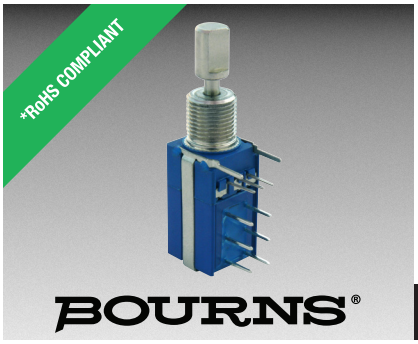


Features

- RoHS compliant*
- Push-pull switch
- Linear and audio tapers
- PC board and bushing mount
- Splash seal
- Metal bushing and shaft

Applications

- Test and measurement equipment
- Communications equipment
- Medical diagnostic equipment
- Professional audio equipment

54 – 1/2 ″ (12.5 mm) Panel Control w/Push-Pull Switch

Electrical Characteristics[1]

Standard Resistance Range
- Linear ..... 1K to 500K ohms
- Audio ..... 1K to 500K ohms

Total Resistance Tolerance
- B & D Tapers ..... ±20 %
- E & S Tapers ..... ±10 %

Independent Linearity ..... ±5 %
Absolute Minimum Resistance ..... 2 ohms maximum
Effective Electrical Angle ..... 270 ° ±5
Contact Resistance Variation ..... ±2 %
Dielectric Withstanding Voltage (MIL-STD-202 – Method 301)
- Sea Level ..... 1,500 VAC minimum
- 70,000 ..... 500 VAC minimum

Insulation Resistance ..... 1,000 megohms minimum
Power Rating At 70 °C (Derate To 0 At 125 °C)
(Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less)
- Linear Tapers ..... 0.5 watt
- Audio Tapers ..... 0.25 watt

Theoretical Resolution ..... Essentially infinite

Additional Information

Click these links for more information:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Environmental Characteristics[1]

Operating Temperature Range ..... +1 °C to +125 °C
Storage Temperature Range ..... -55 °C to +125 °C
Temperature Coefficient Over Storage Temperature Range ..... ±1,000 ppm/°C
Vibration ..... 15 G
- Total Resistance Shift ..... ±2 % maximum
- Voltage Ratio Shift ..... ±5 % maximum

Shock ..... 20 G
- Total Resistance Shift ..... +2 % maximum
- Voltage Ratio Shift ..... ±5 % maximum

Load Life ..... 1,000 hours
- Total Resistance Shift ..... ±10 % TRS maximum

Rotational Life (No Load) ..... 50,000 cycles
- Total Resistance Shift ..... ±10 % TRS maximum
- Contact Resistance Variation ..... ±2 %

Moisture Resistance (MIL-STD-202, Method 103, Condition B)
- B & E ..... ±10 % TRS
- D & S ..... ±20 % TRS

IP Rating
- Entire Unit IP64
- Shaft/Bushing IP65

Mechanical Characteristics

Stop Strength ..... 39.5 N-cm (3.5 lb.-in.)
Mechanical Angle ..... 290 ° ±5 °
Torque
- Starting/Running ..... 0.2 to 1.3 N-cm (0.25 to 2.0 oz.-in.)
- Mounting (Torque on Bushing) ..... 1.7 to 2.0 N-m (15 to 18 lb.-in.)

Weight ..... 10 grams
Terminals ..... PC pin
Soldering Condition ..... Recommended hand soldering using Sn95/Ag5 no clean solder, 0.025 ” wire diameter. Maximum temperature 399 °C (750 °F) for 3 seconds. No wash process to be used with no clean flux. Part can be wave soldered at 260 °C (500 °F) for 5 seconds, no wash process with no clean flux.
Marking ..... Manufacturer’s trademark, part number, resistance value and date code.
Ganging (Multiple Section Potentiometers) ..... Inquire for availability, minimum order quantity and price.
Hardware ..... Locking bushing versions are shipped with one additional locking nut (Bushing A: H-37-2 & H-38-2; Bushing C: H-37-1 & H-38-1)

[1]Electrical specifications tested at 200 RPM, at room ambient: +25 °C nominal.

WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Initial Electrical Characteristics - Switch

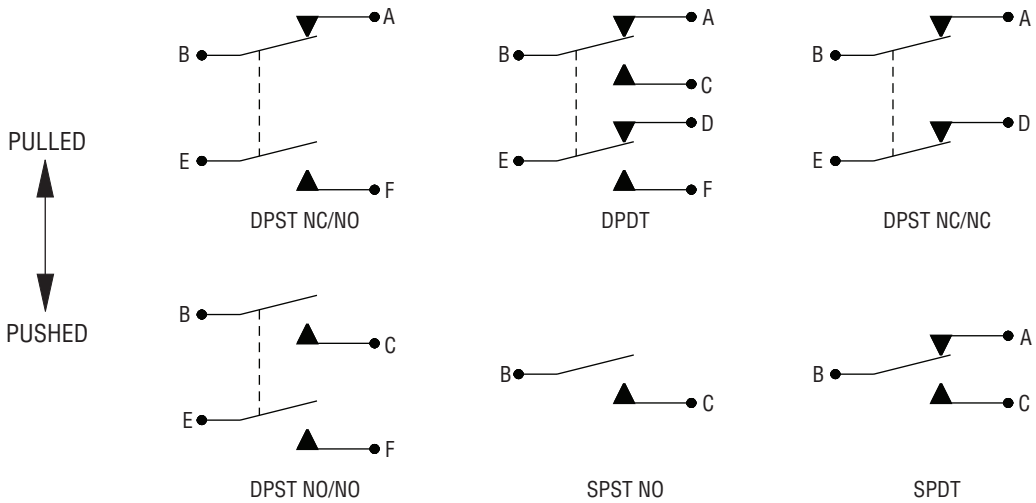
Switch Type ..... DPDT (Break before make)
Power Rating (Resistive Load) ..... 0.25 A @ 30 VDC
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)
  Sea Level ..... 1000 VAC minimum
Insulation Resistance ..... 1500 megohms minimum
Contact Resistance ..... 100 milliohms maximum
Actuating Stroke ..... 0.41 cm (0.16 in.) maximum

Environmental Characteristics[1]

Vibration ..... 8 G
  Contact Resistance ..... 100 milliohms maximum
  Contact Bounce ..... 0.1 milliseconds maximum
Shock ..... 20 G
  Contact Resistance ..... 100 milliohms maximum
  Contact Bounce ..... 0.1 milliseconds maximum
Switch Life @ Rated Power ..... 15,000 actuations
  Switch Actuating Force ..... 0.45 kg (1.0 lb) minimum
  Contact Resistance ..... 100 milliohms maximum
Moisture Resistance (MIL-STD-202, Method 103, Condition B)
  Contact Resistance ..... 100 milliohms maximum
  Insulation Resistance (After 24 Hours @ Room Temperature - 500 VDC) ..... 100 megohms minimum

[1]Electrical specifications tested at 200 RPM at room ambient: +25 °C nominal.

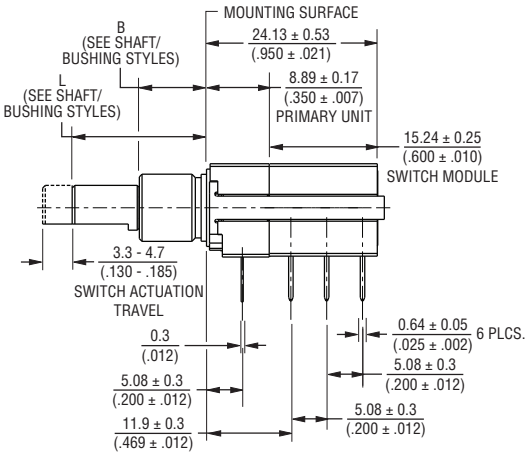
Switch Configurations (Shown in Pulled Position)

