



TMP36

Temperature Sensor

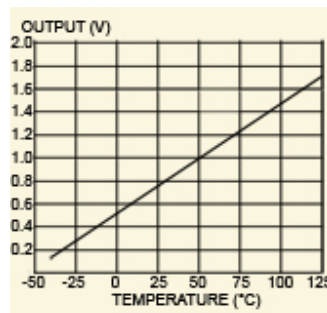
Vers. 1.0 – May 2015

Introduction

SP-TMP36 is a three terminal probe based on the low voltage, precision centigrade temperature sensor TMP-36 (Analog Devices). It provides a voltage output that is linearly proportional to the Celsius (centigrade) temperature with a scale factor of 10 mV/°C. SP-TMP36 does not require any external calibration to provide typical accuracies of $\pm 1^\circ\text{C}$ at $+25^\circ\text{C}$ and $\pm 2^\circ\text{C}$ over the -40°C to $+125^\circ\text{C}$ temperature range. It is intended for single-supply operation from 2.7 V to 5.5 V maximum. The supply current runs well below 50 μA , providing very low self-heating, less than 0.1°C in still air.

Features

- Highly linear output ($\pm 0.5^\circ\text{C}$ typ).
- Wide temperature range: -40°C to $+125^\circ\text{C}$.
- Calibrated directly in $^\circ\text{C}$.
- Ultra low power: less than 50 μA quiescent current.
- Waterproof standard version.



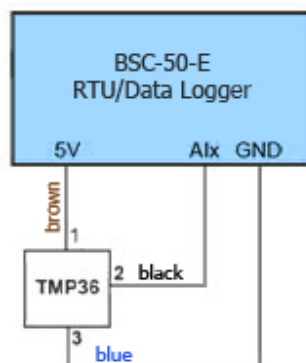
The TMP36 can be employed in applications between -25°C and $+105^\circ\text{C}$ where conventional temperature sensors (i.e., thermistor, RTD, thermocouple, diode) are currently being used.

The inherent low cost of an integrated circuit in a plastic package, combined with a low total parts count in any given application, make the TMP36 one of the most cost effective temperature transducers currently available. Expensive linearization circuitry, precision

voltage references, bridge components, resistance measuring circuitry and cold junction compensation are not required with the TMP36.

Typical application areas include: appliance temperature sensing, automotive temperature measurement and control, HVAC (heating/ventilating/air conditioning) system monitoring, industrial temperature control, thermocouple cold junction compensation, board-level electronics temperature diagnostics, temperature readout options in instrumentation, and temperature correction circuitry for precision electronics.

The sensor is chip type built in a plastic probe type tube, insulated with special silicone type adhesive and a cable of 3X1mm, 1.5 m length.



Note: Because TMP36 is a voltage sensor the cable length can be extended up to 10 meters using a shielded cable.

Specifications

Power supply	
Supply voltage	2.7..5.5 VDC
Supply current	50 μ A max
Accuracy	
Calibration error	1° @ 25°C typ
Nonlinearity	0.5° typ
Output characteristics	
Temperature range	-40°C to +125°C
Nominal output voltage	750 mV @ 25°C
Output voltage range	100...2000 mV
Temperature coefficient	10mV/°C
Other	
Cable length	1.5 m

Ordering Information:

TMP36 Temperature sensor -40°C...+100°C - accuracy \pm 1°C, max. non-linearity error \pm 0.2°C, voltage output, Probe with 1.5 m cable