knurled with screwdriver slot available in many lengths and diameters.

### Terminal Information

Standard: T Solder lug formed 90° to the rear.  
 Special: (See below)

- T: Solder lug perpendicular to shaft.
- T: Solder lug formed 60° to the rear.
- 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 .520" (13.2mm) from mounting surface.
- BX: PC terminals standard .438" (11.1mm) from center line of control to PC board; straight terminals extend .156" (4.0mm) into PC board.
- X: PC terminals standard .505" (12.8mm) from center line of control to PC board, with .136" (3.4mm) straight terminal extension beyond PC board standoff.
- Y: PC terminals standard .602" (15.3mm) from centerline of control to PC board, with .140" (3.5mm) straight terminal extension beyond PC board standoff.

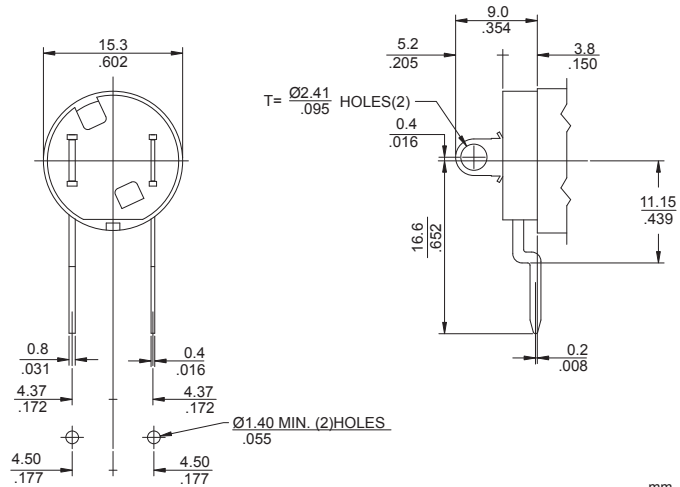
(continued on next page)

# Electrical and Mechanical Specifications (continued)

Power Switches Available (all SPST)

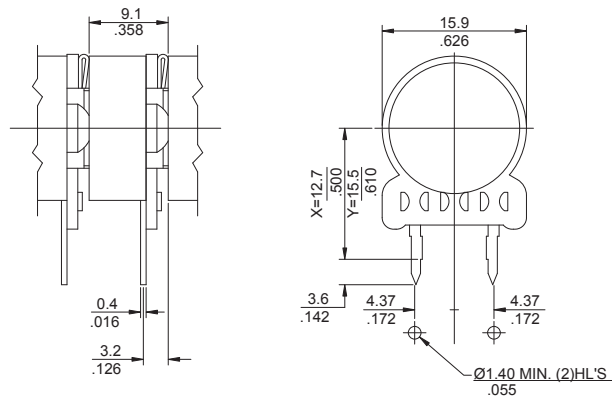
SERIES	TYPE	ELECTRICAL RATING
057	Rotary	5A @ 20 VDC
		3A @ 125 VAC (UL approved)

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



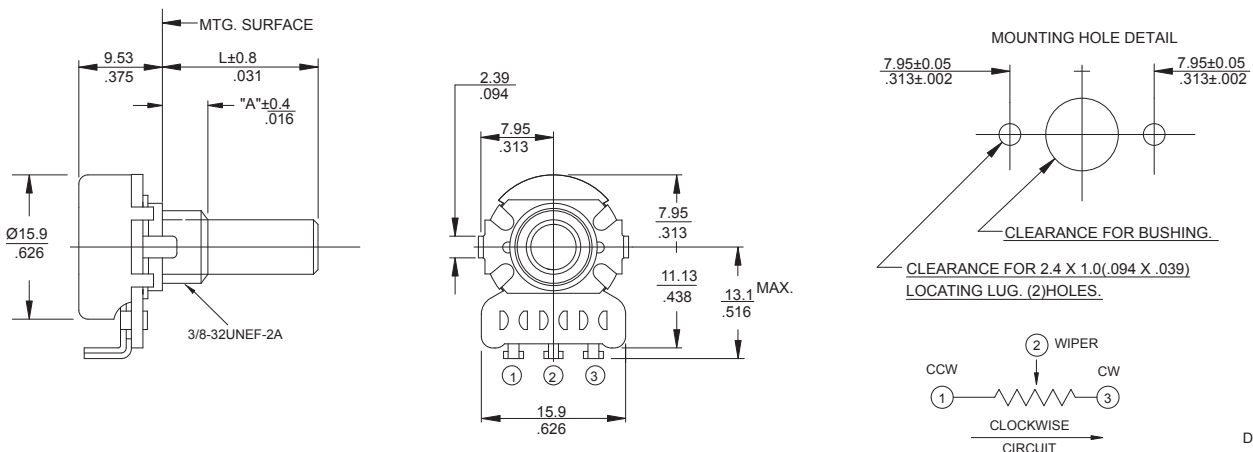
DIMENSION:  $\frac{\text{mm}}{\text{inch}}$

