6638 - Precision Potentiometer

**Features**
- 7/8" (22 mm) diameter single-turn conductive plastic
- Bushing mount
- Excellent resolution
- High rotational life – ball bearing shaft support

**Electrical Characteristics**
- Standard Resistance Range: 1 K to 100 K ohms
- Total Resistance Tolerance: ±10 %
- Independent Linearity: ±1 %
- Effective Electrical Angle: 340° ± 3°
- End Voltage: 0.5 % maximum
- Output Smoothness: 0.1 % maximum
- Insulation Resistance (500 VDC): 1,000 megohms minimum
- Resolution: Essentially infinite
- Temperature Coefficient Over Storage Temperature Range: ±500 ppm/°C maximum
- Voltage Ratio Shift: ±0.5 % maximum
- Total Resistance Shift: ±5 % maximum
- Wiper Bounce: 0.1 millisecond maximum
- Shaft Radial Play: 0.08 mm (0.003 in.) T.I.R.
- Torque (Starting & Running): 0.18 N-cm (0.25 oz.-in.) maximum
- Backlash: 0.1 ° maximum
- Temperature: +25 °C nominal and 50 % relative humidity, except as noted
- Sea Level: 750 VAC minimum
- Power Rating (Voltage Limited By Power Dissipation or 300 VAC, Whichever is Less): 1 watt
- Insulation Resistance (500 VDC): 1,000 megohms minimum
- Resolution: Essentially infinite

**Environmental Characteristics**
- Operating Temperature Range: +1 °C to +125 °C
- Storage Temperature Range: -65 °C to +125 °C
- Temperature Coefficient Over Storage Temperature Range: ±500 ppm/°C maximum
- Vibration: 15 G
- Shock: 50 G
- Wiper Bounce: 0.1 millisecond maximum
- Total Resistance Shift: ±5 % maximum
- Voltage Ratio Shift: ±0.5 % maximum
- Total Resistance Shift: ±10 % maximum
- Load Life: 1,000 hours, 1 watt
- Total Resistance Shift: ±10 % maximum
- Rotational Life (No Load): 20,000,000 shaft revolutions
- Moisture Resistance (MIL-STD-202, Method 106): 22.23 (0.81) DIA.
- Total Resistance Shift: ±10 % maximum
- IP Rating: IP 40

**Mechanical Characteristics**
- Mechanical Angle: Continuous
- Torque (Starting & Running): 0.18 N-cm (0.25 oz.-in.) maximum
- Mounting: 170-200 N-cm (15-18 lb.-in.) maximum
- Shaft Runout: 0.025 mm (0.001 in.) T.I.R.
- Shaft End Play: 0.13 mm (0.005 in.) T.I.R.
- Shaft Radial Play: 0.08 mm (0.003 in.) T.I.R.
- Backlash: 0.1 ° maximum
- Weight: 18 gm
- Terminals: Rear turret type

**Soldering Condition**
- Manual Soldering: 6638S-1-103 10,000
- 6638S-1-102 1,000
- Wave Soldering: 6638S-1-103 10,000
- 6638S-1-102 1,000

**Recommended Part Numbers**
- 6638S-1-102: 1,000
- 6638S-1-502: 5,000
- 6638S-1-103: 10,000

**Product Dimensions**

*At room ambient: +25 °C nominal and 50 % relative humidity, except as noted.*

---

*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.*