

**BOURNS®**

## Features

- Bushing mount
- Optional AR pin feature
- Non-standard features and specifications available
- Gangable
- RoHS compliant\*

## 3543/3545 - Precision Potentiometer

| Electrical Characteristics <sup>1</sup>                   | 3543 3-Turn               | 3545 5-Turn               |
|-----------------------------------------------------------|---------------------------|---------------------------|
| Standard Resistance Range.....                            | 20 to 50 K ohms           | 50 to 50 K ohms           |
| Total Resistance Tolerance.....                           | ±5 %                      | ±5 %                      |
| Independent Linearity.....                                | ±0.25 %                   | ±0.25 %                   |
| Effective Electrical Angle.....                           | 1080 ° +10 °, -0 °        | 1800 ° +10 °, -0 °        |
| Absolute Minimum Resistance/.....                         | 1 ohm or 0.1 % maximum    | 1 ohm or 0.1 % maximum    |
| Minimum Voltage.....                                      | (whichever is greater)    | (whichever is greater)    |
| Noise.....                                                | 100 ohms ENR maximum      | 100 ohms ENR maximum      |
| Dielectric Withstanding Voltage (MIL-STD-202, Method 301) |                           |                           |
| Sea Level.....                                            | 1,000 VAC minimum         | 1,000 VAC minimum         |
| Power Rating (Voltage Limited By Power Dissipation or     |                           |                           |
| 224 VAC [3543] or 273 VAC [3545], Whichever Is Less)      |                           |                           |
| +70 °C.....                                               | 1 watt                    | 1.5 watt                  |
| +125 °C.....                                              | 0 watt                    | 0 watt                    |
| Insulation Resistance (500 VDC).....                      | 1,000 megohms minimum     | 1,000 megohms minimum     |
| Resolution.....                                           | See recommended part nos. | See recommended part nos. |

## Environmental Characteristics<sup>1</sup>

|                                                            |                           |                           |
|------------------------------------------------------------|---------------------------|---------------------------|
| Operating Temperature Range.....                           | +1 °C to +125 °C          | +1 °C to +125 °C          |
| Storage Temperature Range.....                             | -55 °C to +125 °C         | -55 °C to +125 °C         |
| Temperature Coefficient Over                               |                           |                           |
| Storage Temperature Range <sup>2</sup> .....               | ±50 ppm/°C maximum/unit   | ±50 ppm/°C maximum/unit   |
| Vibration.....                                             | 15 G                      | 15 G                      |
| Wiper Bounce.....                                          | 0.1 millisecond maximum   | 0.1 millisecond maximum   |
| Shock.....                                                 | 50 G                      | 50 G                      |
| Wiper Bounce.....                                          | 0.1 millisecond maximum   | 0.1 millisecond maximum   |
| Load Life.....                                             | 1,000 hours, 1 watt       | 1,000 hours, 1.5 watts    |
| Total Resistance Shift.....                                | ±2 % maximum              | ±2 % maximum              |
| Rotational Life (No Load).....                             | 300,000 shaft revolutions | 500,000 shaft revolutions |
| Total Resistance Shift.....                                | ±5 % maximum              | ±5 % maximum              |
| Moisture Resistance (MIL-STD-202, Method 103, Condition B) |                           |                           |
| Total Resistance Shift.....                                | ±2 % maximum              | ±2 % maximum              |
| IP Rating.....                                             | IP 40                     | IP 40                     |

## Mechanical Characteristics<sup>1</sup>

|                                       |                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Stop Strength.....                    | 53 N-cm (75 oz.-in.) min.                                                                                                |
| Mechanical Angle.....                 | 1080 ° +10 °, -0 ° (3543); 1800 ° +10 °, -0 ° (3545)                                                                     |
| Torque (Starting & Running).....      | 0.35 N-cm (0.5 oz.-in.) max.                                                                                             |
| Mounting.....                         | 170-200 N-cm (15-18 lb.-in.)                                                                                             |
| Shaft Runout.....                     | 0.08 mm (0.003 in.) T.I.R.                                                                                               |
| Lateral Runout.....                   | 0.13 mm (0.005 in.) T.I.R.                                                                                               |
| Shaft End Play.....                   | 0.25 mm (0.010 in.) T.I.R.                                                                                               |
| Shaft Radial Play.....                | 0.08 mm (0.003 in.) T.I.R.                                                                                               |
| Pilot Diameter Runout.....            | 0.08 mm (0.003 in.) T.I.R.                                                                                               |
| Backlash.....                         | 1.0 ° maximum                                                                                                            |
| Weight.....                           | Approximately 21 gm                                                                                                      |
| Terminals.....                        | Gold-plated solder lugs                                                                                                  |
| 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.)..... | 2 cups maximum                                                                                                           |
| Hardware.....                         | One lockwasher (H-37-2) and one mounting nut (H-38-2) is shipped with each potentiometer.                                |

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

<sup>2</sup>Consult manufacturer for complete specification details.

