

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

- 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



## Electrical and Mechanical Specifications

### Resistance Range

100  $\Omega$  through 5 Meg  $\Omega$  (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

### Angle of Rotation

#### 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" – 32  
 3/8" – 32  
 M7 x .75  
 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" – 32	M7X.75
.187	4.7	—	M7X.75
.236	6.0	3/8" – 32	M8X.75
.250	6.35	3/8" – 32	M9X.75

### 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" – 32	M7X.75
.156	4.0	1/4" – 32	M7X.75
.187	4.7	3/8" – 32	M7X.75
.236	6.0	3/8" – 32	M8X.75
.250	6.35	3/8" – 32	M9X.75

## Concentric Tandem Units

Available in two combinations:

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

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, 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.
- W: Wire wrap terminals — .156" (4.0mm) terminal extension beyond base, formed 60° to the rear.
- 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.

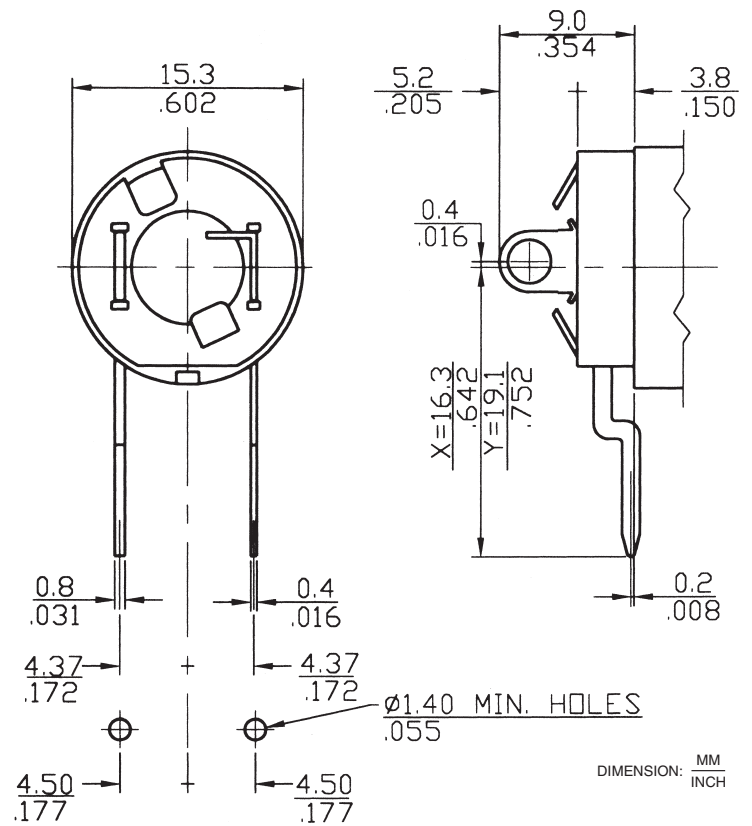
*(continued on next page)*

# Electrical and Mechanical Specifications (continued)

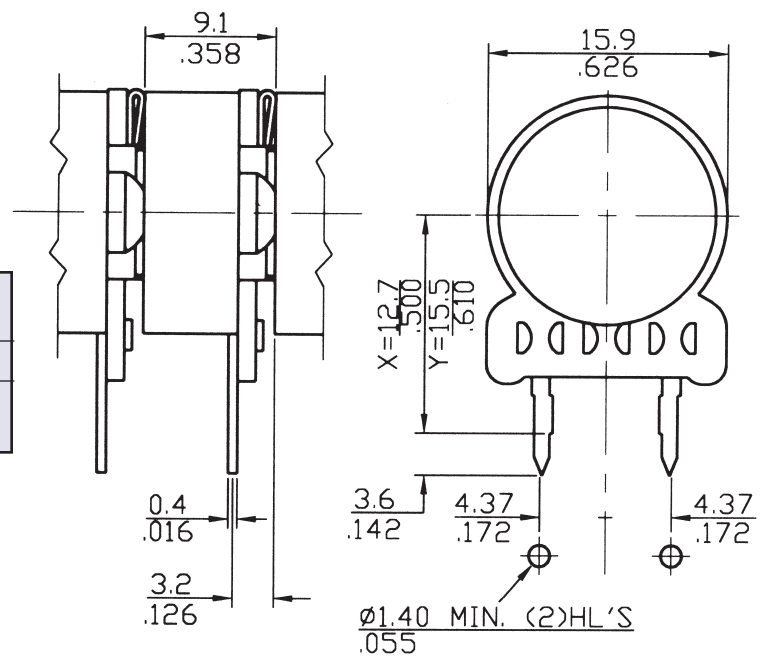
Power Switches Available (all SPST)