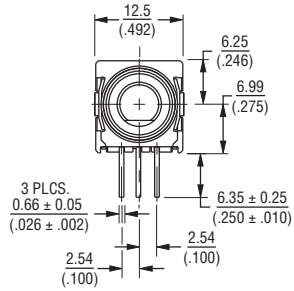


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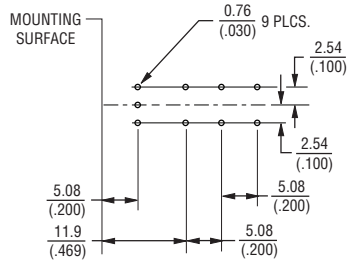
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Product Dimensions



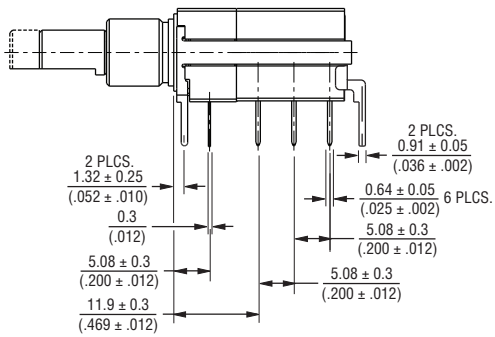


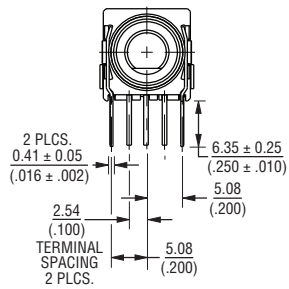
SHAFT FLAT SHOWN AT 50 % OF MECHANICAL TRAVEL.



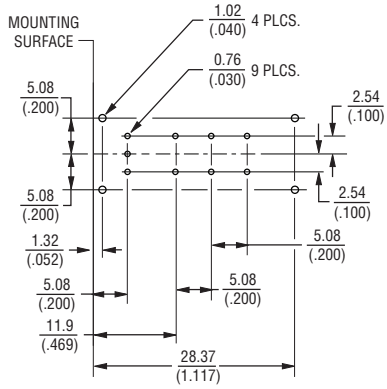
SUGGESTED PCB LAYOUT

PACKAGE DIMENSIONS WITH FRONT AND REAR PCB MOUNTING BRACKET





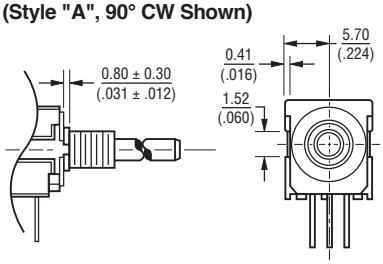
DIMENSIONS: MM (INCHES)



SUGGESTED PCB LAYOUT

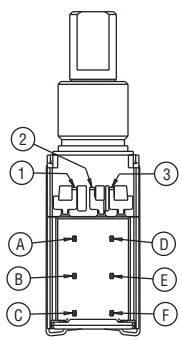
Anti-Rotation Lug

(Style "A", 90° CW Shown)

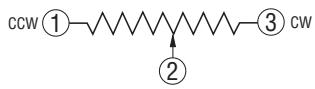


FOR TOLERANCES SHOWN: .XX = ± .25 (.010)
.XXX = ± .13 (.005)
SHAFT DIMENSIONS ± .80 (1/32)

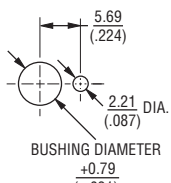
Terminal Layout



Electrical Schematic



Suggested Panel Layouts

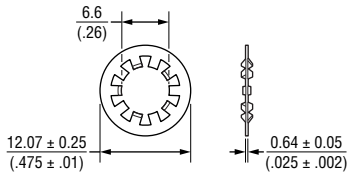


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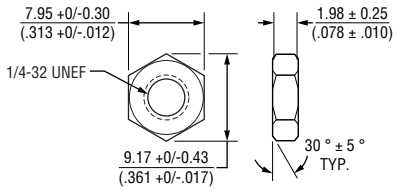
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Hardware

