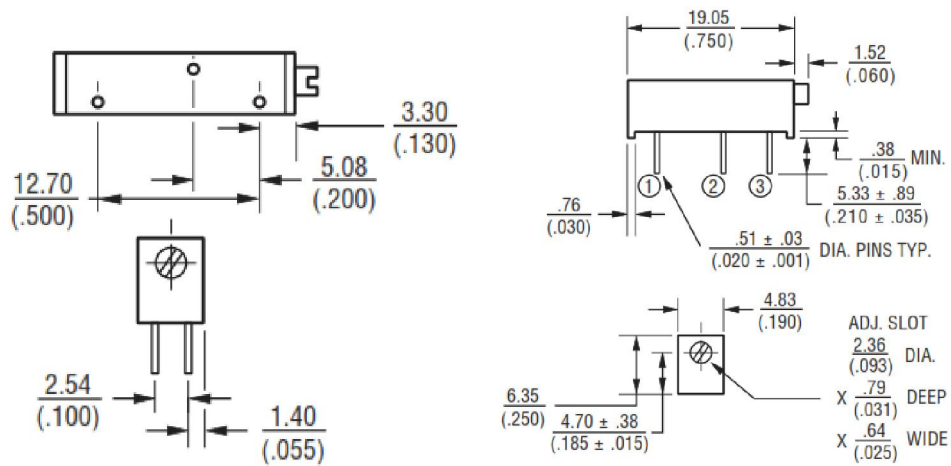


# POTENTIOMETER

<b>*GENERAL</b>	1	Service	potentiometer	
	2	Temperature Range	-55 °C to +125 °C	
	3	Temperature Coefficient	±100 ppm/°C	
	4	Seal Test	85 °C Fluorinert	
	5	Load Life	1,000 hours 0.75 watt 70 °C	
<b>*ELECTRICAL</b>	6	Rotational Life	200 cycles	
	7	Power Rating	70 °C	0.75 watt
	8		125 °C	0 watt
	9	Resistance Range	10000 ohms	
	10	Resistance tolerance	±10 % std	
	11	Voltage rating	Max 400 V	
<b>*MECHANICAL</b>	12	Vibration	20 G	
	13	Shock	50 G	
	14	Dimension	See note 2 page 6	

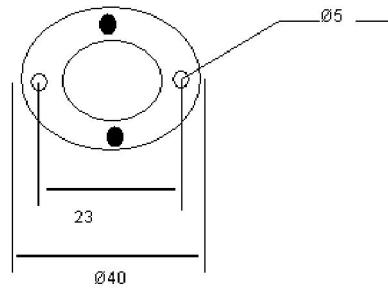
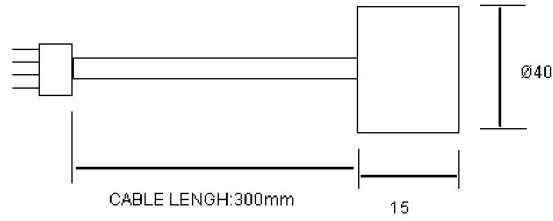
Note 2 : dimension :



# INFRARED PREAMPLIFIER

*GENERAL	1	Service	Infrared preamplifier
*MECHANICAL	2	Dimension	See note 3 page 7

Note 3 : dimension :



### FEATURES

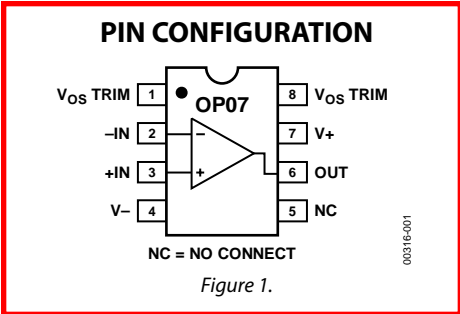
- Low  $V_{os}$ : 75  $\mu\text{V}$  maximum
- Low  $V_{os}$  drift: 1.3  $\mu\text{V}/^\circ\text{C}$  maximum
- Ultrastable vs. time: 1.5  $\mu\text{V}$  per month maximum
- Low noise: 0.6  $\mu\text{V}$  p-p maximum
- Wide input voltage range:  $\pm 14\text{ V}$  typical
- Wide supply voltage range:  $\pm 3\text{ V}$  to  $\pm 18\text{ V}$
- 125 $^\circ\text{C}$  temperature-tested dice

