

BOURNS®

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[1]	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[1]		
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[1]	
Mechanical Angle	Continuous, Stops (340 ° +8 °, -0 °) available
Torque (Starting & Running)[2]	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	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.
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.

[1] At room ambient: +25 °C nominal and 50 % relative humidity, except as noted.
[2] 2.82 N-cm (4.0 oz.-in.) max. at -40 °C.

Recommended Part Numbers

Part Number	Resistance (Ω)
6539S-1-102	**1,000**
6539S-1-502	**5,000**
6539S-1-103	**10,000**

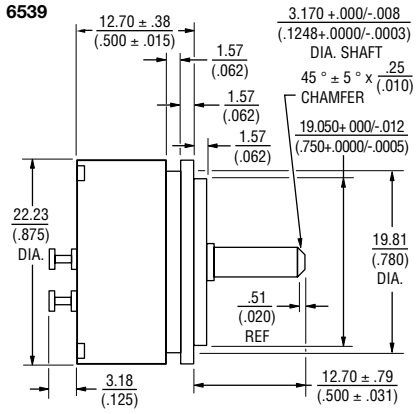
BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.

FOR OTHER OPTIONS CONSULT FACTORY.

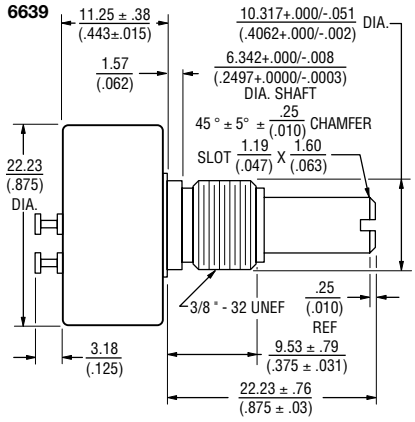
Part Numbers		Resistance (Ω)
Continuous Turn	Mechanical Stops	
6639S-1-102	**6639S-301-102**	**1,000**
6639S-1-202		**2,000**
6639S-1-502	**6639S-301-502**	**5,000**
6639S-1-103	**6639S-301-103**	**10,000**
6639S-1-203		**20,000**

Product Dimensions

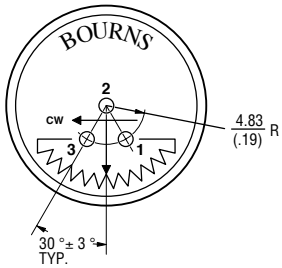
6539



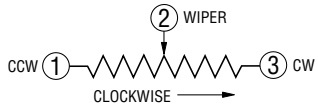
6639



65/6639



TOLERANCES: EXCEPT WHERE NOTED
DECIMALS: .XX ± .51 (.020) .XXX ± .13 (.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.

REV. 06/06