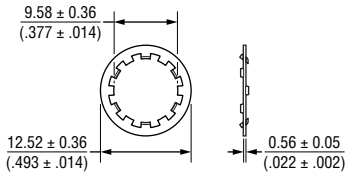
LOCKWASHER H-37-1



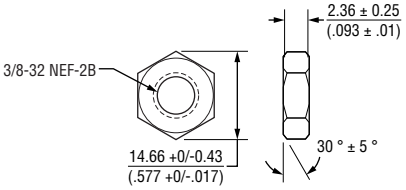
NUT H-38-1



LOCKWASHER H-37-2

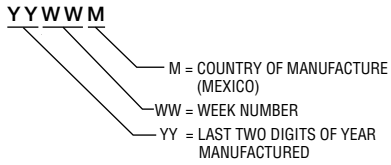


NUT H-38-2



DIMENSIONS: MM / (INCHES)

Date Code Description



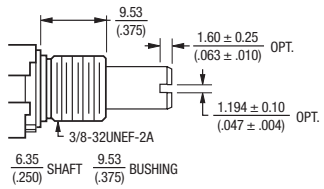
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54 – 1/2 ″ (12.5 mm) Panel Control w/Push-Pull Switch

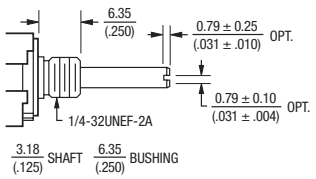
BOURNS®

Shaft/Bushing Styles



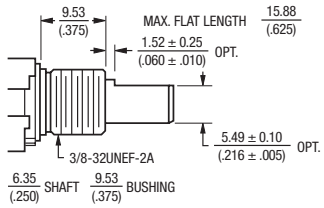
A Style Bushing

STD. LENGTH 'L'	
.750	(19.05)
.875	(22.23)



C Style Bushing

STD. LENGTH 'L'	
.750	(19.05)
.875	(22.23)



A Style Bushing - Flatted Shaft

STD. LENGTH 'L'	
.750	(19.05)
.875	(22.23)

DIMENSIONS: MM / (INCHES)

How To Order

54	A	A	D	-	C	28	-	B	15	/	P50	L

ANTI-ROTATION LUG / BRACKET OPTION

Code	Description
A	AR Lug 90 ° CW
D	No AR Lug or Bracket
L	Front Bracket
N	Front and Rear Bracket

RoHS IDENTIFIER

Code	Description
L	Compliant

SWITCH OPTION

Code	Description
P50	DPDT

NO. OF SECTIONS

Code	Description
A	Single plus Switch

RESISTANCE CODES

Code	Value in Ohms
10	1K
13	5K
15	10K
18	50K
20	100K
22	250K
23	500K

BUSHING DESIGNATOR

Code	Description
A	3/8 ” D x 3/8 ” L Threaded
C	1/4 ” D x 1/4 ” L Threaded

ELEMENT TAPER TYPE/TOLERANCE

Code	Description
B	Linear CP ±20 %
E	Linear CP ±10 %
D	CW Audio CP ±20 %
S	CW Audio CP ±10 %

MODEL

Code	Description
54	PC Terminals w/Push-Pull Switch

SHAFT LENGTH DESIGNATOR

Code	Description
24	3/4 ” FMS Long
28	7/8 ” FMS Long

SHAFT STYLE

Code	Description	AVAILABLE ONLY WITH BUSHING Code
B	1/4 ” D Slotted End	A
C	1/4 ” D Flatted End	A
E	1/8 ” D Slotted End	C

Boldface features are Bourns standard options. All others are available with higher minimum order quantities.

BOURNS®

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REV. 04/25

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