SERIES	TYPE	ELECTRICAL RATING
DEMI	Push on-Pull off	3A @ 20VDC
DEMI	Momentary contact Push on	3A @ 20 VDC



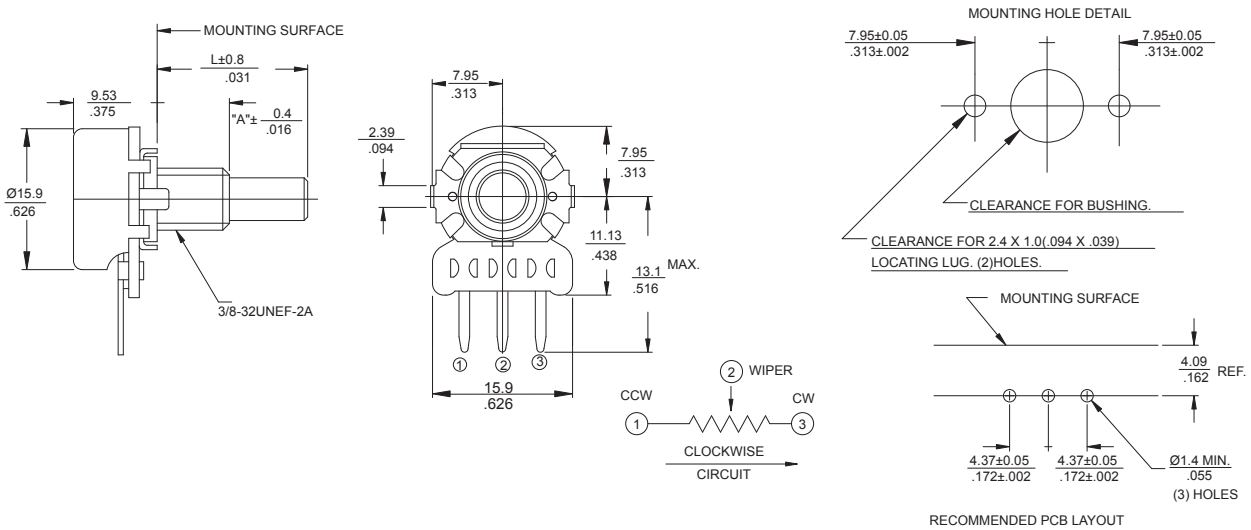
DIMENSION:  $\frac{\text{mm}}{\text{inch}}$

