

SENSYLINK Microelectronics Inc

(CT75)

Digital Temperature Sensor

***CT75 is a Digital Temperature Sensor with $\pm 0.5^{\circ}\text{C}$ Accuracy
Compatible with SMBus, I²C and 2-wire Interface.
It is ideally used in HVAC, Thermal management and Portable
Devices etc.***

±0.5°C Digital Temperature Sensor with Digital Interface

Description

CT75 is a digital temperature sensor with ±0.5°C accuracy. Temperature data can be read out directly via digital interface (compatible with SMBus, I²C or 2-wire) by MCU, Bluetooth Chip or SoC chip.

CT75 supports I²C communication with speed up to 400 kHz. Each chip is specially calibrated for ±0.5 °C(Max.) accuracy over 0°C to 50°C range in factory before shipment to customers. There is no need for re-calibration anymore for ±0.5°C accuracy.

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 ALERT logic output pin with open drain structure, which is selectable for active low or high by programming. ALERT response is compatible with SMBus ALERT Response Address (ARA).

CT75 can also be used as standalone thermostat.

Available Package: SOP-8/MSOP-8 and DFN3x3-8/DFN2x2-8A.

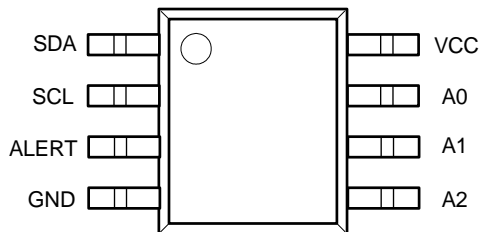
Features

- Operation Voltage: 1.75V to 5.5V
- Average Quiescent Current: 3.0uA (Typ.) (1Con/s)
- Shutdown Current: 1.0uA (Typ.)
- Temperature Accuracy without calibration:
 - Maximum: ±0.5°C from 0°C to 50°C
 - Maximum: ±1°C from -20°C to 85°C
 - Maximum: ±1.5°C from -40°C to 125°C
- 12 bit ADC for 0.0625°C resolution
- Compatible industry LM75 with performance improved
- Compatible with SMBus, 2-wire and I²C interface
- Programmable Over/Under Temperature
- Programmable Active Low or High for ALERT pin
- Support SMBus ALERT Response Address(ARA)
- Generate 32 different slave address by setup A0, A1, A2 pin
- Temperature Range: -40°C to 125°C

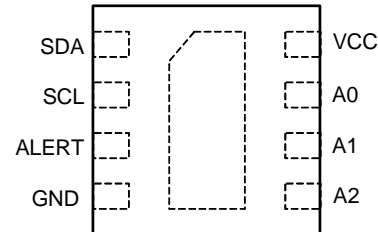
Applications

- Smart HVAC System
- Thermal Management

PIN Configurations (Top View)



SOP-8/MSOP-8(Package Code M/MM)



DFN3x3-8/DFN2x2-8A (package Code DN/DNA)

