

SENSYLINK Microelectronics

(CT7112C)

Digital Temperature Sensor

***CT7112C 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.***

1. Description

CT7112C is a digital temperature sensor with $\pm 0.5^{\circ}\text{C}$ 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.

CT7112C supports I²C communication with speed up to 400 kHz.

Each chip is specially calibrated for $\pm 0.5^{\circ}\text{C}$ (Max.) accuracy over 0°C to 85°C range in factory before shipment to customers. There is no need for re-calibration anymore for $\pm 0.5^{\circ}\text{C}$ 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).CT7112C can also be used as standalone thermostat.

Available Package: SOT-563/SOT-23-6 package

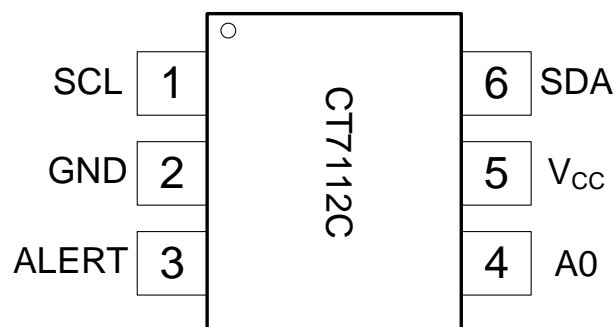
2. Features

- Operation Voltage: 1.4V to 5.5V
- Average Quiescent Current: 2.5uA(Typ.) 1Conv/s
- Standby Current: 40nA (Typ.)
- Temperature Accuracy without calibration:
 - Maximum: $\pm 0.5^{\circ}\text{C}$ from 0°C to 85°C
 - Maximum: $\pm 1.0^{\circ}\text{C}$ from -40°C to 125°C
- 12 bit ADC for 0.0625°C resolution
- Compatible with SMBus, 2-wire and I²C interface
- Programmable Over/Under Temperature
- Programmable Active Low or High for ALERT pin
- Supports SMBus ALERT Response Address(ARA)
- Generates 4 different slave address by setup A0 pin
- Temperature Range: -40°C to 125°C

3. Applications

- Smart HVAC System
- Thermal Management
- Portable Devices

4. Pin Configurations



SOT-563/SOT-23-6 (Package Code KT6/K6)

5. Typical Application

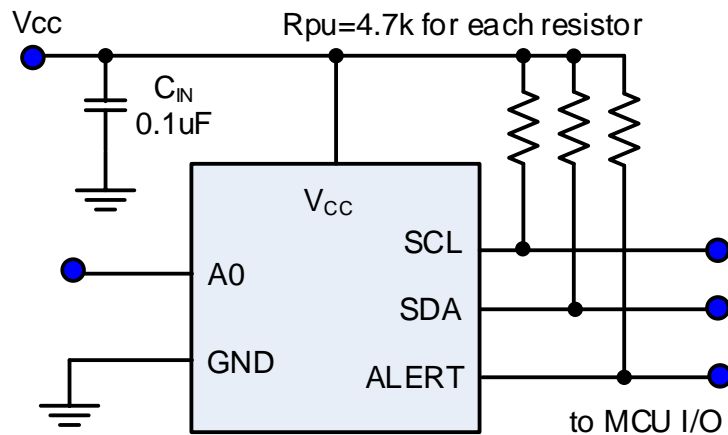


Figure 1. Typical Application of CT7112C

6. Pin Description

Pin No.	Pin Name	Description
1	SCL	Digital interface clock input pin, need a pull-up resistor to V_{CC} .
2	GND	Ground pin.
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 V_{CC} in application.
4	A0	Address selection pin, the chip can be defined total 4 different slave address by connecting this pin to GND, V_{CC} , SCL or SDA pin respectively. See 1.5.1 Slave Address for detail.
5	V_{CC}	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground
6	SDA	Digital interface data input or output pin, need a pull-up resistor to V_{CC} .