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

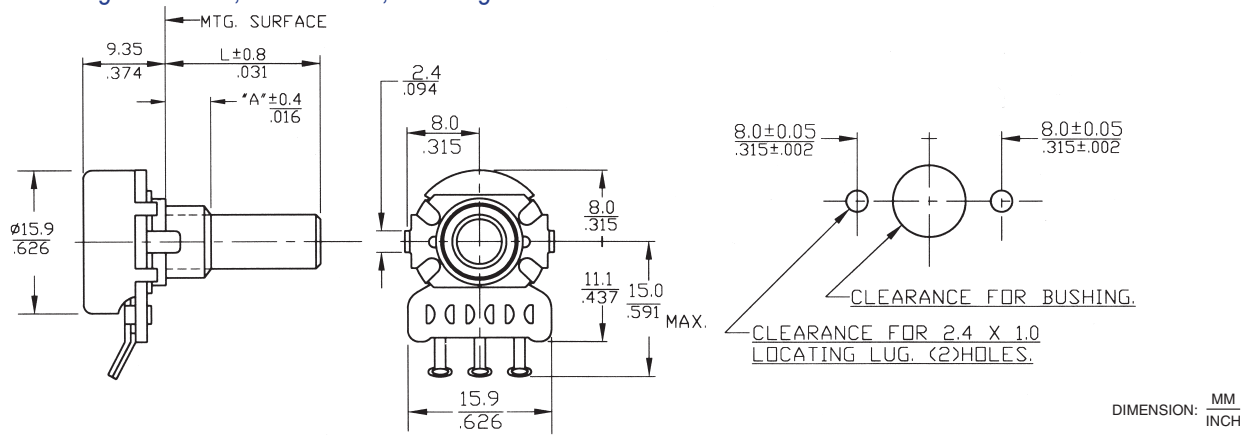
Switch Actuating Angle -25°  
 Switch Actuating Torque - 2 to 10 in. oz.  
 (144 to 720g-cm)



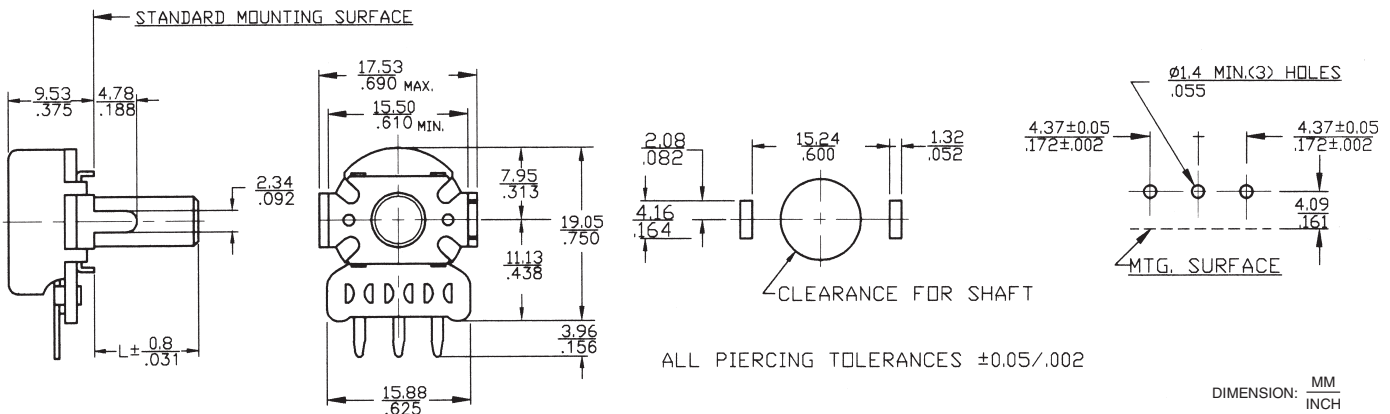
SERIES	TYPE	ELECTRICAL RATING
DEMI	Push-Pull	3A @ 20 VDC
DEMI	Momentary contact Push on	3A @ 20 VDC



