Solid State Temperature Sensor
Linear 1 Microamp per Kelvin Output

AD590JH

- Linear Current Output
- Broad Range -55 to 150°C
- No Linearization
- Circuitry Required
- Versatile and Economical
- Fast Response

Two Styles Available
- Low-Cost Metal
- TO-52 Case
- Miniature Ceramic
- Flat Pack

Two Accuracies Available
- J for Low Cost
- K for Increased Accuracy

Applications
- Ideal for Fast Response
- Surface Measurements
- Sensors for Controllers
- and Meters
- Use in Custom-Made
- Probes
- Use on PC Boards for
- Accurate Measurement

The AD590 is a small temperature transducer that converts a temperature input into a proportional current output.

The advanced technology in the AD590 is especially suited for special temperature measurement and control applications between -55 and 150°C (-67 to 302°F) when solid state reliability, linearity and accuracy are required. The AD590 can be used to determine minimum, average, and differential temperatures, in addition to being used for thermocouple cold junction compensation and temperature control applications. The size and responsiveness of the AD590 make it perfect for uses where size is a consideration, such as on PC boards or heat sinks.

Just power up and measure absolute temperature (Kelvin). No linearization, amplification or cold junction compensation is required (Fig. 1). To convert reading to °C, subtract 273.15.

Specifications

**Absolute Maximum Ratings**
- Forward Voltage (E+ to E-): +44V
- Reverse Voltage (E+ to E-): -20V
- Breakdown Voltage (case to E+ or E-): ±200V
- Lead Temperature: 300°C
- Voltage Range: 4 to 30 Vdc
- Nominal Current Output at 25°C (298.2 K): 298.2 µA
- Nominal Temperature Coefficient: 1 µA/K
- Calibration Error: J: ±5.0°C maximum (K: ±2.5°C)
- Absolute Error: Without external Calibration Adjustment:
  - J: ±10.0°C max (K: ±5.5°C);
  - W/25°C error set to zero J: ±3.0°C max (K: ±2.0°C)
- Repeatability: ±0.1°C max
- Long-Term Drift: ±0.1°C/month max

**To Order**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Flat Pack</th>
<th>TO-52 Case</th>
<th>Linearity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD590J</td>
<td>AD590JF</td>
<td>AD590JH</td>
<td>±1.5°C</td>
</tr>
<tr>
<td>AD590K</td>
<td>AD590KF</td>
<td>AD590KH</td>
<td>±0.8°C</td>
</tr>
</tbody>
</table>

Visit us online for further details.