

SENSYLINK Microelectronics Inc

(CT1721)

***Temperature Sensor with Pulse Count
Interface***

CT1721 is a Temperature Sensor with Pulse Count Interface. It is ideally used in White Appliance, HVAC and IOT etc.

±0.5°C Accuracy Temperature Sensor with Pulse Count Interface

Description

CT1721 is a temperature sensor with pulse count interface. It needs only an external pull-up resistor in applications. The DIO pin of the chip can be connected to GPIO pin of MCU directly, it does not need MCU timer resource for single-time conversion mode device, which can save software overhead of MCU.

The chip integrates band-gap, AD converter and digital interface with open drain output. DIO pin plays both roles of power supply and digital pulse output (open-drain). Once DIO pin is forced power supply via pull-up resistor, the chip will start temperature measurement and delivery temperature with pulse count subsequently until MCU pulls low DIO pin.

The chip supports multiple devices (up to 9 sensors) connected to the same I/O pin of MCU distinguished by address code (setup by user via AD0, AD1 pin).

Also the chip supports single time or continuous conversion for temperature measurement.

Available Package: CSP-4, TO-92S-2, SOT-23, DFN1.6x0.8-2 and DFN1.6x1.6-6 package.

Features

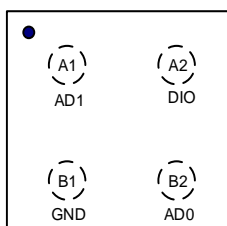
- Operation Voltage(DIO pin): 1.4V to 5.5V
- Conversion Current: 36uA(Typ.) during temperature conversion
- Temperature Accuracy:
 - ±0.5°C (Max.) over -10°C to 80°C
 - ±1.0°C (Max.) over -50°C to 150°C
- Temperature Resolution: 0.0625°C or 0.1°C (*)
- Output Temperature Data is proportional to number of pulse count
- Temperature conversion time: 14ms (Typ.)
- Temperature data transmission time, 38ms(Typ.)
- Single pulse cycle time: 8.6us (Typ.)
- Support up to 9 sensors to connect the same I/O pin of MCU to monitor 9 zones simultaneously
- Temperature Range: -50°C to 150°C

* it is an option, please contact Sensylink Sales.

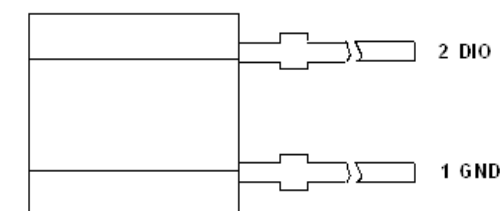
Applications

- White Appliance
- HVAC
- IOT Devices

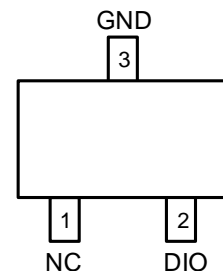
PIN Configurations (Top View)



CSP-4 (package code J4)



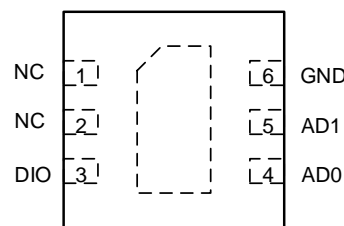
TO-92S-2 (package code Z2)



SOT-23 (package code K)



DFN1.6x0.8-2 (package code DN)



DFN1.6x1.6-6 (package code DNA)

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Typical Application

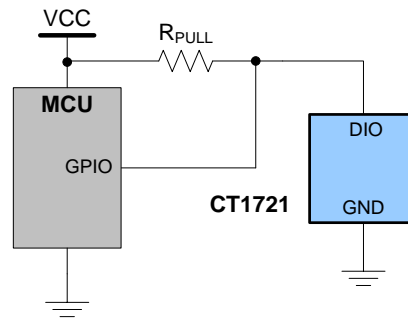


Figure 1 Typical Application of CT1721 (single device, resistor pull up)

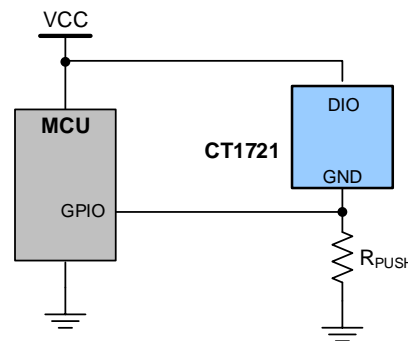


Figure 2 Typical Application of CT1721 (single device, resistor pull down)