Typical Application

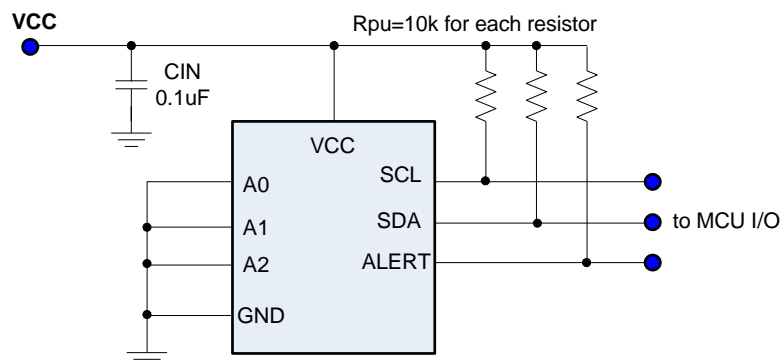


Figure 1. Typical Application of CT75

±0.5°C Digital Temperature Sensor with Digital Interface

Pin Description

PIN No.	PIN Name	Description
1	SDA	Digital interface data input or output pin, need a pull-up resistor to VCC.
2	SCL	Digital interface clock input pin, need a pull-up resistor to VCC.
3	ALERT	To Indicate ALERT of over or under Temperature programmed by setting T _{HIGH} /T _{LOW} register, it is open drain output with programmable active low or high. Need a pull-up resistor to VCC in application.
4	GND	Ground pin.
5	A2	Address selection pins, the chip can be defined total 32 different slave address by connecting these pins to GND, VCC, SCL or SDA pin respectively. Do not leave this pins open. See 1.5.1 Slave Address for detail.
6	A1	
7	A0	
8	VCC	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground

Function Block

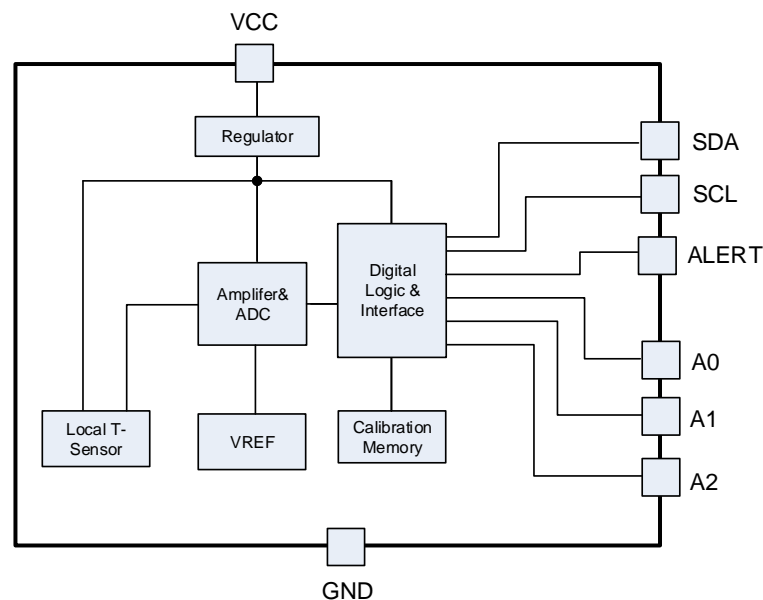
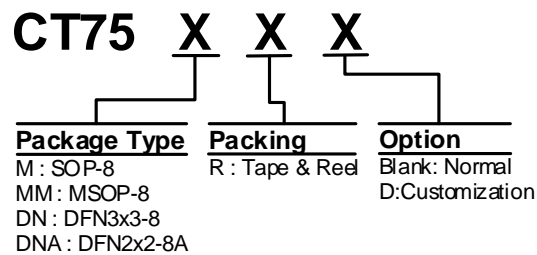


Figure 2. CT75 function block

±0.5°C Digital Temperature Sensor with Digital Interface

Ordering Information



Order PN	Accuracy	Green ¹	Package	Marking ID ^{Note 1}	Packing	MPQ	Operation Temperature
CT75MR	±0.5°C	Halogen free	SOP-8	75 YWWAXX	Tape & Reel	4,000	-40°C~+125°C
CT75MRD	±0.5°C	Halogen free	SOP-8	75 YWWAXX	Tape & Reel	4,000	-40°C~+125°C
CT75MMR	±0.5°C	Halogen free	MSOP-8	75 YWWAXX	Tape & Reel	3,000	-40°C~+125°C
CT75DNR	±0.5°C	Halogen free	DFN3x3-8	75 YWWAXX	Tape & Reel	3,000	-40°C~+125°C
CT75DNAR	±0.5°C	Halogen free	DFN2x2-8A	GP YWXA	Tape & Reel	3,000	-40°C~+125°C

Notes 1

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 ID 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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