## T270 Metal Shaft, Bushing Mounting, Solder Lug "T" Type Terminals



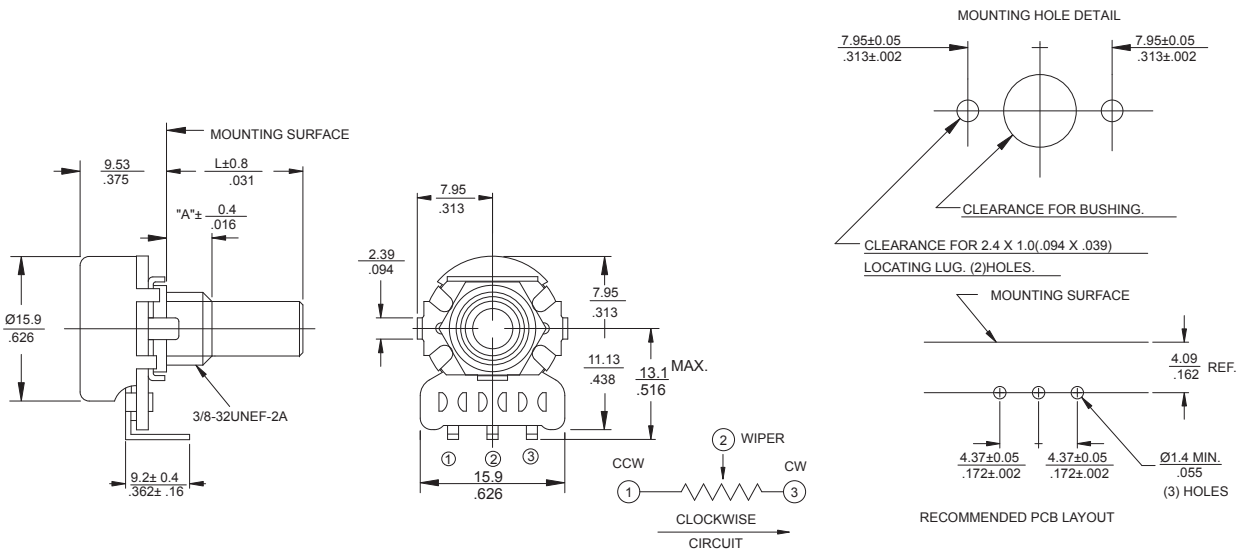
DIMENSION:  $\frac{\text{mm}}{\text{inch}}$

## X270 Metal Shaft, Bushing Mounting, Printed Circuit "X" Type Terminals



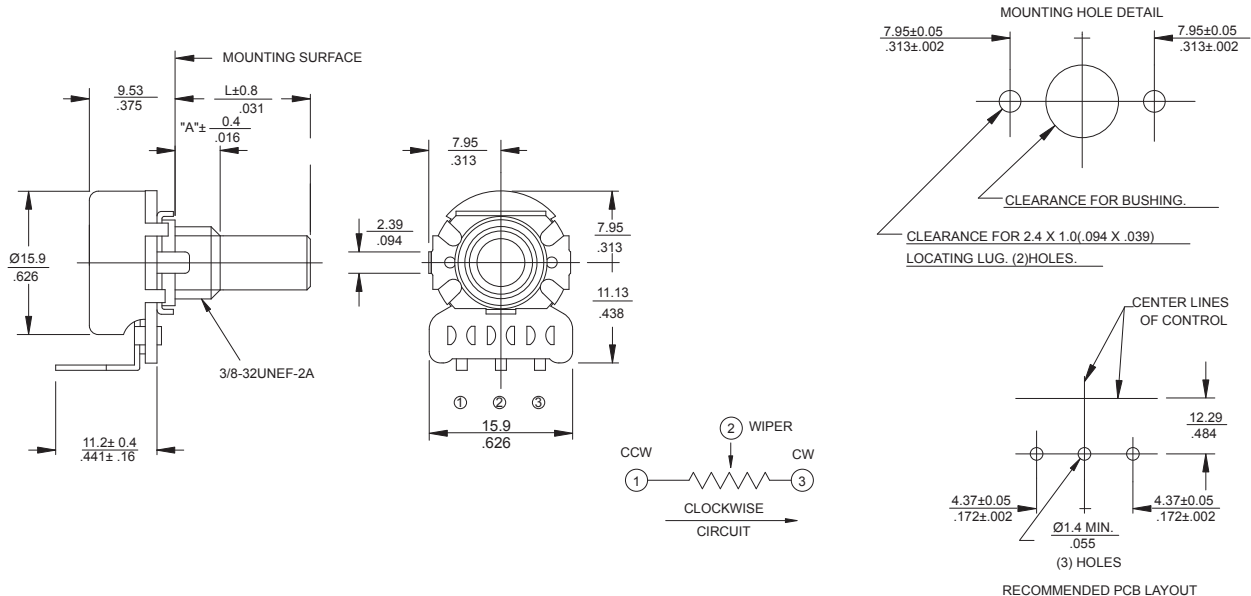
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## U270 Metal Shaft, Bushing Mounting, Printed Circuit "U" Type Terminals



