Integrated Circuit Temperature Probe

OM-2628 Series

- High Precalibrated Accuracy: 0.5°C (0.9°F) Maximum @ 25°C (77°F)
- Excellent Linearity: 0.15°C (0.27°F) Maximum [0 to 70°C (32 to 158°F)]
- Wide Operating Temperature Range: -25 to 105°C (-13 to 221°F)
- Single Supply Operation: 4 to 30V
- Excellent Repeatability and Stability
- High Level Output: 1 µA/K
- Two Terminal Monolithic IC: Temperature In/Current Out
- Minimal Self-Heating Errors
- 38 and 153 mm (1.5 and 6") Standard Lengths
- Typical Applications: Appliance Temperature Sensing, Automotive Temperature Measurement and Control, HVAC, System Monitoring, Industrial Temperature Control

The OM-2628 probe features the integrated circuit transducer AD592CN. This sensor is a two terminal monolithic integrated circuit temperature transducer that provides an output current proportional to absolute temperature. For a wide range of supply voltages the transducer acts as a high impedance temperature dependent current source of 1 µA/K. Improved design and laser wafer trimming of the IC’s thin film resistors allows the AD592CN to achieve absolute accuracy levels and nonlinearity errors previously unattainable at a comparable price. The OM-2628 probe can be employed in applications between -25 and 105°C (-13 to 221°F) where conventional temperature sensors (i.e., thermistor, RTD, thermocouple, diode) are currently being used. Expensive linearization circuitery, precision voltage references, bridge components, resistance measuring circuitry and cold junction compensation are not required with the OM-2628 probe. The OM-2628 is particularly useful in remote sensing applications, the AD592CN is immune to voltage drops and voltage noise over long lines due to its high impedance current output.

Specifications

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Calibration Error @ 25°C (77°F) TA = 0 to 70°C (32 to 158°F): 0.3°C (0.54°F) typical, 0.5°C (0.9°F) maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Error Over Temperature: 0.4°C (0.72°F) typical, 0.8°C (1.4°F) maximum</td>
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<tr>
<td>Nonlinearity TA = -25 to 105°C (-13 to 221°F): 0.05°C (0.09°F) typical, 0.15°C (0.27°F) maximum</td>
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<tr>
<td></td>
<td>Error Over Temperature: 0.5°C (0.9°F) typical, 1°C (1.8°F) maximum</td>
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<td>Nonlinearity: 0.1°C (0.18°F) typical, 0.35°C (0.63°F) maximum</td>
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</table>

Output Characteristics

- Nominal Current Output @ 25°C (298.2 K): 298.2 µA typical
- Temperature Coefficient: 1 µA/°C typical
- Repeatability: 0.1°C (0.18°F) typical
- Long Term Stability: 0.1°C/month (0.18°F) typical

Absolute Maximum Ratings

- Operating Temperature: -25°C (-13°F) minimum, 105°C (221°F) maximum
- Package Temperature: -45°C (-49°F) minimum, 125°C (257°F) maximum
- Forward Voltage (+ to -): 44V maximum
- Reverse Voltage (- to +): 20V maximum
- Soldering, 10 Seconds: 572°C (1062°F) maximum

Power Supply

- Operating Voltage Range Power Supply Rejection: 4V minimum, 30V maximum
  - 4V < Vs < 5V: 0.5°C (0.9°F)/V maximum
  - 5V < Vs < 15V: 0.2°C (0.36°F)/V maximum
  - 15V < Vs < 30V: 0.1°C (0.18°F)/V maximum

To Order Visit omega.com/om-2628 for Pricing and Details

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>OM-2628-C1</td>
<td>38 L x 6.4 mm diameter (1.5 x ¼&quot;) AD592CN temperature probe with 0.91 m (36&quot;) leads</td>
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<tr>
<td>OM-2628-C6</td>
<td>153 L x 6.4 mm diameter (6 x ¼&quot;) AD592CN temperature probe with 0.91 m (36&quot;) leads</td>
</tr>
</tbody>
</table>

Ordering Example: OM-2628-C1, 38 L x 6.4 mm diameter (1.5 x ¼") AD592CN temperature probe with 0.91 m (36") inch leads.