



Features

- Bushing mount
- Shaft supported by front sleeve bearing
- Non-standard features and specifications available

BOURNS®

6657 - 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 %
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	1.5 watts
+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, 1.5 watts
Total Resistance Shift	±10 % maximum
Rotational Life (No Load)	10,000,000 shaft revolutions
Total Resistance Shift	±10 % maximum
Moisture Resistance (MIL-STD-202, Method 106)	
Total Resistance Shift	±15 % maximum
IP Rating	IP 40

Mechanical Characteristics¹

Mechanical Angle	Continuous
Torque (Starting & Running)	0.40 N-cm (0.5 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	0.13 mm (0.005 in.) T.I.R.
Backlash	0.1 ° maximum
Weight	32 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-37-2) and one mounting nut (H-38-2) is shipped with each potentiometer.

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

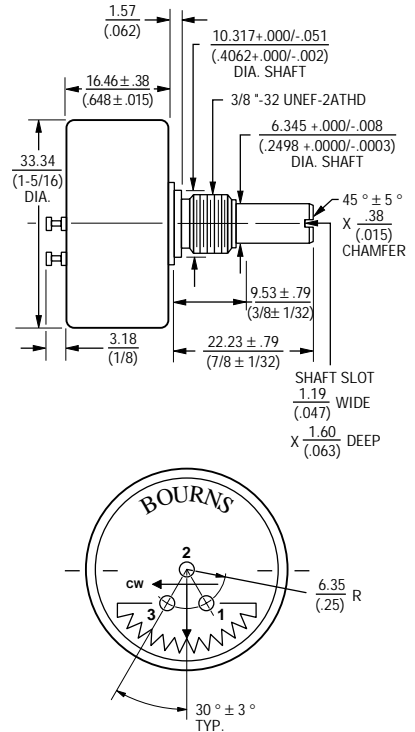
Recommended Part Numbers

Part Number*	Resistance (Ω)
6657S-1-102	1,000
6657S-1-202	2,000
6657S-1-502	5,000
6657S-1-103	10,000

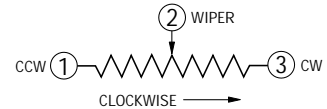
BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.

FOR OTHER OPTIONS CONSULT FACTORY.

Product Dimensions



TOLERANCES: EXCEPT WHERE NOTED
 DECIMALS: XX ± .51 (.02), .XXX ± .13 (.005)
 FRACTIONS: ±1/64
 DIMENSIONS: MM (IN.)



MATERIAL DATA SHEET



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Material #	6657S	
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	Housing Molded	PBT	6.8	Glass	65997-17-3	10-30%	20.5983%
				PBT	*****	65-89%	
				Antimony Oxide	1309-64-4	1-5%	
2	Bushing	Steel Alloy	1.35	Iron	7439-89-6	86.5-99.5%	4.0894%
				Aluminum	7429-90-5	0.1-0.5%	
				Bismuth	7440-69-9	0.2-0.5%	
				Boron	7440-42-8	.01-1.0%	
				Carbon	7440-44-0	.10-1.5%	
				Chromium	7440-47-3	.4-10%	
				Columbium	7440-03-1	.15-.35%	
				Copper	7440-50-8	.30-1.90%	
				Lead	7439-92-1	.01-.15%	
				Manganese	7435-96-5	.04-0.7%	
				Molybdenum	7439-98-7	15-1.10%	
				Nickel	7440-02-0	.01-10%	
				Phosphorous	7723-14-0	.040-.12%	
				Silicon	7440-21-3	.15-2.00%	
				Sulfur	7704-34-9	.050-.35%	
				Vanadium	7440-62-2	.01-.15%	
Zinc Coating	1314-13-2	2 oz/ft_ %					
Aluminum Coating	7429-90-5	.5 oz/ft_ %					
3	Hex Nut	Brass Alloy	1.179	Copper	7440-50-8	55.5-86%	3.5714%
				Zinc	7440-66-6	13.90-42.5%	



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				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%	
4	Lock Washer	Steel Alloy	0.2945	Carbon	7440-11-0	0.51%	0.8921%
				Manganese	7439-98-5	0.75%	
				Phosphorus	7723-14-0	0.02%	
		Zinc Plating	0.002975	Sulfur	7704-39-9	0.025%	0.0090%
				Iron	7439-89-6	98.695%	
				Chromium	16065-83-1	0.1%	
5	Cover Molded	Phthalate	3.5145	Tin	7440-31-5	0.64%	10.6460%
				Zinc	7440-66-6	99.25%	
				Antimony Trioxide	1309-64-4	<5%	
				Aluminum Hydroxide	21645-51-2	<20%	
6	Terminal Gold Plated	Gold Plating	0.012	Phthalate	*****	Remainder	0.0363%
				Glass Fiber	65997-17-3	<50%	
				Gold	7440-57-5	>90.00%	
7	Terminal Unplated	Leaded Brass	0.125	Copper	7440-50-8	55-72%	0.3786%
				Lead	7439-92-1	0-3.5%	
				Tin	7440-31-5	0-1%	
				Zinc	7440-66-6	35-45%	
8	Ink	CP-10	0.003	Amorphous Silica	7631-86-9	<3%	0.0091%
				Carbon	7440-44-0	20%	
				Silver	7440-22-4	<42%	
				Resin	*****	<66%	
9	Termination Ink	Conductor Ink	0.0011	Formaldehyde Polymer with Phenol & Methyl phenol	9039-25-2	<20%	0.0033%
				2-Ethyl Acetate	124-17-4	<30%	
				Silver	7440-22-4	<50%	
10	Conductive Epoxy	BCC	0.0004	Biphenyl A Polyglycidyl Ether	25068-38-6	27%	0.0012%
				Butyl Glydicyl Ether	2426-08-6	9%	
				Silver	7440-22-4	64%	
11	Rotor Molded	PBT	3.4	Glass	65997-17-3	10-30%	10.2991%
				PBT	*****	65-89%	