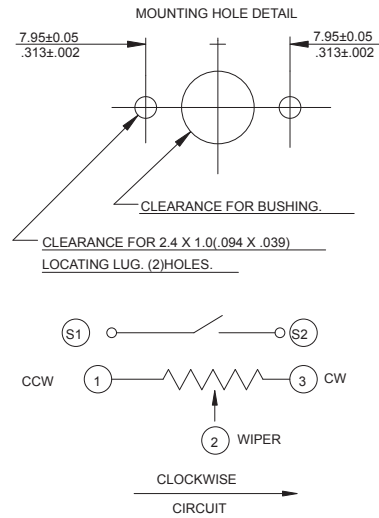
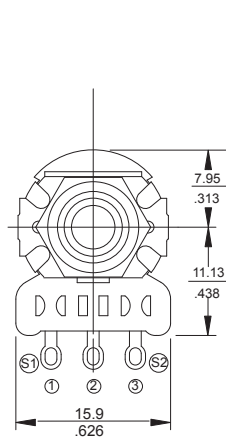
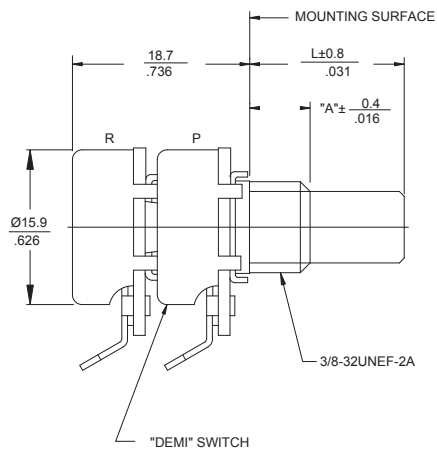
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## V270 Metal Shaft, Bushing Mounting, Printed Circuit "V" Type Terminals



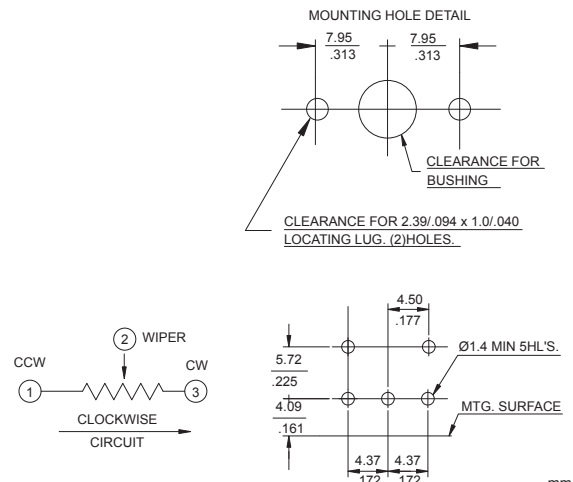
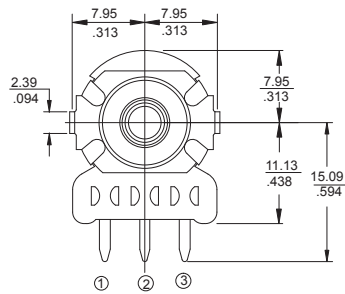
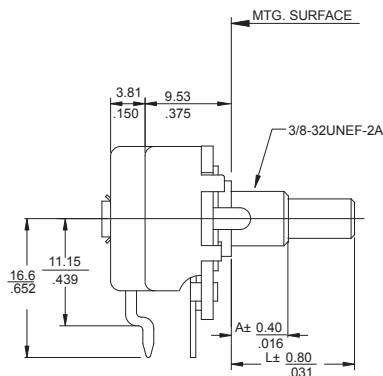
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## TDEMI-T270 Metal Shaft, Bushing Mounting, Solder Lug "T" Type Terminals, DEMI Switch.