### APPLICATIONS

- Wireless base station control circuits
- Optical network control circuits
- Instrumentation
- Sensors and controls
  - Thermocouples
  - Resistor thermal detectors (RTDs)
  - Strain bridges
  - Shunt current measurements
- Precision filters

### GENERAL DESCRIPTION

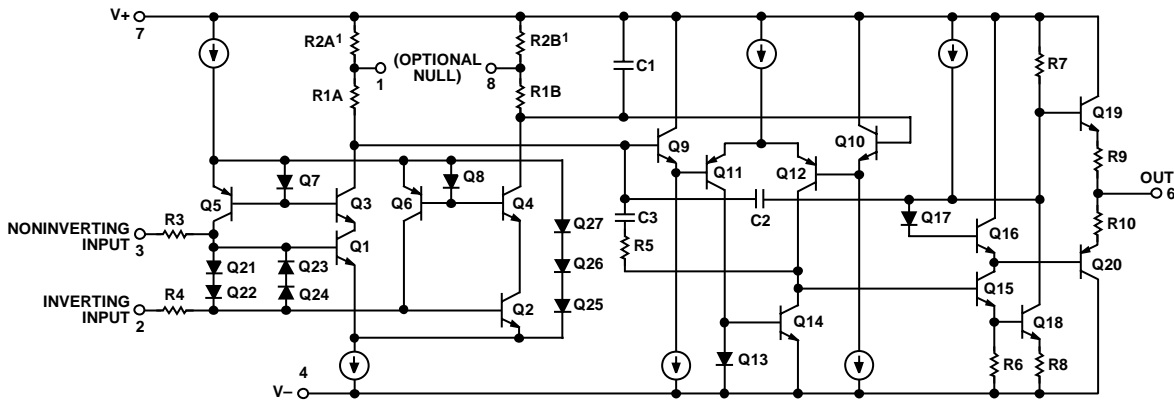
The OP07 has very low input offset voltage (75  $\mu\text{V}$  maximum for OP07E) that is obtained by trimming at the wafer stage. These low offset voltages generally eliminate any need for external nulling. The OP07 also features low input bias current ( $\pm 4\text{ nA}$  for the OP07E) and high open-loop gain (200 V/mV for the OP07E). The low offset and high open-loop gain make the OP07 particularly useful for high gain instrumentation applications.



The wide input voltage range of  $\pm 13\text{ V}$  minimum combined with a high CMRR of 106 dB (OP07E) and high input impedance provide high accuracy in the noninverting circuit configuration. Excellent linearity and gain accuracy can be maintained even at high closed-loop gains. Stability of offsets and gain with time or variations in temperature is excellent. The accuracy and stability of the OP07, even at high gain, combined with the freedom from external nulling have made the OP07 an industry standard for instrumentation applications.

The OP07 is available in two standard performance grades. The OP07E is specified for operation over the  $0^\circ\text{C}$  to  $70^\circ\text{C}$  range, and the OP07C is specified over the  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  temperature range.

The OP07 is available in epoxy 8-lead PDIP and 8-lead narrow SOIC packages. For CERDIP and TO-99 packages and standard microcircuit drawing (SMD) versions, see the OP77.



<sup>1</sup> R2A AND R2B ARE ELECTRONICALLY ADJUSTED ON CHIP AT FACTORY FOR MINIMUM INPUT OFFSET VOLTAGE.