7. Function Block

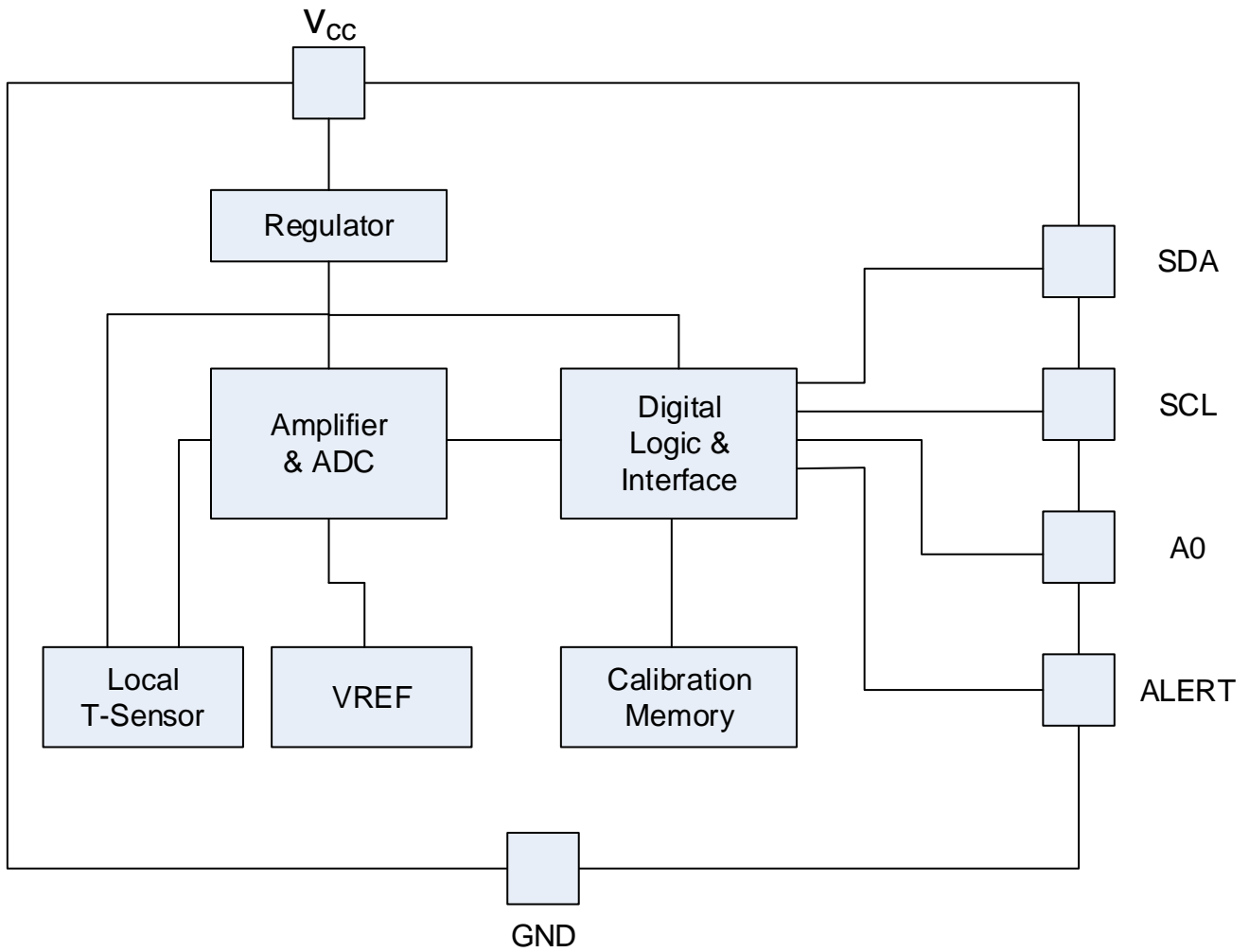
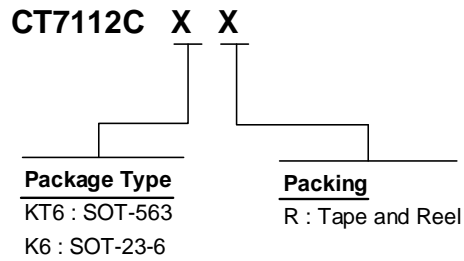


Figure 2. CT7112C function block

±0.5°C Digital Temperature Sensor with Digital Interface

8. Ordering Information



Order PN	Accuracy	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CT7112CKT6R	±0.5°C	Halogen free	SOT-563	HG	Tape & Reel	5000	-40°C~+125°C
CT7112CK6R	±0.5°C	Halogen free	SOT-23-6	GNWX	Tape & Reel	3000	-40°C~+125°C

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. For very small outline package, Marking ID includes 2~4 digits to stands for product information and date code.



SENSYLINK Microelectronics Inc.

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