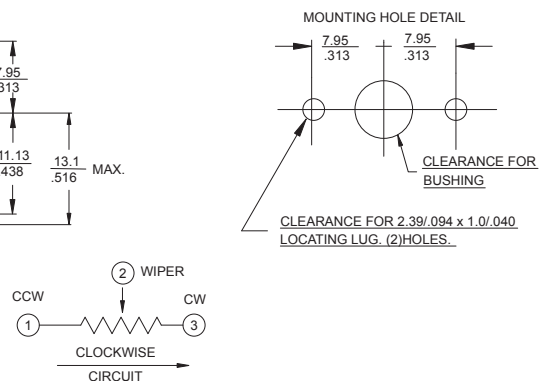
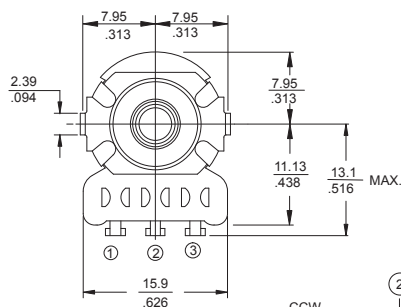
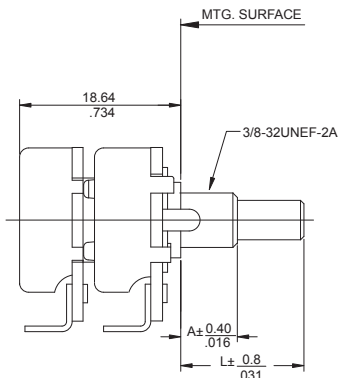
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## X057-X270 Metal Shaft, Bushing Mounting, Printed Circuit "X" Type Terminals, Rotary 057 Switch



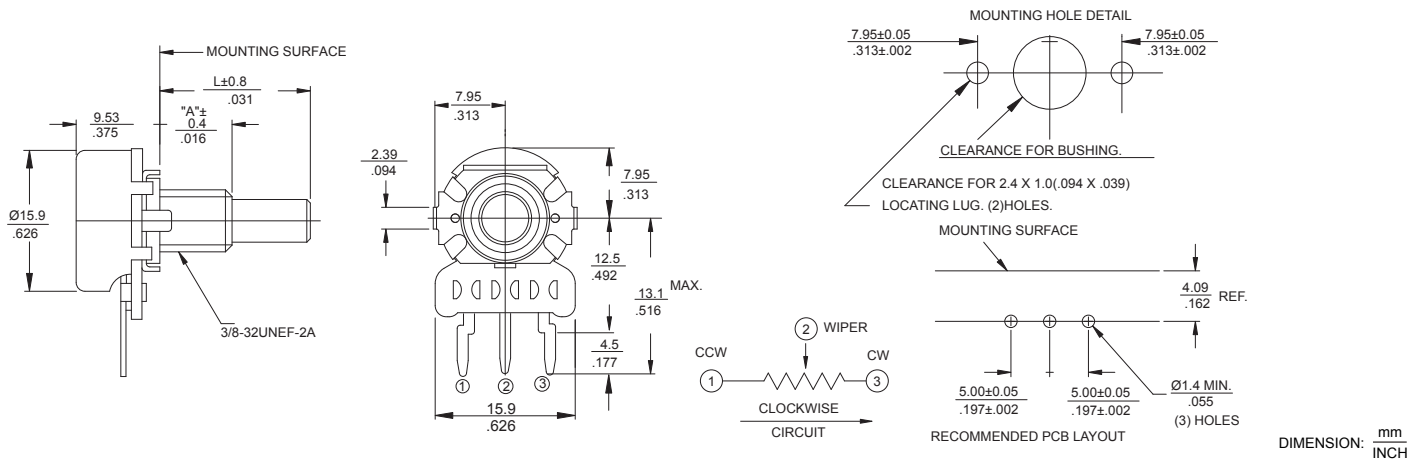
DIMENSION:  $\frac{\text{mm}}{\text{INCH}}$

## T2-270 Dual Section, Metal Shaft, Bushing Mounting, Solder Lug "T" Type Terminals



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

# X275 Metal Shaft, Bushing Mounting, Printed Circuit "X" Type Terminals



## Ordering Information

**270/275**

**T 2**

**20**

**R**

**103**

**B**

**1**

**A**

**1**

**TERMINAL STYLE**

T - SOLDER LUG

\* X - PC

\* U - FORMED TO FRONT

V - FORMED TO REAR

\* Available for 275

**MOUNTING STYLE "A"**

**BUSHING LENGTH: 1/8" (3.2mm) INCREMENTS**

**EXAMPLES:**

METAL BUSHING

2 - .250" (6.35mm)

3 - .375" (9.5mm)

8 - 1.000" (25.4mm)

1 - TWIST TAB MOUNT

MOLDED BUSHING AVAILABLE UPON REQUEST.