Figure 2. Simplified Schematic

### Rev. G

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## ABSOLUTE MAXIMUM RATINGS

Table 3.

Parameter	Ratings
Supply Voltage (V <sub>s</sub> )	±22 V
Input Voltage <sup>1</sup>	±22 V
Differential Input Voltage	±30 V
Output Short-Circuit Duration	Indefinite
Storage Temperature Range	
S and P Packages	–65°C to +125°C
Operating Temperature Range	
OP07E	0°C to 70°C
OP07C	–40°C to +85°C
Junction Temperature	150°C
Lead Temperature, Soldering (60 sec)	300°C

<sup>1</sup> For supply voltages less than ±22 V, the absolute maximum input voltage is equal to the supply voltage.

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### THERMAL RESISTANCE

$\theta_{JA}$  is specified for the worst-case conditions, that is, a device soldered in a circuit board for surface-mount packages.

Table 4. Thermal Resistance

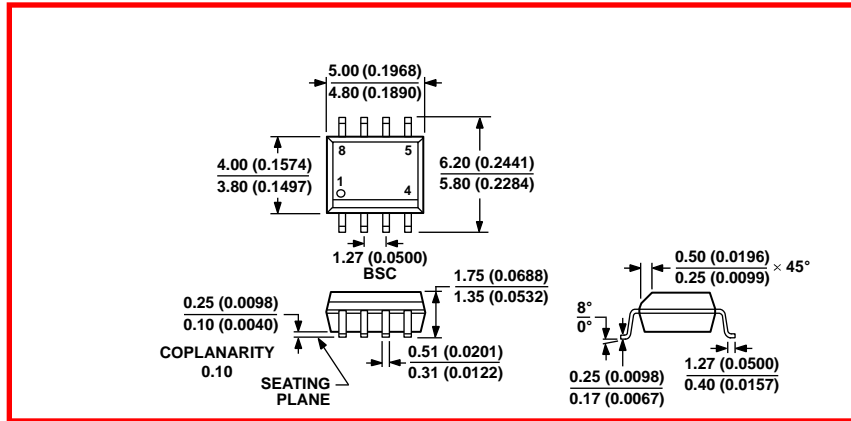
Package Type	$\theta_{JA}$	$\theta_{JC}$	Unit
8-Lead PDIP (P-Suffix)	103	43	°C/W
8-Lead SOIC_N (S-Suffix)	158	43	°C/W

### ESD CAUTION

ESD (electrostatic discharge) sensitive device. Electrostatic charges as high as 4000 V readily accumulate on the human body and test equipment and can discharge without detection. Although this product features proprietary ESD protection circuitry, permanent damage may occur on devices subjected to high energy electrostatic discharges. Therefore, proper ESD precautions are recommended to avoid performance degradation or loss of functionality.



OUTLINE DIMENSIONS

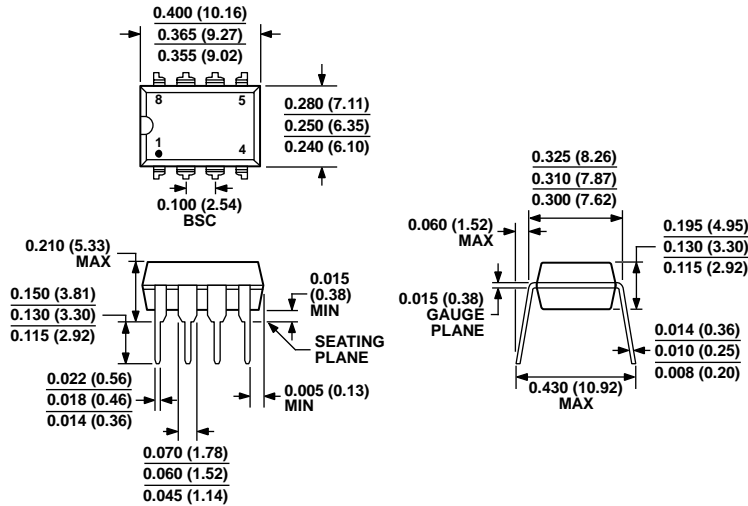


COMPLIANT TO JEDEC STANDARDS MS-012-AA  
 CONTROLLING DIMENSIONS ARE IN MILLIMETERS; INCH DIMENSIONS  
 (IN PARENTHESES) ARE ROUNDED-OFF MILLIMETER EQUIVALENTS FOR  
 REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.