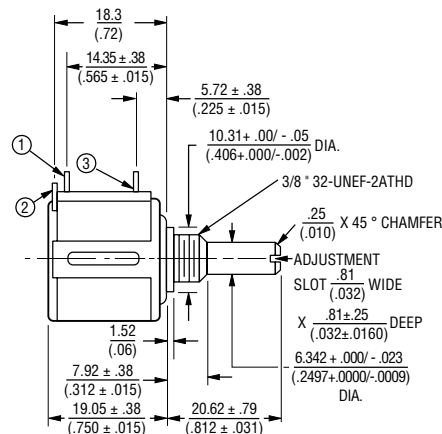
## Recommended Part Numbers

| Part Number  | Resistance (Ω) | Resolution (%) |
|--------------|----------------|----------------|
| 3543S-1-102L | 1,000          | .077           |
| 3543S-1-202L | 2,000          | .062           |
| 3543S-1-502L | 5,000          | .047           |
| 3543S-1-103L | 10,000         | .040           |

| Part Number  | Resistance (Ω) | Resolution (%) |
|--------------|----------------|----------------|
| 3545S-1-102L | 1,000          | .043           |
| 3545S-1-202L | 2,000          | .044           |
| 3545S-1-502L | 5,000          | .038           |
| 3545S-1-103L | 10,000         | .029           |

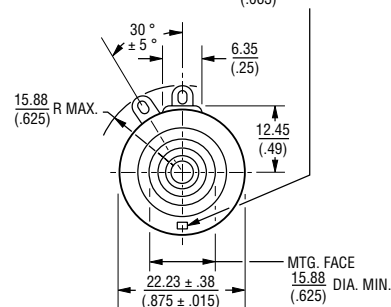
## Product Dimensions

### 3543S-1/3545S-1

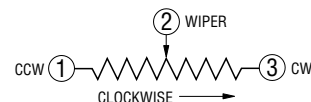


ADD .75 (19 MM) FOR ADDITIONAL CUPS.

OPTIONAL ANTIROTATION LUG  
(-.91) 1.42 X .50 ON 7.4 RADIUS  
(.056 X .02) (.29)  
LENGTH 1.27 FROM MOUNTING SURFACE.  
(SUGGESTED PANEL HOLE 1.6 DIA.)  
(.063)



TOLERANCES: EXCEPT WHERE NOTED  
DECIMALS: .XX ± .25 (.010), .XXX ± .13 (.005)  
FRACTIONS: ±1/64  
DIMENSIONS: MM (IN.)



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

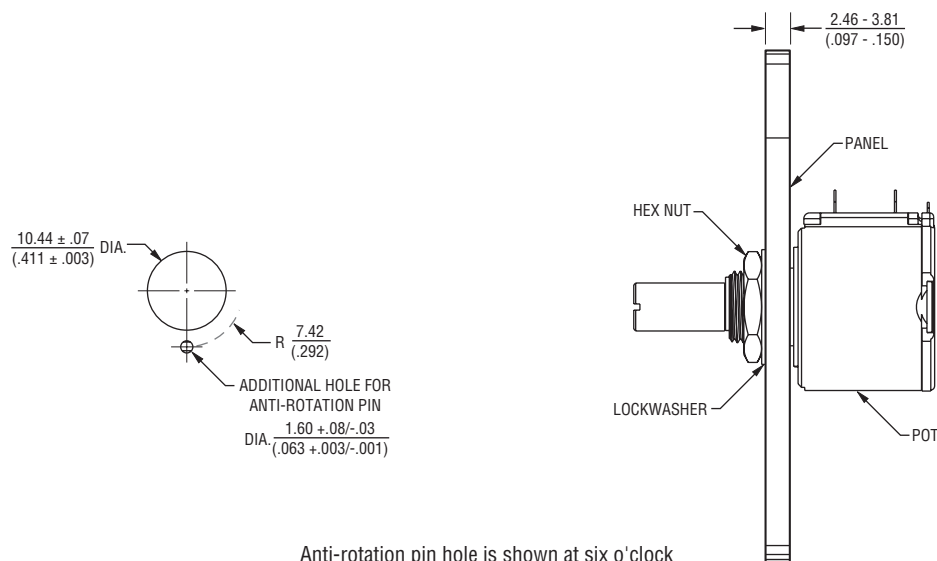
FOR SERVO MOUNT VERSION AND OTHER OPTIONS CONSULT FACTORY.

ROHS IDENTIFIER:  
L = COMPLIANT

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## Panel Thickness Dimensions



Anti-rotation pin hole is shown at six o'clock position for reference only. The actual location is determined by the customer's application. Refer to the front view of the potentiometer to see the location of the optional A/R pin.

Panel thickness and hole diameters are recommended for best fit. However, customers may adjust the dimensions to suit their specific application.

DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$  TOLERANCES:  $\pm \frac{0.127}{(.005)}$

REV. 10/11

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# Mouser Electronics

Authorized Distributor

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## Bourns:

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[3543S-1-103](#) [3543S-1-101](#) [3543S-1-102](#) [3545S-1-102](#) [3545S-1-103](#) [3543S-1-503](#) [3543S-1-501](#) [3543S-1-502](#)  
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[3543S-1-502L](#) [3545S-1-201L](#) [3543S-1-501L](#) [3543S-1-203L](#) [3545S-1-500L](#) [3545S-1-202L](#) [3543S-1-200L](#) [3543S-1-](#)  
[102L](#) [3545S-1-501L](#) [3545S-1-203L](#) [3543S-1-503L](#) [3545S-1-503L](#) [3543S-1-201L](#) [3545S-1-102L](#) [3543S-1-101L](#)  
[3543S-1-202L](#) [3543S-1-500L](#)