



Features

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

- Non-standard features and specifications available

6638 - Precision Potentiometer

Electrical Characteristics¹

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
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)	
Sea Level	750 VAC minimum
Power Rating (Voltage Limited By Power Dissipation or 300 VAC, Whichever is Less)	
+70 °C	1 watt
+125 °C	0 watt
Insulation Resistance (500 VDC)	1,000 megohms minimum
Resolution	Essentially infinite

Environmental Characteristics¹

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
Wiper Bounce	0.1 millisecond maximum
Total Resistance Shift	±5 % maximum
Voltage Ratio Shift	±0.5 % maximum
Shock	50 G
Wiper Bounce	0.1 millisecond maximum
Total Resistance Shift	±5 % maximum
Voltage Ratio Shift	±0.5 % maximum
Load Life	1,000 hours, 1 watt
Total Resistance Shift	±10 % maximum
Rotational Life (No Load)	20,000,000 shaft revolutions
Total Resistance Shift	±10 % maximum
Moisture Resistance (MIL-STD-202, Method 106)	
Total Resistance Shift	±10 % maximum
IP Rating	IP 40

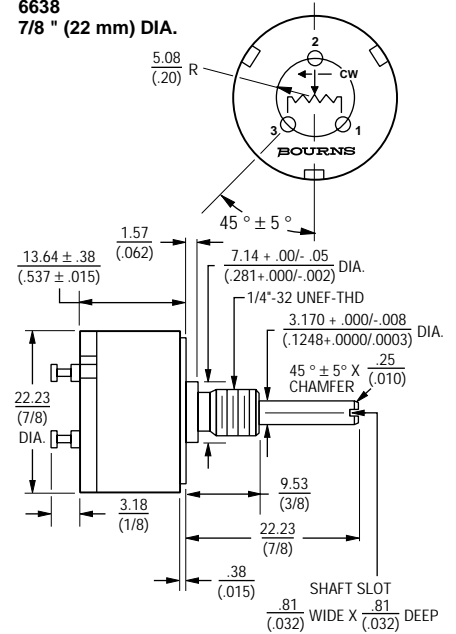
Mechanical Characteristics¹

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	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 Potentiometers)	1 cup maximum
Hardware	One lockwasher (H-37-1) and one mounting unit (H-38-1) is shipped with each potentiometer.

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

Product Dimensions

6638 7/8" (22 mm) DIA.

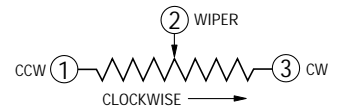


TOLERANCES: EXCEPT WHERE NOTED

DECIMALS: XX ± .51 (0.02), XXX ± .127 (0.005)

FRACTIONS: ±1/64

DIMENSIONS: MM (IN.)



Recommended Part Numbers

Part Numbers	Resistance (Ω)
6638S-1-102	1,000
6638S-1-502	5,000
6638S-1-103	10,000

BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.

FOR OTHER OPTIONS CONSULT FACTORY.

MATERIAL DATA SHEET



Reliable Electronic Solutions

Material #	6639S
Product Line	Precisions
Posted Date	03/02/2005
Compliance Date	Since Inception
RoHS Compliant	Yes



No.	Construction element	Material group	Material weight [g]	Materials	CAS if applicable	Average mass [%]	Sum [%]
1	Cover Molded	Phthalate	1.403	Antimony Trioxide	1309-64-4	<5%	7.9117%
				Alumina	21645-51-2	<20%	
				Glass Fiber	65997-17-3	<50%	
				Phthalate	*****	Remainder	
2	Terminal Gold Plated	Gold Plating	0.012	Gold	7440-57-5	>90.00%	0.0677%
3	Terminal Unplated	Leaded Brass	0.125	Copper	7440-50-8	55-72%	0.7049%
				Lead	7439-92-1	0-3.5%	
				Tin	7440-31-5	0-1%	
				Zinc	7440-66-6	35-45%	
4	Terminal Gold Plated	Gold Plating	0.012	Gold	7440-57-5	>90.00%	0.0677%
5	Terminal Unplated	Leaded Brass	0.125	Copper	7440-50-8	55-72%	0.7049%
				Lead	7439-92-1	0-3.5%	
				Tin	7440-31-5	0-1%	
				Zinc	7440-66-6	35-45%	
6	Termination Ink	Conductor Ink	0.005	Formaldehyde Polymer with Phenol & Methyl phenol	9039-25-2	<20%	0.0282%
				2-Ethyl Acetate	124-17-4	<30%	
				Silver	7440-22-4	<50%	
7	Ink	CP-10	0.0003	Amorphous Silica	7631-86-9	<3%	0.0017%
				Carbon	7440-44-0	20%	



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				Silver	7440-22-4	<42%	
				Phenol Resin	*****	<66%	
8	Catalyst	Catalyst	0.00004	Dimethyleformamide	68-12-2	45%	0.0002%
				2-Ethylimidazol	1072-62-4	55%	
9	Conductive Epoxy	BCC	0.0004	Biphenyl A Polyglycidyl Ether	25068-38-6	27%	0.0023%
				Butyl Glydicyl Ether	2426-08-6	9%	
				Silver	7440-22-4	64%	
10	Rotor Molded	PBT	0.9	Glass	65997-17-3	10-30%	5.0752%
				Antimony Oxide	1309-64-4	1-5%	
				PBT	*****	65-89%	
11	Shaft	Steel Alloy	6.85	Nickel	7440-02-0	8.90	38.6282%
				Chromium	7440-47-3	18.30	
				Iron	1309-37-1	Balance	
				Manganese	7439-96-5	1.80	
				Silicon	7440-21-3	1.00	
12	Contact Spring	Palmet Alloy	0.00095	Copper	7440-50-8	0-20%	0.0054%
				Nickel	7440-05-0	0-20%	
				Palladium	7440-05-3	40-60%	
				Platinum	7440-06-4	0-20%	
				Silver	7440-22-4	20-40%	
13	Housing & Bushing Molded	PBT	2.0307	Glass	65997-17-3	10-30%	11.4514%
				PBT	*****	65-89%	
				Antimony Oxide	1309-64-4	1-5%	
14	Bushing	Leaded Brass	4.7923	Copper	7440-50-8	55-72%	27.0245%
				Lead	7439-92-1	0-3.5%	
				Tin	7440-31-5	0-1%	
				Zinc	7440-66-6	35-45%	
15	Hex Nut	Brass Alloy	1.179	Copper	7440-50-8	55.5-86%	6.6486%
				Zinc	7440-66-6	13.90-42.5%	
				Lead	7439-92-1	.00-3.7%	
				Tin	7440-31-5	.00-1.2%	
				Aluminum	7429-90-5	.00-2.3%	
				Manganese	7439-96-5	.00-3.5%	
				Silicon	7440-21-3	.00-1.5%	
				Nickel	7440-02-0	.00-.02%	



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16	Lock Washer	Steel	0.2945	Carbon	7440-11-0	0.51%	1.6607%
				Manganese	7439-98-5	0.75%	
				Phosphorus	7723-14-0	0.02%	
				Sulfur	7704-39-9	0.025%	
				Iron	7439-89-6	98.695%	
		Zinc Plating	0.002975	Chromium	16065-83-1	0.1%	0.0168%
				Tin	7440-31-5	0.64%	
				Zinc	7440-66-6	99.25%	
		Total weight	17.733165				