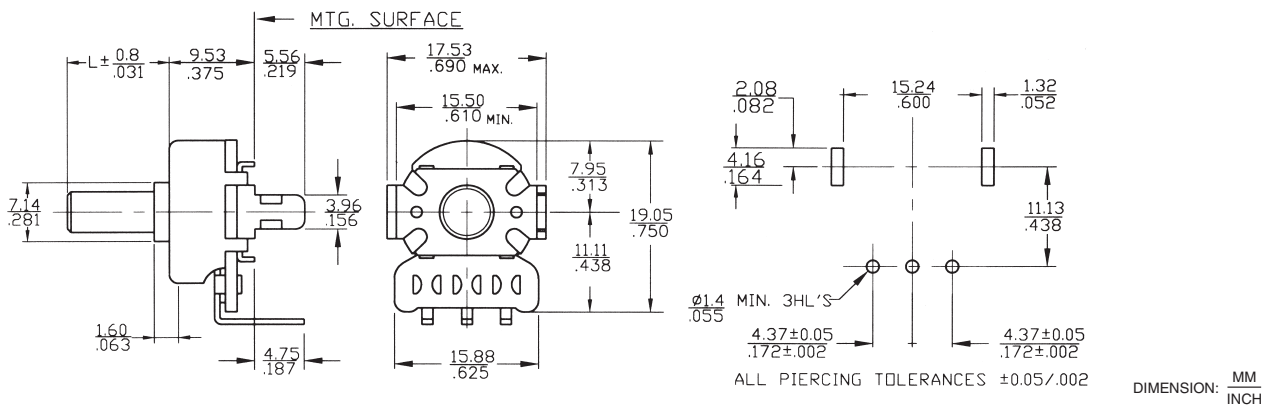
## T270 Solder Lug Terminals, Metal Shaft, Bushing Mount



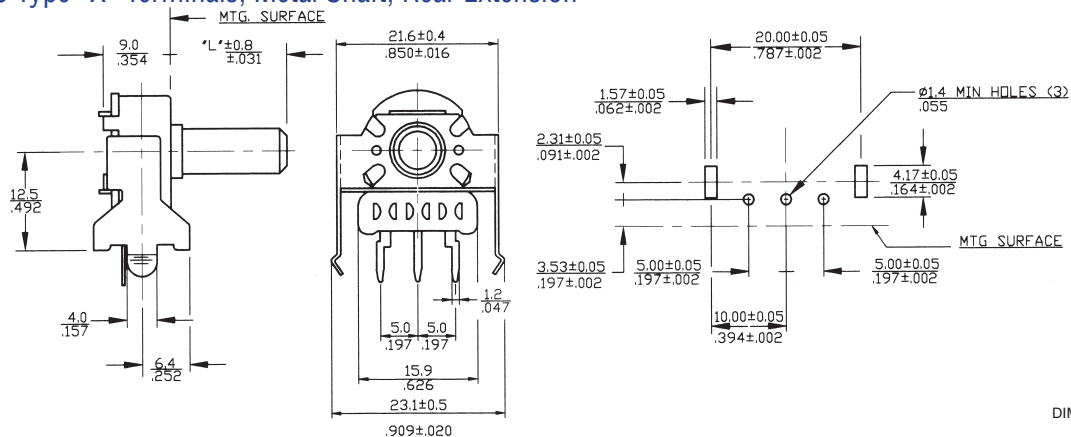
## BX PM270 PC Type Base "X" Terminals, 2-Ear Mount Bend Tab, Molded Shaft



