



## Features

- Essentially infinite resolution
- Excellent rotational life
- High quality, rugged construction
- General purpose applications
- Non-standard features available
- Cost and space saving

## 6539/6639 - Precision Potentiometer

Electrical Characteristics <sup>1</sup>	6539 Servo Mount	6639 Bushing Mount
Standard Resistance Range	1 K to 100 K ohms	1 K to 100 K ohms
Total Resistance Tolerance	±15 %	±15 %
Independent Linearity	±2.0 %	±2.0 %
Effective Electrical Angle	340 ° +3 °	340 ° +3 °
End Voltage	0.5 % maximum	0.5 % maximum
Output Smoothness	0.1 %	0.1 %
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)		
Sea Level	750 VAC minimum	750 VAC minimum
Power Rating (Voltage Limited By Power Dissipation or 300 VAC, Whichever is Less)		
+70 °C	1.0 watt	1.0 watt
+125 °C	0 watt	0 watt
Insulation Resistance (500 VDC)	500 megohms minimum	500 megohms minimum
Resolution	Essentially infinite	Essentially infinite

Environmental Characteristics <sup>1</sup>	6539 Servo Mount	6639 Bushing Mount
Operating Temperature Range	+1 °C to +125 °C	-40 °C to +125 °C
Storage Temperature Range	-65 °C to +125 °C	-65 °C to +125 °C
Temperature Coefficient		
Over Storage Temperature Range	±500 ppm/°C maximum	±500 ppm/°C maximum
Vibration	15 G	15 G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Total Resistance Shift	±10 %	±10 %
Voltage Ratio Shift	±0.5 %	±0.5 %
Shock	50 G	50 G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Total Resistance Shift	±5 %	±5 %
Voltage Ratio Shift	±0.5 %	±0.5 %
Load Life	1,000 hours, 1 watt	1,000 hours, 1 watt
Total Resistance Shift	±10 %	±10 %
Rotational Life (No Load)	10,000,000 shaft revolutions	10,000,000 shaft revolutions
Total Resistance Shift	±10 % maximum	±10 % maximum
Moisture Resistance (MIL-STD-202, Method 106)		
Total Resistance Shift	±15 %	±15 %
IP Rating	IP 40	IP 40

Mechanical Characteristics <sup>1</sup>	6539 Servo Mount	6639 Bushing Mount
Mechanical Angle	Continuous, Stops (340 ° +8 °, -0 °) available	
Torque (Starting & Running) <sup>2</sup>	0.40 N-cm (0.5 oz.-in.) max.	
Mounting	170-200 N-cm (15-18 lb.-in.) maximum	
Shaft Runout	0.13 mm (0.005 in.) T.I.R.	
Lateral Runout	0.08 mm (0.003 in.) T.I.R.	
Shaft End Play	0.13 mm (0.005 in.) T.I.R.	
Shaft Radial Play	0.13 mm (0.005 in.) T.I.R.	
Pilot Diameter Runout	0.06 mm (0.0025 in.) T.I.R.	
Backlash	0.1 ° maximum	
Weight	18 gm (6539 Servo Mount),	24 gm (6639 Bushing Mount)
Terminals	Rear Turret Type	
Soldering Condition		
Manual Soldering	96.5Sn/3.0Ag/0.5Cu solid wire or no-clean rosin cored wire 370 °C (700 °F) max. for 3 seconds	
Wave Soldering	96.5Sn/3.0Ag/0.5Cu solder with no-clean flux 260 °C (500 °F) max. for 5 seconds	
Wash processes	Not recommended	
Marking	Manufacturer's name and part number, resistance value and tolerance, linearity tolerance, wiring diagram, and date code.	
Ganging (Multiple Section Pots)	1 cup maximum	
Hardware (6639 only)	One lockwasher (H-37-2) and one mounting nut (H-38-2) is shipped with potentiometer.	

<sup>1</sup> At room ambient: +25 °C nominal and 50 % relative humidity, except as noted.

<sup>2</sup> 2.82 N-cm (4.0 oz.-in.) max. at -40 °C.