**SHAFT LENGTH FROM MOUNTING SURFACE 1/32" (0.8mm) INCREMENTS**

**EXAMPLES:**

**METAL SHAFTS**

20 - .625" (15.9mm)

24 - .750" (19.1mm)

28 - .875" (22.2mm)

32 - 1.000" (25.4mm)

**MOLDED SHAFTS**

Limited Trims Available, See Shaft Trim selection

16 - Shaft U,.500" (12.7mm)

28 - Shaft V,.875" (22.2mm)

32 - Shaft W,.984" (25mm)

**RESISTANCE CODE EXAMPLES**

CODE	RESISTANCE
501	500 OHMS
102	1K
252	2.5K
502	5K
103	10K
253	25K
503	50K
104	100K

**TAPER**

1 - LINEAR

2 - 10% AUD

3 - 10% CCW AUD

**SWITCH TYPE**

A - NONE

B - SPST ROTARY

C - DEMI MOMENTARY

D - DEMI PUSH-PULL

**RESIST TOL**

A - ±10%

B - ±20%

C - ±30%

**SHAFT TRIM**

A	.125" (3.18mm) DIA. ROUND BRASS
B	.125" (3.18mm) DIA. FLAT BRASS, FLAT THICKNESS .109"(2.77mm)
C	.125" (3.18mm) DIA. SD SLOT BRASS, .047" DEEP X .039" WIDE
R	.156" (3.96mm) DIA. ROUND BRASS
F	.156" (3.96mm) DIA. FLAT BRASS, FLAT THICKNESS .109"(2.77mm)
S	.156" (3.96mm) DIA. SD SLOT BRASS, .047" DEEP X .039" WIDE
G	.187" (4.75mm) DIA. ROUND BRASS
H	.187" (4.75mm) DIA. FLAT BRASS, FLAT THICKNESS .156"(3.96mm)
J	.187" (4.75mm) DIA. SD SLOT BRASS, .047" DEEP X .039" WIDE
K	.236" (6.00mm) DIA. SK(18 TEETH) .490"(12.4mm) FMS MOLDED
X	.236" (6.00mm) DIA. ROUND BRASS
L	.236" (6.00mm) DIA. FLAT BRASS, FLAT THICKNESS .177"(4.50mm)
M	.236" (6.00mm) DIA. SD SLOT BRASS, .047" DEEP X .039" WIDE
N	.236" (6.00mm) DIA. SK BRASS
P	.250" (6.35mm) DIA. ROUND BRASS
D	.250" (6.35mm) DIA. FLAT BRASS, FLAT THICKNESS .156"(3.96mm)
E	.250" (6.35mm) DIA. SD SLOT BRASS, .047" DEEP X .039" WIDE
T	.250" (6.35mm) DIA. SK(24 TEETH) BRASS
U	.187" (4.75mm) DIA. .500"(12.7mm) FMS SK(18 TEETH) MOLDED
V	.187" (4.75mm) DIA. .875"(22.2mm) FMS FLAT MOLDED FLAT THICKNESS .156"(3.96mm)
W	.236" (6.00mm) DIA. .984"(25.4mm) FMS FLAT MOLDED FLAT THICKNESS .177"(4.50mm) (WITH SWITCH ONLY)

**SPECIALS**

1 - LOCATING LUG FOR LEFT SIDE

2 - 50% DETENT WITH LEFT LOCATING LUG

3 - 50% DETENT WITH RIGHT LOCATING LUG

4 - LOCATING LUG FOR RIGHT SIDE

5 - NO LOCATING LUG