Pin Description

PIN No.					PIN Name	Description
CSP-4	TO-92S-2	SOT-23	DFN 1.6x0.8-2	DFN 1.6x1.6-6		
		1		1,2	NC	No Connection
A2	2	2	2	3	DIO	Digital Output pin with pulse, it is open drain structure. And it needs an external pull-up resistor, R_{PULL} (0.47k to 10k) to power supply VCC, like 3.3V.
B1	1	3	1	6	GND	Ground pin
B2				4	AD0	Address setup pins, it will generate 9 kinds of address code by connecting AD0, AD1 pin to DIO, GND or keeping these pins float, Table1 show the matrix.
A1				5	AD1	

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Function Block

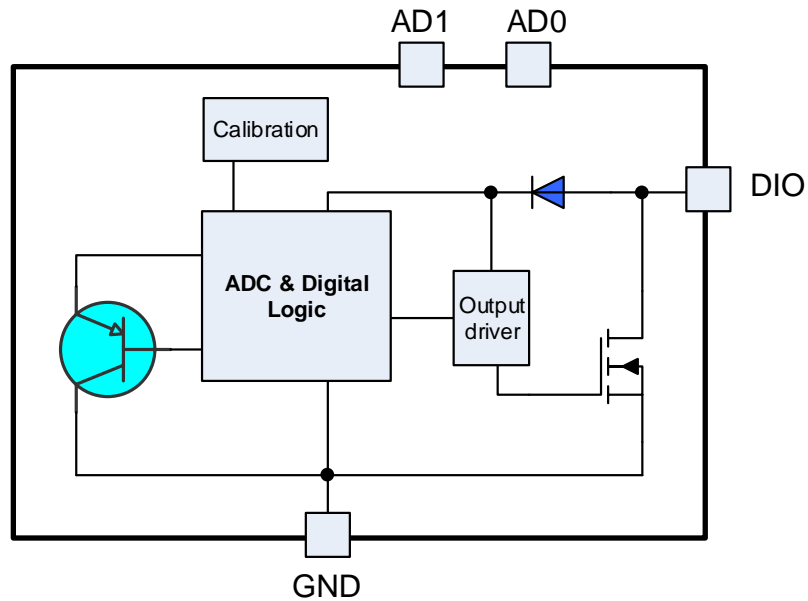
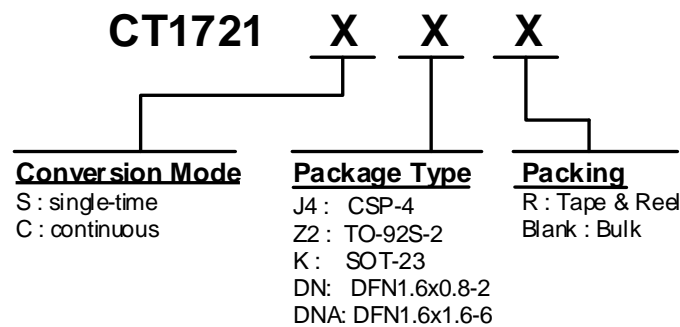


Figure 3. CT1721 function block

Ordering Information



Order Part No.	Accuracy	Green ^{NOTE1}	Package	Marking ID ^{NOTE1}	Packing	MPQ	Operation Temperature
CT1721SJ4R	±0.5°C	Halogen free	CSP-4	CY	Tape & Reel	3,000	-50°C~+150°C
CT1721CJ4R	±0.5°C	Halogen free	CSP-4	CZ	Tape & Reel	3,000	-50°C~+150°C
CT1721SZ2	±0.5°C	Halogen free	TO-92S-2	1721 YWWAXX	Bulk	1,000	-50°C~+150°C
CT1721CZ2	±0.5°C	Halogen free	TO-92S-2	1721 YWWAXX	Bulk	1,000	-50°C~+150°C
CT1721SKR	±0.5°C	Halogen free	SOT-23	CPWX	Tape & Reel	3,000	-50°C~+150°C
CT1721CKR	±0.5°C	Halogen free	SOT-23	DAWX	Tape & Reel	3,000	-50°C~+150°C

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CT1721SDNR	±0.5°C	Halogen free	DFN1.6x0.8-2	DA	Tape & Reel	3,000	-50°C~+150°C
CT1721CDNR	±0.5°C	Halogen free	DFN1.6x0.8-2	DB	Tape & Reel	3,000	-50°C~+150°C
CT1721SDNAR	±0.5°C	Halogen free	DFN1.6x1.6-6	JZ YWXA	Tape & Reel	3,000	-50°C~+150°C

Note1

1. For single device application, there is no necessary to specify address code for the sensor. If there are multiple devices in the same IO pin of MCU, it is necessary to specify different address code for each sensor.
2. Sensylink can meet RoHS 2.0/REACH requirement. So most package types Sensylink offers only states halogen free, instead of lead free.
3. 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. For very small outline package, there's 2~4 digits to stands for product information and date code.



SENSYLINK Microelectronics Inc.

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