

## 2-Wire High-Accuracy Temperature Sensor

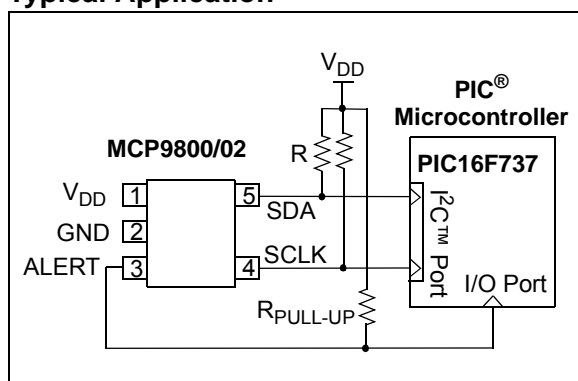
### Features:

- Temperature-to-Digital Converter
- Accuracy with 12-bit Resolution:
  - $\pm 0.5^{\circ}\text{C}$  (typical) at  $+25^{\circ}\text{C}$
  - $\pm 1^{\circ}\text{C}$  (maximum) from  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
  - $\pm 2^{\circ}\text{C}$  (maximum) from  $-10^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
  - $\pm 3^{\circ}\text{C}$  (maximum) from  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- User-selectable Resolution: 9–12 bit
- Operating Voltage Range: 2.7V to 5.5V
- 2-wire Interface: I<sup>2</sup>C™/SMBus Compatible
- Operating Current: 200  $\mu\text{A}$  (typical)
- Shutdown Current: 1  $\mu\text{A}$  (maximum)
- Power-saving One-shot Temperature Measurement
- Available Packages: SOT-23-5, MSOP-8, SOIC-8

### Typical Applications:

- Personal Computers and Servers
- Hard Disk Drives and Other PC Peripherals
- Entertainment Systems
- Office Equipment
- Data Communication Equipment
- Mobile Phones
- General Purpose Temperature Monitoring

### Typical Application



### Description:

Microchip Technology Inc.'s MCP9800/1/2/3 family of digital temperature sensors converts temperatures between  $-55^{\circ}\text{C}$  and  $+125^{\circ}\text{C}$  to a digital word. They provide an accuracy of  $\pm 1^{\circ}\text{C}$  (maximum) from  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

The MCP9800/1/2/3 family comes with user-programmable registers that provide flexibility for temperature sensing applications. The register settings allow user-selectable 9-bit to 12-bit temperature measurement resolution, configuration of the power-saving Shutdown and One-shot (single conversion on command while in Shutdown) modes and the specification of both temperature alert output and hysteresis limits. When the temperature changes beyond the specified limits, the MCP9800/1/2/3 outputs an alert signal. The user has the option of setting the alert output signal polarity as an active-low or active-high comparator output for thermostat operation, or as temperature event interrupt output for microprocessor-based systems.

This sensor has an industry standard 2-wire, I<sup>2</sup>C™/SMBus compatible serial interface, allowing up to eight devices to be controlled in a single serial bus. These features make the MCP9800/1/2/3 ideal for sophisticated multi-zone temperature-monitoring applications.

### Package Types

