SENSYLINK Microelectronics

(CT1801)

Single-Wire Digital Temperature Sensor

CT1801 is a Digital Temperature Sensor with ±0.1°C Accuracy over 35°C to 42°C. Single-Wire Digital interface is Compatible with 1-wire Interface. Also it supports re-calibration.
It is ideally used in Human Body Temperature Measurement, Chamber Temperature Monitor, Industry Thermal Control, Thermal Energy Meter etc.

±0.1 ℃ Accuracy Digital Temperature Sensor with Single-Wire Interface

Description

CT1801 is a digital temperature sensor with ±0.1°C accuracy over 35°C to 42°C. Temperature data can be read out directly via Single-Wire interface (compatible with 1-wire bus in protocol) by MCU.

It includes a high precision band-gap circuit, a 16-bit analog to digital converter that can offer 0.0078125°C resolution, a calibration unit with non-volatile memory, 8-bit CRC generator and a digital interface block.

The chip is specially calibrated for ±0.1°C(Max.) accuracy over 35°C to 42°C range in factory before shipment to customers.

Each chip has a unique 64-bit ROM ID, which allows multiple devices to connect the same Single-Wire bus. MCU can distinguish and access each device individually by different ROM ID. Also the chip offers 24-bit programmable ID for user to quick search, match operation or define.

It has programmable temperature Alarm function for upper and lower trigger temperature.

Available Package: CSP-4.

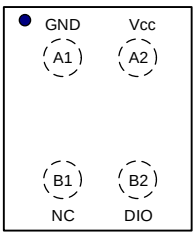
Features

- Operation Voltage: 1.8V to 5.5V
- Operating Current: 30uA during Temperature conversion;
- Average Consumption Current: 4.0uA (Typ.) with reading once temperature per second
- Standby Current: 50nA (Typ.), 150nA (Max.)
- Temperature Conversion time: 120ms at 16-bit
- Temperature Accuracy without calibration: ±0.1°C(Max.) from 35°C to 42°C
- 16 bit ADC for 0.0078125°C resolution
- 24-bit programmable ID for quick search, match operation or user define
- Compatible with 1-wire interface
- Supports re-calibration
- Temperature Range: -50°C to 125°C

Applications

- Chamber Temperature Monitor
- Industry Thermal Control
- Thermal Energy Meter

PIN Configurations (Top View)



CSP-4 (Package Code J4)

Typical Application

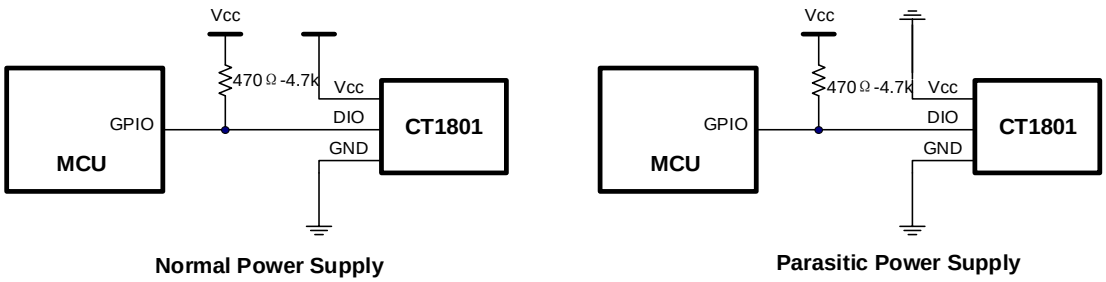


Figure 1. Typical Application of CT1801

Pin Description

PIN Name.	PIN NO	Description
GND	A1	Ground pin.
Vcc	A2	Power supply input pin, it should connect a 100nF to 1.0uF ceramic cap at least to ground.
NC	B1	Not connected
DIO	B2	Digital interface data input and output pin, Generally the needs a pull-up resistor to Vcc in most applications, between 470Ω and 4.7k. Also this pin can be used as parasitic power pin if there is no power from Vcc pin.

Function Block

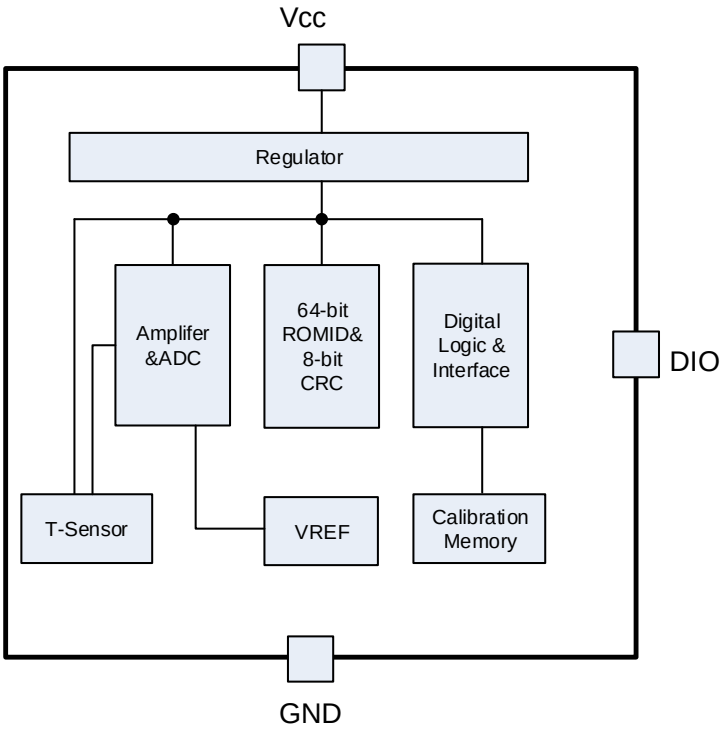
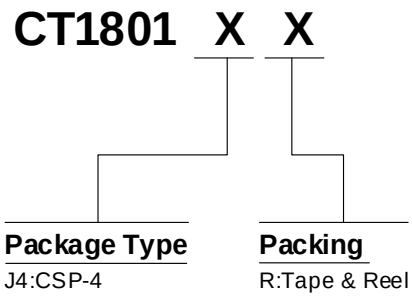


Figure 2. CT1801 function block

Ordering Information



Order PN	Accuracy	Green[1]	Package	Marking ID[2]	Packing	MPQ	Operation Temperature
CT1801J4R	±0.1°C	Halogen free	CSP-4	CT	Tape & Reel	3,000	-50°C~+125°C

Note

1. Sensylink can meet RoHS 2.0/REACH requirement. So most package types Sensylink offers only states halogen free, instead of lead free.

2. For very small package , there's two characters to stands for part number

SENSYLINK Microelectronics Inc.

www.sensylink.com

IMPORTANT NOTICE

SENSYLINK Microelectronics Inc. reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein or to discontinue any product or service. Customers should obtain the latest relevant information before placing orders and should verify the latest and complete information. SENSYLINK Microelectronics does not assume any responsibility for use of any product, nor does SENSYLINK Microelectronics any liability arising out of the application or use of this document or any product or circuit described herein. SENSYLINK Microelectronics assumes no liability for applications assistance or the design of Customers' products. Customers are responsible for their products and applications using SENSYLINK Microelectronics components. SENSYLINK Microelectronics does not convey any license under its patent or trademark rights nor the other rights.

SENSYLINK Microelectronics Inc. Ⓒ 2015 - 2023.