012407-A

Figure 34. 8-Lead Standard Small Outline Package [SOIC\_N]  
 Narrow Body S-Suffix  
 (R-8)

Dimensions shown in millimeters and (inches)

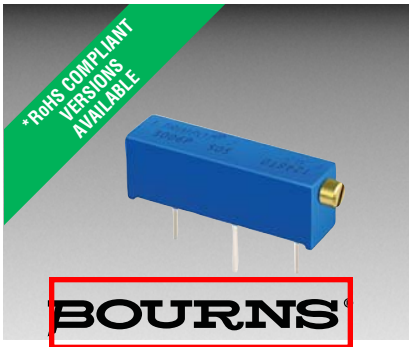


COMPLIANT TO JEDEC STANDARDS MS-001  
 CONTROLLING DIMENSIONS ARE IN INCHES; MILLIMETER DIMENSIONS  
 (IN PARENTHESES) ARE ROUNDED-OFF INCH EQUIVALENTS FOR  
 REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.  
 CORNER LEADS MAY BE CONFIGURED AS WHOLE OR HALF LEADS.

0770606-A

Figure 35. 8-Lead Plastic Dual-in-Line Package [PDIP]  
 P-Suffix  
 (N-8)

Dimensions shown in inches and (millimeters)



## Features

- 3/4 " Rectangular / Multiturn / Cermet / Industrial / Sealed
- Low PC board profile - only 1/4 " high
- Panel mount option available
- Transparent housing available, can be set visually without hook-up and instrumentation ("P" style only)

- RoHS compliant\* version available
- For trimmer applications/processing guidelines, [click here](#)

# 3006 - Trimpot® Trimming Potentiometer

## Electrical Characteristics

Standard **Resistance Range** ..... 10 to 5 megohms  
 (see standard resistance table)  
**Resistance Tolerance** .....  $\pm 10\%$  std.  
 (tighter tolerance available)  
 Absolute Minimum Resistance ..... 1.0 % or 2 ohms max.  
 (whichever is greater)  
 Contact Resistance Variation ..... 1.0 % or 1 ohm max.  
 (whichever is greater)  
 Adjustability  
 Voltage .....  $\pm 0.01\%$   
 Resistance .....  $\pm 0.05\%$   
 Resolution ..... Infinite  
 Insulation Resistance ..... 500 vdc.  
 1,000 megohms min.  
 Dielectric Strength  
 Sea Level ..... 1,000 vac  
 80,000 Feet ..... 250 vac  
 Adjustment Angle ..... 15 turns nom.

## Environmental Characteristics

**Power Rating (400 volts max.)**  
 70 °C ..... 0.75 watt  
 125 °C ..... 0 watt  
**Temperature Range** ... -55 °C to +125 °C  
**Temperature Coefficient** ...  $\pm 100$  ppm/°C  
 Seal Test ..... 85 °C Fluorinert†  
 Humidity ..... MIL-STD-202 Method 103  
 96 hours  
 (3 %  $\Delta$ TR, 20 Megohms IR)  
**Vibration** ..... 20 G (2 %  $\Delta$ TR; 2 %  $\Delta$ VR)  
**Shock** ..... 50 G (2 %  $\Delta$ TR; 2 %  $\Delta$ VR)  
**Load Life** ... 1,000 hours 0.75 watt 70 °C  
 (4 %  $\Delta$ TR)  
**Rotational Life** ..... 200 cycles  
 (3 %  $\Delta$ TR; 1 % or 1 ohm, whichever is greater, CRV)

