SENSYLINK Microelectronics

(CT7319)

Digital Temperature Sensor

CT7319 is a 2-CH (1-CH Local + 1-CH Remote) Digital Temperature Sensor Compatible with SMBus and I^2C Digital Interface. The chip builds in n-factor correction and serial resistance cancellation feature.
It is ideally used in CPU, FPGA, Server and Telecom Equipment etc.

±1.0℃ 2-CH (1 Local + 1 Remote) Digital Temperature Sensor

Description

The CT7319 is a digital temperature sensor with ±1℃ accuracy. Temperature data can be read out directly via SMBus/I²C interface by MCU or SoC chip.

CT7319 has two independent channels: one remote and one local sensor. The remote sensor could be connected to an external diode, BJT transistor (diode-connected mode) or parasitic transistors inside the CPU, GPU chips etc.

Each chip is calibrated in factory before shipment to customers. There is no need for re-calibration anymore for ±1℃ accuracy. It includes a band-gap circuit, a 12-bit Analog to Digital converter, a calibration unit with non-volatile memory and a digital interface block.

It has a logic output pin ($\overline{ALERT}$) with open drain structure, which is active low as default.The chip has a logic input pin ($\overline{STB}$) with active low.

The chip has 9 options for slave address by setting AD0, AD1 pin.

Available Package: SSOP-16

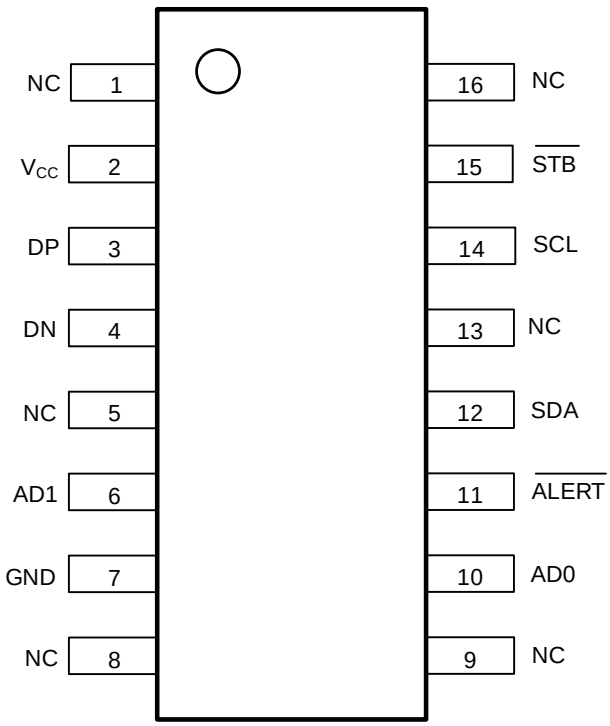
Features

- Operation Voltage: 1.7V to 5.5V
- Average Operating Current: 35uA(Typ.) at 1 Con/s rate, 3.3V
- Standby Current: 3.0uA (typ.)
- Temperature Accuracy without calibration:
  ±1.0℃(Max.) from 0℃ to 85℃
  ±2.0℃(Max.) from -40℃ to 125℃
- 12 bit ADC for 0.0625℃ resolution
- Support continuous measurement mode and single measurement mode
- Series Resistance Cancellation
- n-Factor Correction
- Compatible with SMBus, and I²C interface with speed up to 400kHz
- External Diodes Fault detection
- Generate 9 Slave Addresses via AD0, AD1 pin
- Temperature range -40℃ to125℃

Applications

- CPU, FPGA
- Server
- Telecom Equipment

PIN Configurations (Top View)



SSOP-16 (Package Code, MS)

