

SENSYLINK Microelectronics Inc.

(CT7423)

Digital Temperature Sensor

CT7423 is a 4-CH (3-CH Remote and 1-CH Local) Digital Temperature Sensor Compatible with SMBus, I²C and 2-wire Digital Interface.

It is ideally used in CPU, FPGA, Server and Telecom Equipment etc.

3-CH Remote and 1-CH Local Digital Temperature Sensor

Description

CT7423 is a 4 channels (3 remote channels + 1 local channel) digital temperature sensor. Temperature data can be read out directly via digital interface (compatible with SMBus, I²C and 2-wire with speed up to 400 kHz) by MCU, Bluetooth Chip or SOC chip.

Each chip is specially calibrated $\pm 1.0^{\circ}\text{C}(\text{Max.})$ accuracy for each remote channel, $\pm 1.5^{\circ}\text{C}(\text{Max.})$ accuracy for local channel over 15°C to 85°C temperature range in factory before shipment to customers.

It includes a high precision band-gap circuit, a 12-bit analog to digital converter that can offer 0.0625°C resolution, a calibration unit with non-volatile memory, and a digital interface block.

It has a feature of series resistance cancellation for each remote channel. It also has non-ideality factor correction for each remote channel by programming individual register.

Available Package: SOP-8 package

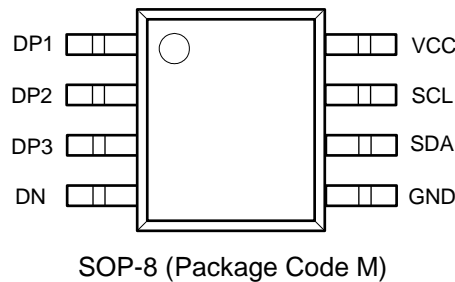
Features

- Operation Voltage: 1.8V to 5.5V
- Quiescent Current: 80uA(Typ.) at 8 Con/s
- Standby Current: 2.0uA (typ.)
- Temperature Accuracy without calibration:
Remote: $\pm 1.0^{\circ}\text{C}(\text{Max.})$ from 15°C to 85°C
Local: $\pm 1.5^{\circ}\text{C}(\text{Max.})$ from 15°C to 85°C
- 12 bit ADC for 0.0625°C resolution
- Support continuous measurement mode or single measurement mode
- Series Resistance Cancellation
- n-Factor Correction
- Compatible with SMBus, 2-wire and I²C interface with speed up to 400kHz
- External Diodes Fault detection
- Temperature range expanded up to 150°C

Applications

- CPU, FPGA
- Server
- Telecom Equipment

PIN Configurations (Top View)



Typical Application

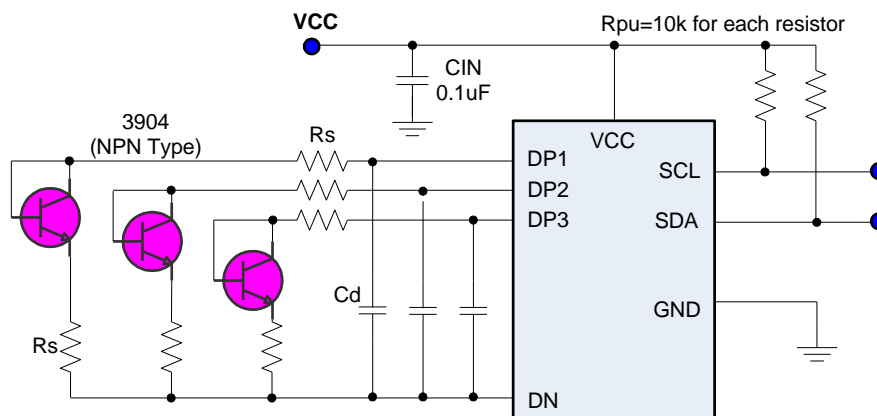


Figure 1. Typical Application of CT7423

3-CH Remote and 1-CH Local Digital Temperature Sensor

Pin Description

PIN No.	PIN Name	Description
1	DP1	Remote channel 1 positive input pin, it could be positive node of Diode or BJT transistor (diode-connected or transistor-connected mode).
2	DP2	Remote channel 2 positive input pin, it could be positive node of Diode or BJT transistor (diode-connected or transistor-connected mode).
3	DP3	Remote channel 3 positive input pin, it could be positive node of Diode or BJT transistor (diode-connected or transistor-connected mode).
4	DN	Remote channel 1/2/3 common negative input pin, it could be negative node of Diodes or BJT transistor (diode-connected or transistor-connected mode).
5	GND	Ground pin.
6	SDA	Digital interface data input or output pin, need a pull-up resistor to Vcc.
7	SCL	Digital interface clock input pin, need a pull-up resistor to Vcc.
8	VCC	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground

Function Block

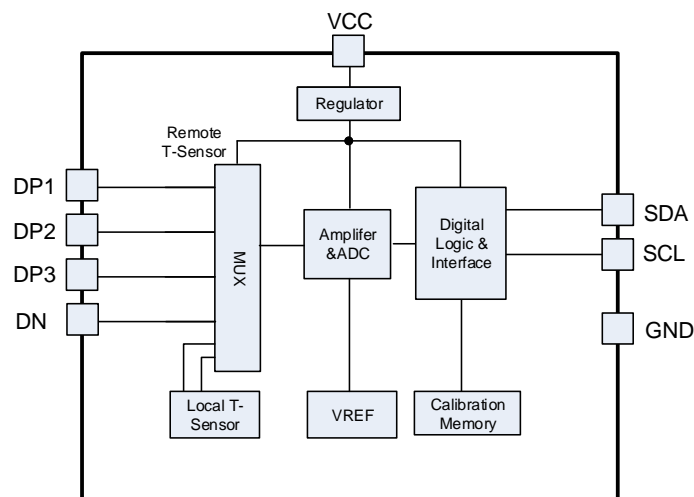
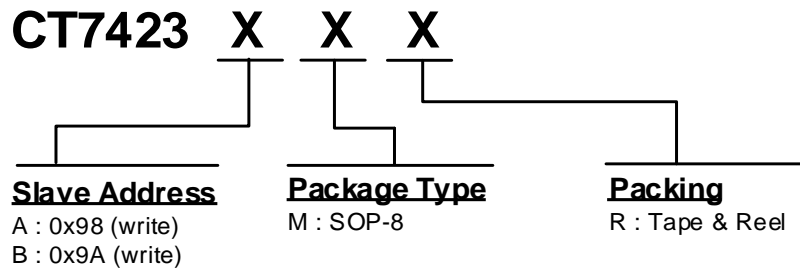


Figure 2. CT7423 function block

3-CH Remote and 1-CH Local Digital Temperature Sensor
Ordering Information


Order PN	Accuracy	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CT7423AMR	±1.0°C	Halogen free	SOP-8	7423A YWWAXX	Tape & Reel	4,000	-40°C~+125°C
CT7423BMR	±1.0°C	Halogen free	SOP-8	7423B YWWAXX	Tape & Reel	4,000	-40°C~+125°C

Notes

1. Sensylink can meet RoHS 2.0/REACH requirement. 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.

www.sensylink.com

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