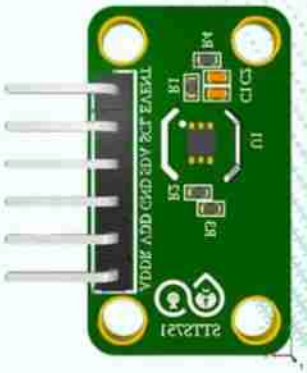
STTS751
TEMPERATURE SENSOR

Overview

The STTS751 is a digital temperature sensor that communicates over a 2-wire, SMBus 2.0–compatible interface. It supports a user-configurable resolution from 9 to 12 bits. At 9-bit resolution, the step size is 0.5 °C, while at 12-bit resolution, it is 0.0625 °C. The default setting is 10-bit resolution, corresponding to 0.25 °C per LSB, with a typical conversion time of 21 ms.

The sensor includes an open-drain EVENT output, which signals an alarm condition when the measured temperature exceeds a programmed high limit or falls below a programmed low limit. When the EVENT pin is asserted, the host can use the SMBus Alert Response Address (ARA) protocol. The STTS751 will then identify itself by transmitting its slave address.

Key Features



- Digital temperature sensor with I²C communication.
- Programmable resolution for flexible performance.
- Built-in alarm function with EVENT output.
- Very low power consumption, ideal for portable devices.
- Compact package, easy to integrate into systems.

Technical Specifications

- Operating Voltage: 2.25 V to 3.6 V
- Operating Temperature Range: –40 °C to +125 °C

Conversion Rate (Programmable):

- 10 selectable conversion rates
- 0.0625 to 32 conversions/second
- 1 conversion/second (default)

Resolution (Programmable):

- 4 selectable resolutions
- 9-bit: 0.5 °C/LSB
- 10-bit: 0.25 °C/LSB (default)
- 11-bit: 0.125 °C/LSB
- 12-bit: 0.0625 °C/LSB

Supply Current (typical):

- 50 µA @ 8 conversions/second
- 20 µA @ 1 conversion/second
- 3 µA in standby

Accuracy (typical):

- ±0.5 °C from 0 °C to +85 °C
- ±0.5 °C from −40 °C to +125 °C

Application

- Weather Monitoring Systems
- Automotive Electronics
- Telecom Equipment
- Consumer Electronics
- Power Electronics