

## NCT1008

# ±1°C Digital Temperature Sensor with Series Resistance Cancellation

## Product Overview

For complete documentation, see the data sheet.

The NCT1008 is a dual-channel digital temperature sensor intended for use in elevated thermal density applications. A feature of the NCT1008 is series resistance cancellation, where up to 1.5 k of resistance in series with the temperature monitoring diode can be automatically cancelled from the temperature result, allowing noise filtering. The NCT1008 has a configurable ALERT output and an extended, switchable temperature measurement range. The NCT1008 can measure the temperature of a remote thermal diode accurate to ±1°C and the ambient temperature accurate to ±3°C. The temperature measurement range defaults to 0°C to +127°C, compatible with the ADM1032, but it can be switched to a wider measurement range of -64°C to +191°C. The NCT1008 communicates over a 2-wire serial interface, compatible with system management bus (SMBus/I2C) standards. The default SMBus/I2C address of the NCT1008 is 0x4C. An NCT1008D is available with an SMBus/I2C address of 0x4D. This is useful if more than one NCT1008 is used on the same SMBus/I2C. An ALERT output signals when the on-chip or remote temperature is out of range. The THERM output is a comparator output that allows on/off control of a cooling fan. The ALERT output can be reconfigured as a second THERM output, if required.

## Features

- On-chip and remote temperature sensor
- 0.25°C resolution/1°C accuracy on remote channel
- 1°C resolution/1°C accuracy on local channel
- Automatically cancels up to 1.5 kΩ (typical) of resistance in series with remote diode to allow noise filtering
- Extended, switchable temperature measurement range 0°C to +127°C (default) or 64°C to +191°C
- 2-wire SMBus serial interface with SMBus alert support
- Programmable over/under temperature limits
- Offset registers for system calibration
- Up to two overtemperature fail-safe THERM outputs
- Remote THERM Limit of 108°C

For more features, see the data sheet

## Applications

- Thermal Management

## End Products

- Notebook and Desktop Computers
- Game Consoles
- Servers
- LCD TVs
- Smart Electric Meters

# Application Diagram