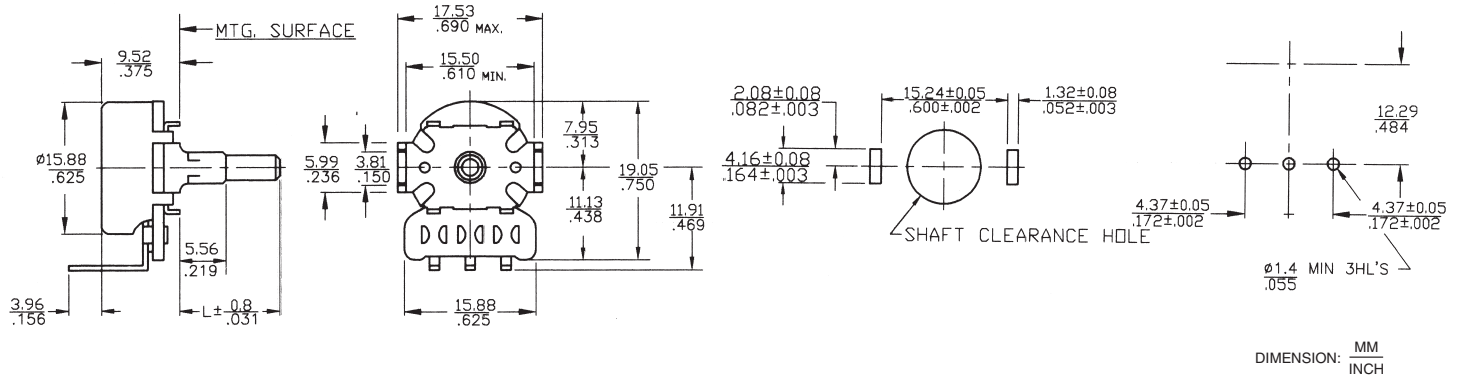
## UPE 270RE PC Type "U" Terminals, Twist Tab Mount, Metal Shaft, Rear Extension



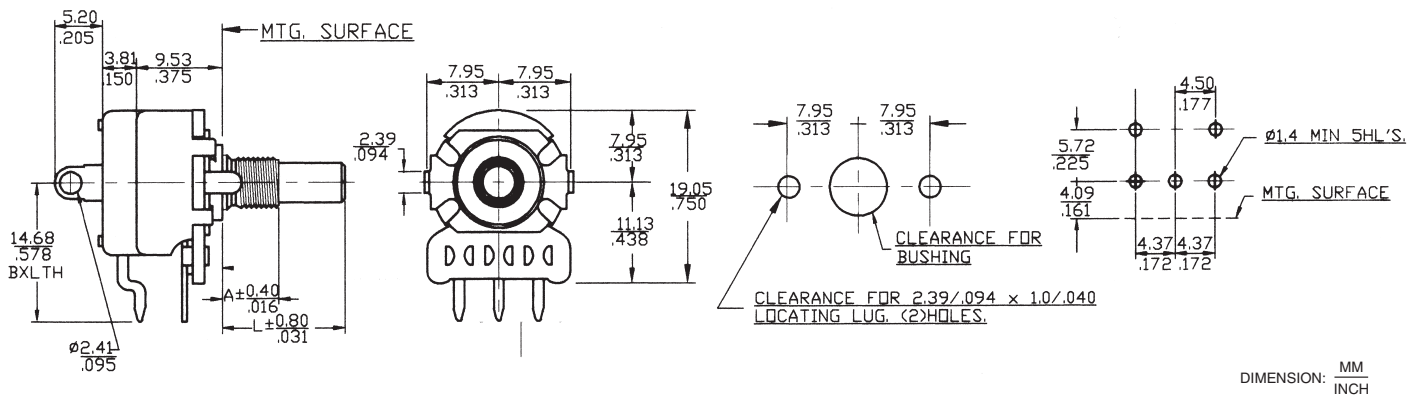
## XB275RE PC Type "X" Terminals, Metal Shaft, Rear Extension