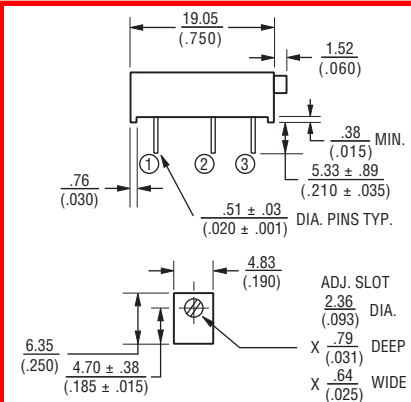
## Physical Characteristics

Torque ..... 5.0 oz-in. max.  
 Mechanical Stops ..... Wiper idles  
 Terminals ..... Solderable pins  
 Weight ..... 0.04 oz.  
 Marking ..... Manufacturer's trademark, resistance code, terminal numbers, date code, manufacturer's model number and style  
 Wiper ..... 50 % (Actual TR)  $\pm 10\%$   
 Flammability ..... U.L. 94V-0  
 Standard Packaging ..... 25 pcs. per tube  
 Adjustment Tool ..... H-90

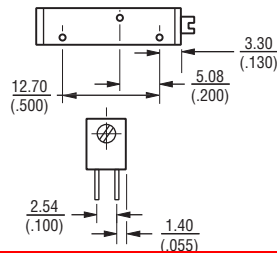
REV. 04/14

## Product Dimensions

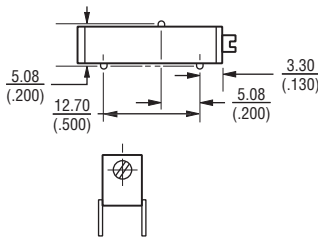
### Common Dimensions



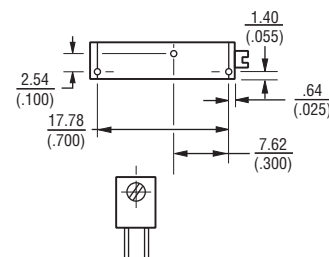
### 3006P



### 3006W



### 3006Y



## How To Order

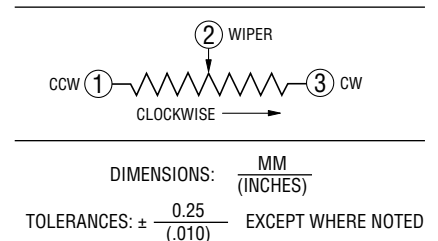
Model **3006 P - 1 - 103 Z LF**  
 Style \_\_\_\_\_  
 Standard or Modified Product Indicator  
 -1 = Standard Product  
 -7 = Transparent Housing  
 Resistance Code \_\_\_\_\_  
 Optional Suffix Letter  
 Z = Panel Mount (Factory Installed)  
 Terminations  
 LF = 100 % Tin-plated (RoHS compliant)  
 Blank = 90 % Tin / 10 % Lead-plated (Standard)

Consult factory for other available options.

## Standard Resistance Table

Resistance (Ohms)	Resistance Code
10	100
20	200
50	500
100	101
200	201
<b>500</b>	<b>501</b>
<b>1,000</b>	<b>102</b>
<b>2,000</b>	<b>202</b>
<b>5,000</b>	<b>502</b>
<b>10,000</b>	<b>103</b>
<b>20,000</b>	<b>203</b>
<b>25,000</b>	<b>253</b>
<b>50,000</b>	<b>503</b>
<b>100,000</b>	<b>104</b>
<b>200,000</b>	<b>204</b>
250,000	254
500,000	504
1,000,000	105
2,000,000	205

Popular distribution values listed in boldface. Special resistances available.



\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.  
 "Trimpot" is a registered trademark of Bourns, Inc.

†"Fluorinert" is a registered trademark of 3M Co.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.