Typical Application

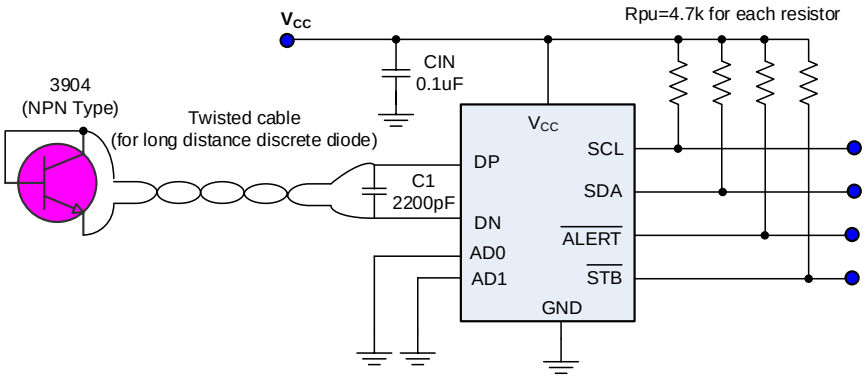


Figure 1. Typical Application of CT7319

Pin Description

PIN No.	PIN Name	Description
1,5,8,9,13,16	NC	No connection
2	V_{CC}	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground
3	DP	Remote sensor positive input pin, it could be positive node of Diodes, or BJT transistor (diode-connected mode). It is recommended to use a 2200pF bypass capacitor to remove noise between DP and DN pin.
4	DN	Remote sensor negative input pin, it could be negative node of Diodes, or BJT transistor (diode-connected mode). It is recommended to use a 2200pF bypass capacitor to remove noise between DP and DN pin.
6	AD1	Slave address setup pin1
7	GND	Ground pin.
10	AD0	Slave address setup pin0
11	$\overline{\mathbf{ALERT}}$	Open drain output with active low, needing a pull-up resistor to V_{CC}.
12	SDA	Digital interface data input or output pin, needing a pull-up resistor to V_{CC}.
14	SCL	Digital interface clock input pin, needing a pull-up resistor to V_{CC}.
15	$\overline{\mathbf{STB}}$	Logic input pin, 0 - standby mode; 1 - normal operation mode.

Function Block

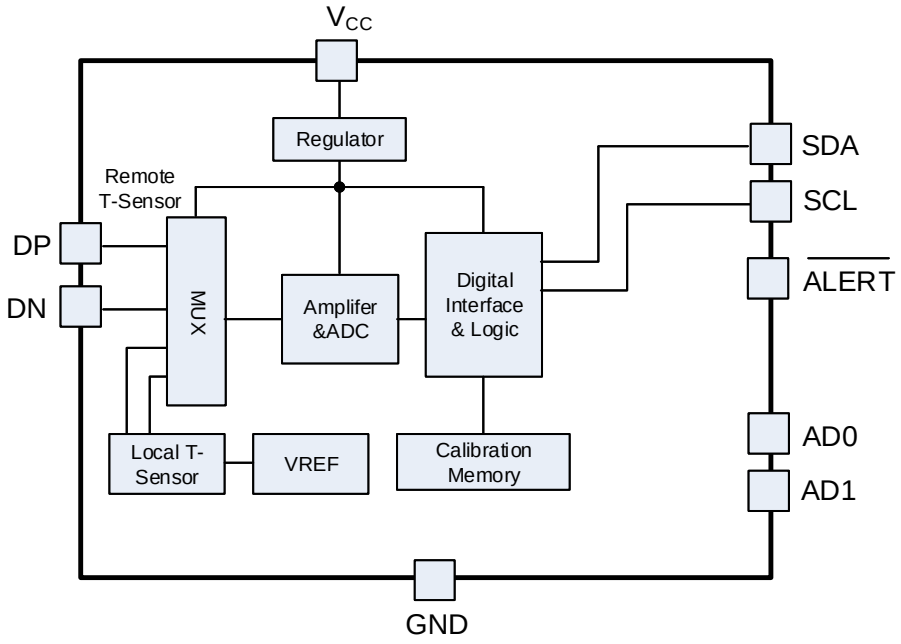
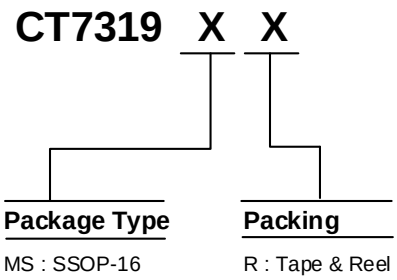


Figure 2. CT7319 function block

Ordering Information



Order PN	Accuracy	Green[1]	Package	Marking ID[2]	Packing	MPQ	Operation Temperature
CT7319MSR	±1.0℃	Halogen free	SSOP-16	7319 YWWAXX	Tape & Reel	4,000	-40℃~+125℃

Note

1. Based on ROHS Y2012 spec, Halogen free covers lead free. So most package types Sensylink offers only states halogen free, instead of lead free.

2. Marking includes 2 rows of characters. In general, the 1st row of characters are part number, and the 2nd row of characters are date code plus production information.

SENSYLINK Microelectronics Inc.

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