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12	Shaft	Steel Alloy	7.55	Antimony Oxide	1309-64-4	1-5%	22.8701%
				Nickel	7440-02-0	8.90%	
				Chromium	7440-47-3	18.30%	
				Iron	1309-37-1	Balance	
				Manganese	7439-96-5	1.80%	
13	C-Ring	Stainless Steel Alloy	0.009	Silicon	7440-21-3	1.00%	0.0273%
				Iron	7439-89-6	48-89%	
				Chromium	7440-47-3	10-27%	
				Nickel	7440-02-0	0-22%	
				Manganese	7439-96-5	0-15%	
				Tungsten	7440-33-7	0-4%	
				Molybdenum	7439-98-7	0-4%	
				Aluminum	7429-90-5	0-2%	
				Copper	7440-50-8	0-4%	
14	Contact Spring	Palmet Alloy	0.01	Silicon	7440-51-3	0-5%	0.0303%
				Cobalt	7440-48-4	0-5%	
				Copper	7440-50-8	0-20%	
				Nickel	7440-05-0	0-20%	
				Palladium	7440-05-3	40-60%	
15	"O" Ring	Silicon	0.13	Platinum	7440-06-4	0-20%	0.3938%
				Silver	7440-22-4	20-40%	
				Silicon Rubber	*****	100%	
				PA Polyamide	32131-17-2	100%	
16	Connector Mini Fit. Plug	Nylon	1.5	Aluminum	7429-90-5	100%	4.5437%
17	Stranded Tinned Copper	Aluminum Alloy	1.81	Aluminum	7429-90-5	100%	5.4828%
18	Stranded Tinned Copper	Aluminum Alloy	1.8	Aluminum	7429-90-5	100%	5.4525%
19	Single Conductor	PVC	1.69	Polyvinyl Chloride Polymer	*****	35-70%	5.1193%
				Plasticity	*****	20-50%	
				Insert Fillers	*****	0-27%	
				Heat Stabilizers	*****	1-5%	
				Flame Retardant	*****	0-3%	
				Colorants	*****	0-3%	
20	Single Conductor	PVC	1.7	Polyvinyl Chloride Polymer	*****	35-70%	5.1496%
				Plasticity	*****	20-50%	
				Insert Fillers	*****	0-27%	
				Heat Stabilizers	*****	1-5%	
				Flame Retardant	*****	0-3%	



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				Colorants	*****	0-3%	
21	Terminal Mini Fit Molex	Brass	0.001	Brass	*****	100%	0.0030%
22	"O" Ring	Silicon	0.13	Silicon Rubber	*****	100%	0.3938%
23	C-Ring	Stainless Steel Alloy	0.009	Iron	7439-89-6	48-89%	0.0273%
				Chromium	7440-47-3	10-27%	
				Nickel	7440-02-0	0-22%	
				Manganese	7439-96-5	0-15%	
				Tungsten	7440-33-7	0-4%	
				Molybdenum	7439-98-7	0-4%	
				Aluminum	7429-90-5	0-2%	
				Copper	7440-50-8	0-4%	
				Silicon	7440-51-3	0-5%	
24	Washer	Stainless Steel Alloy	0.041	Iron	7439-89-6	70%	0.1242%
				Chromium	7440-47-3	18%	
				Manganese	7439-96-3	2%	
				Nickel	7440-02-0	9%	
				Silicon	7440-21-3	1%	
25	Washer	Stainless Steel Alloy	0.008	Iron	7493-89-6	52-78%	0.0242%
				Chromium	7440-47-3	12-24%	
				Nickel	7440-02-0	6.0-19%	
				Molybdenum	7439-98-7	0-5.0%	
				Silicon	7440-21-3	0-6%	
				Manganese	7439-96-3	0-2.0%	
				Tungsten	7440-33-7	0-1.8%	
				Aluminum	7429-90-5	0-1.5%	
				Columbium	7440-03-1	0-1.0%	
Titanium	7440-32-6	0-0.7%					
26	Washer	Stainless Steel Alloy	0.012	Iron	7439-89-6	70%	0.0363%
				Chromium	7440-47-3	18%	
				Manganese	7439-96-3	2%	
				Nickel	7440-02-0	9%	
				Silicon	7440-21-3	1%	
27	Washer	Stainless Steel Alloy	0.0045	Iron	7439-89-6	70%	0.0136%
				Chromium	7440-47-3	18%	
				Manganese	7439-96-3	2%	



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				Nickel	7440-02-0	9%	
				Silicon	7440-21-3	1%	
28	Contact Spring	Palmet Alloy	0.0425	Copper	7440-50-8	0-20%	0.1287%
				Nickel	7440-02-0	0-20%	
				Palladium	7440-05-3	40-60%	
				Platinum	7440-06-4	0-20%	
				Silver	7440-22-4	20-40%	
		Total weight	33.012475				