

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 μ A/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 μ A/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 circuitry, 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

Accuracy

Calibration Error @ 25°C (77°F)
0.3°C (0.54°F) typical, 0.5°C (0.9°F) maximum

TA = 0 to 70°C (32 to 158°F):

Error Over Temperature:

0.4°C (0.72°F) typical,
0.8°C (1.4°F) maximum

Nonlinearity: 0.05°C (0.09°F) typical, 0.15°C (0.27°F) maximum

TA = -25 to 105°C (-13 to 221°F):

Error Over Temperature:

0.5°C (0.9°F) typical,
1°C (1.8°F) maximum

Nonlinearity: 0.1°C (0.18°F) typical, 0.35°C (0.63°F) maximum

OM-2628-C1 shown smaller than actual size.

OM-2628-C6 shown smaller than actual size.

Output Characteristics

Nominal Current Output @ 25°C

(298.2 K): 298.2 μ A typical

Temperature Coefficient:

1 μ A/°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 +) Lead Temperature: 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

Model No.	Description
OM-2628-C1	38 L x 6.4 mm diameter (1.5 x 1/4") AD592CN temperature probe with 0.91 m (36") leads
OM-2628-C6	153 L x 6.4 mm diameter (6 x 1/4") AD592CN temperature probe with 0.91 m (36") leads

Ordering Example: OM-2628-C1, 38 L x 6.4 mm diameter (1.5 x 1/4") AD592CN temperature probe with 0.91 m (36") inch leads.