

I²C PRECISION 24-BIT SMART TEMPERATURE SENSOR

Features

- 1.8V to 3.6V Supply Voltage
- Standby Current Less Than 100 nA
- Full Data Compensation
- 20-bit Temperature Measurement (Celsius)
- Command-based Reading
 - 20-bit Raw Data Output
 - 20-bit Compensated Data Output
- Configurable ADC Decimation Rate via Commands
- Temperature Resolution down to 0.01°C
- High-speed I²C Digital Output Interface (Up to 5 MHz)

Applications

- Clinical Thermometer
- Digital Thermometer
- Water Heater
- Green Home Appliances
- Industrial Control
- Automotive Electronics
- Environmental Monitoring System
- Instruments

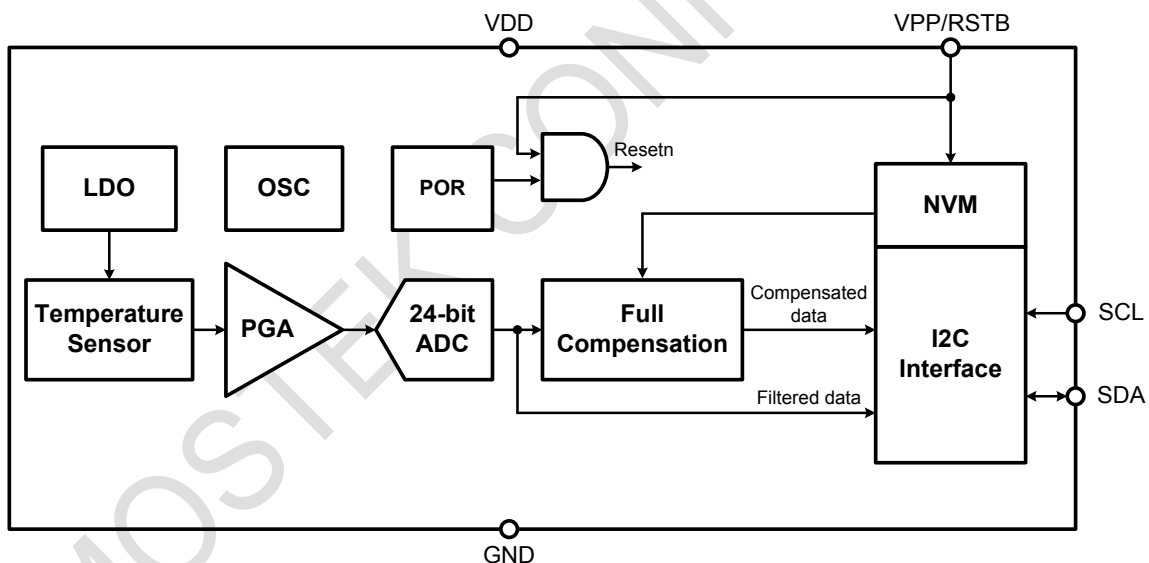


Figure 1: Device block diagram

Descriptions

The CMT3501T2 is an ideal single-chip solution for high precision temperature measurement with an I²C interface to provide accurate temperature data. The sensor temperature outputs are digitized by a high resolution 24-bit ADC. Data compensation is integrated internally to save the effort of the external host MCU system. The temperature value is calculated by a specific compensation algorithm according to the temperature data. Easy command-based data acquisition interface is available. Typical active supply current is 4.7uA per measurement-second while the ADC output is filtered and decimated by 256. Temperature output can be resolved in 0.01 °C. The CMT3501T2 is offered in a standard SOT23-6 package and Specified for operation from -40°C to 125°C.

Table 1: Pin Descriptions with SOT23-6 Package

Pin	Name	I/O	Function
1	SDA	IO	I ² C serial bi-directional data pin
2	GND	I	Ground input pin
3	VDD	I	1.8-3.6V power supply input pin
4	VPP/RSTB	I	Power supply dedicated for NVM burning* or external active-low reset input
5	GND	I	Ground input pin
6	SCL	I	I ² C serial clock input pin

*Leave this pin unconnected when it is unused.

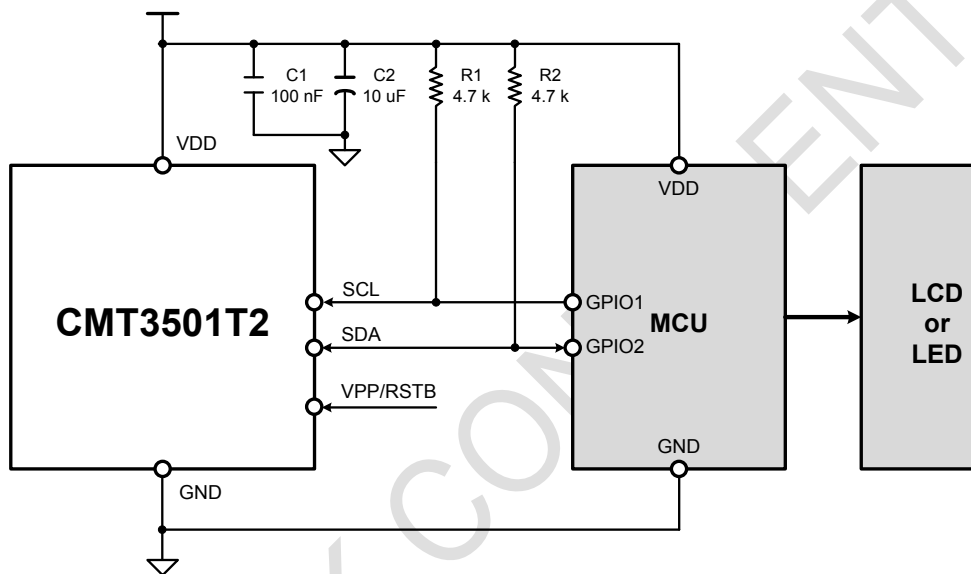


Figure 2: Typical application circuit

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