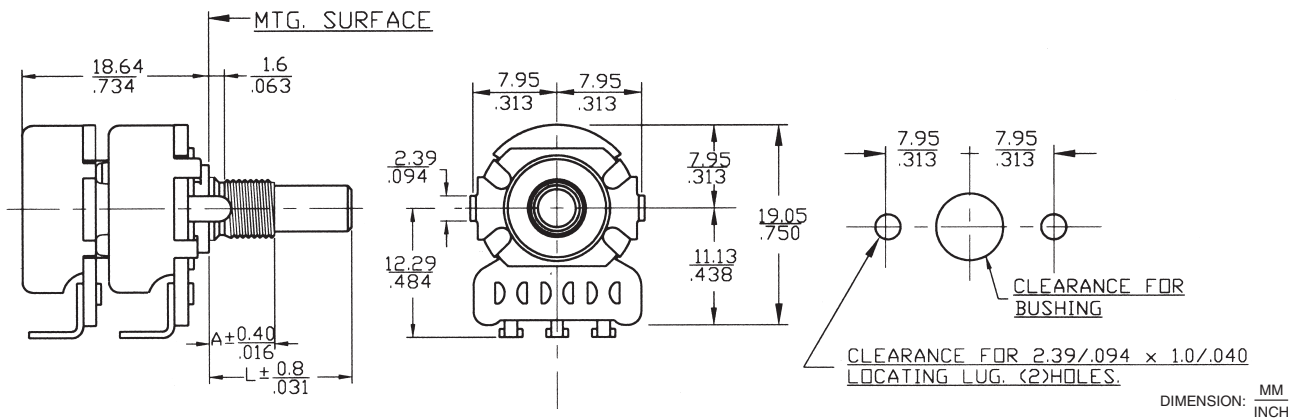
## VPE 270 PC Type "V" Terminals, Twist Tab Mount, Metal Shaft



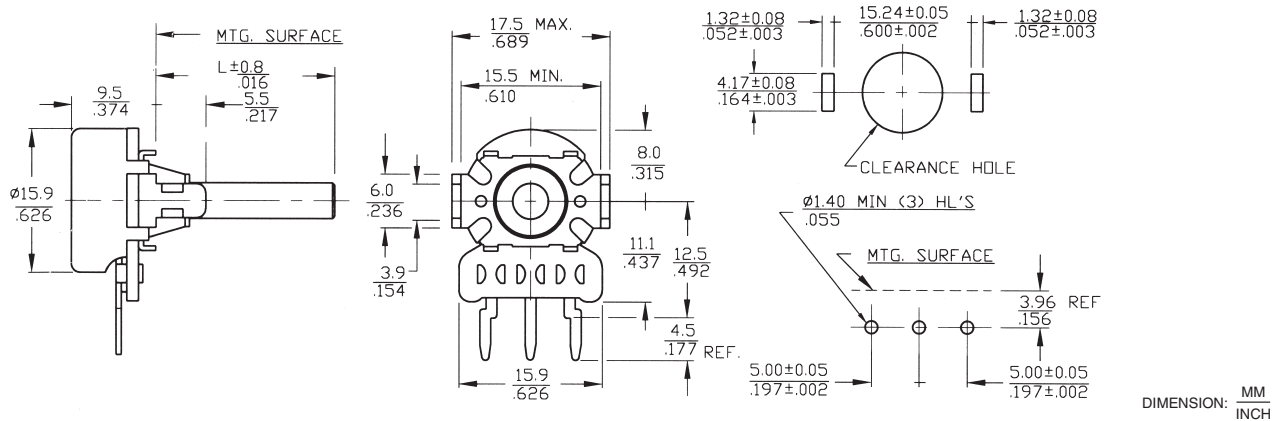
## X057-BX270 PC Type Terminal SPST Switch, PC Style Base "X" Terminals, Metal Shaft, Bushing Mount