### Recommended Part Numbers

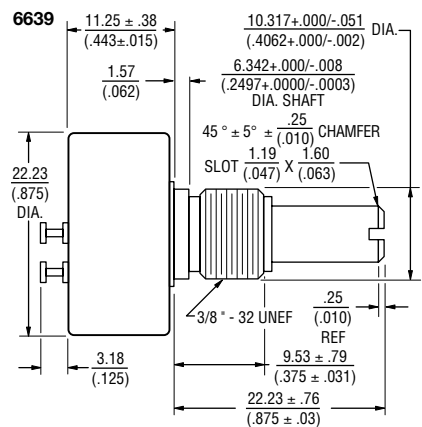
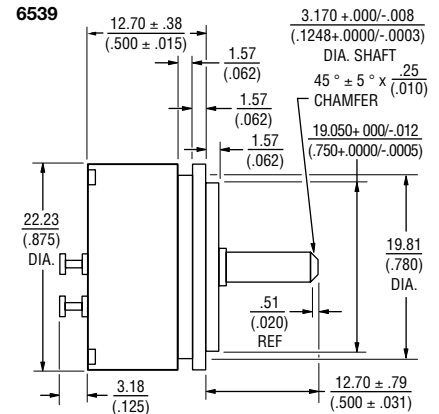
Part Number	Resistance (Ω)
<b>6539S-1-102</b>	<b>1,000</b>
<b>6539S-1-502</b>	<b>5,000</b>
<b>6539S-1-103</b>	<b>10,000</b>

**BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.**

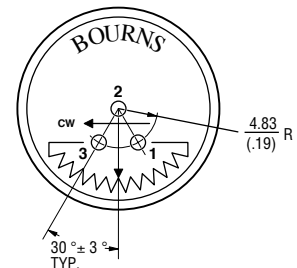
FOR OTHER OPTIONS CONSULT FACTORY.

Part Numbers		Resistance (Ω)
Continuous Turn	Mechanical Stops	
<b>6639S-1-102</b>	<b>6639S-301-102</b>	<b>1,000</b>
<b>6639S-1-202</b>	<b>6639S-301-202</b>	<b>2,000</b>
<b>6639S-1-502</b>	<b>6639S-301-502</b>	<b>5,000</b>
<b>6639S-1-103</b>	<b>6639S-301-103</b>	<b>10,000</b>
<b>6639S-1-203</b>		<b>20,000</b>

### Product Dimensions



65/6639

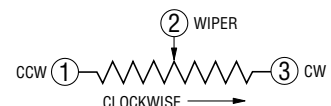


TOLERANCES: EXCEPT WHERE NOTED

DECIMALS: XX ± .51 (0.20), XXX ± .13 (0.005)

FRACTIONS: ±1/64

DIMENSIONS: MM (IN.)



\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex Specifications are subject to change without notice.

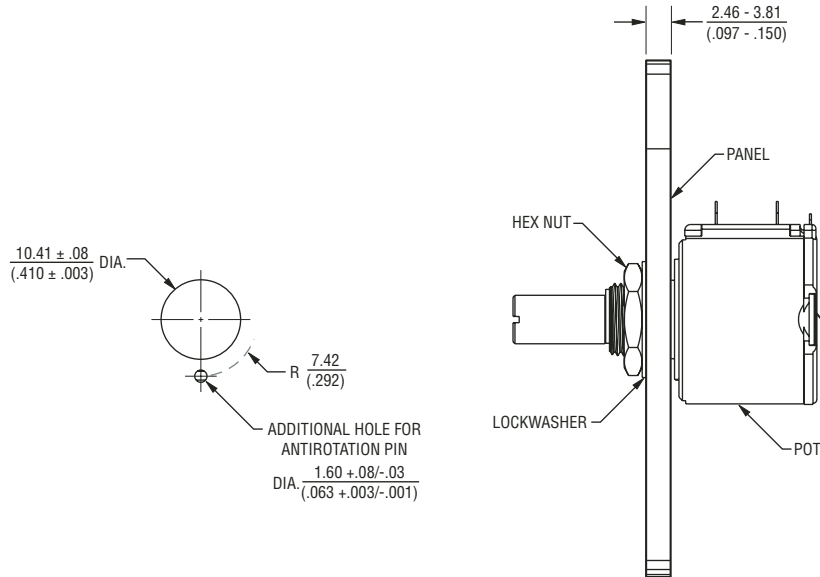
Customers should verify actual device performance in their specific applications.

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**BOURNS®**

## Panel Thickness Dimensions

(For Bushing Mount Only)



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

TOLERANCES:  $\pm \frac{0.127}{(.005)}$

REV. 10/08

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