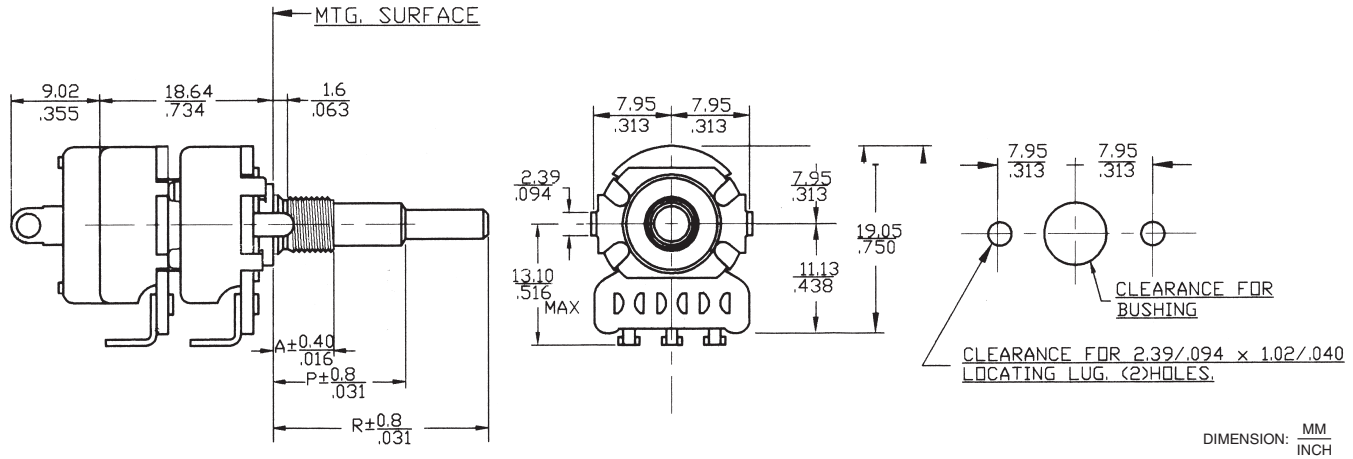
## T2-270 Solder Lug Terminals, Straight Tandem, Metal Shaft, Bushing Mount



## XP275 PC Type "X" Terminal, Metal Shaft, Twist Tab Mounting



**T057-C2-270 Solder Lug Terminal SPST Switch, Solder Lug Terminals, Concentric Metal Shafts, Bushing Mount**



**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  
W - FORMED TO REAR

**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)  
**Moulded Shafts**  
Limited Lengths Available.  
See Shaft Trim selection  
16 - Shaft U, .500" (12.7MM)  
28 - Shaft V, .875" (22.2MM)  
32 - Shaft W, 1.0" (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

**SHAFT TRIM**

A - .125" DIAM. ROUND BRASS  
B - .125" DIAM. FLAT BRASS  
C - .125" DIAM. SD SLOT BRASS  
R - .156" DIAM. ROUND BRASS  
F - .156" DIAM. FLAT BRASS  
S - .156" DIAM. SD SLOT BRASS  
G - .187" DIAM. ROUND BRASS  
H - .187" DIAM. FLAT BRASS  
J - .187" DIAM. SD SLOT BRASS  
X - .236" DIAM. ROUND BRASS  
L - .236" DIAM. FLAT BRASS  
M - .236" DIAM. SD SLOT BRASS  
N - .236" DIAM. SK BRASS  
P - .250" DIAM. ROUND BRASS  
D - .250" DIAM. FLAT BRASS  
E - .250" DIAM. SD SLOT BRASS  
T - .250" DIAM. SK BRASS  
U - .187" DIAM. .500" FMS SK MOLDED  
V - .187" DIAM. .875" FMS FLAT MOLDED  
W - .236" DIAM. .984" FMS FLATTED (.472" X .177") MOLDED  
K - .236" DIAM. .500" FMS SK MOLDED (SWITCH ONLY)

**RESIST TOL**

A - ±10%  
B - ±20%  
C - ±30%

**SWITCH TYPE**

A - NONE  
B - SPST ROTARY

**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)  
**Moulded Shafts**  
Limited Lengths Available.  
See Shaft Trim selection  
16 - Shaft U, .500" (12.7MM)  
28 - Shaft V, .875" (22.2MM)  
32 - Shaft W, 1.0" (25MM)

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

**EXAMPLES:**  
2 - .250" (6.35MM)  
3 - .375" (9.5MM)  
8 - 1.000" (25.4MM)  
1 - TWIST TAB MOUNT  
BUSHING MOUNT SUPPLIED WITH LOCATING LUG LEFT SIDE TERMINALS DOWN

**SPECIALS**

1 - NONE  
2 - 50% DETENT  
4 - LOCATING LUG FOR RIGHT SIDE  
5 - NO LOCATING LUG

NOTES: 275 series available in "X" and "U" style PC Terminals only.  
.125" dia. & .156" dia. shaft thickness is .109".  
.187" dia. shaft flat thickness is .156".  
.236" dia. shaft flat thickness is .177".  
.250" dia. shaft flat thickness is .156".

\*BX construction and terminal length supplied unless otherwise specified

**Order From:**

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