SENSYLINK Microelectronics

(CHT8305C)
Digital Humidity &Temperature Sensor

CHT8305C is a Digital Humidity and Temperature Sensor with± 3.0%RH Accuracy for humidity and ±0.5℃ Accuracy for temperature. It is compatible with I²C and 2-wire Interface. It is ideally used in HVAC, environment monitor etc.

Description

CHT8305C is a digital humidity and temperature sensor with $\pm 3.0\%$RH(Max.) accuracy for humidity and $\pm 0.5^o$C(Max.) accuracy for temperature. Humidity and Temperature data can be read out directly via I²C digital interface by MCU, Bluetooth Chip or SOC chip.

CHT8305C supports I²C communication with speed up to 400kHz.

Each chip is specially calibrated for temperature and humidity accuracy in factory before shipment to customers. There is no need for re-calibration anymore.

It includes a high precision band-gap circuit, a 14-bit analog to digital converter, a calibration unit with non-volatile memory, and a digital interface block.

It has ALERT logic output pin with open drain structure, which is active low.

The chip supports up to 4 devices in one I²C bus by setting different slave address via AD0 pin.

Available Package: DFN3x3-6 package

Features

● Operation Voltage: 2.5V to 5.5V
● Average Operating Current: 1.5uA (Typ.) at 1.0con/sec, Vcc=3.3V (Both T&RH conversion). 3.0uA (Max.)
● Standby Current: 0.05uA(Typ.), 0.3uA (Max.)
● Temperature Accuracy without calibration: Maximum: $\pm 0.5^o$C from 0^oC to 50^oC
● Humidity Accuracy without calibration: Maximum: $\pm 3.0\%$RH at 50%RH
● 14 bit ADC for Temperature and Humidity
● Compatible with 2-wire and I²C interface
● Programmable Alert response of Over Temperature and/or Humidity
● Generate 4 different slave address by setting AD0 pin
● Temperature Range: -40°C to 125°C
● Humidity Range: 0%RH to 100%RH
● Protection Cover is available

Applications

● Smart HVAC System
● Environment Monitor
● Portable/Wearable Weather Monitor

PIN Configurations (Top View)

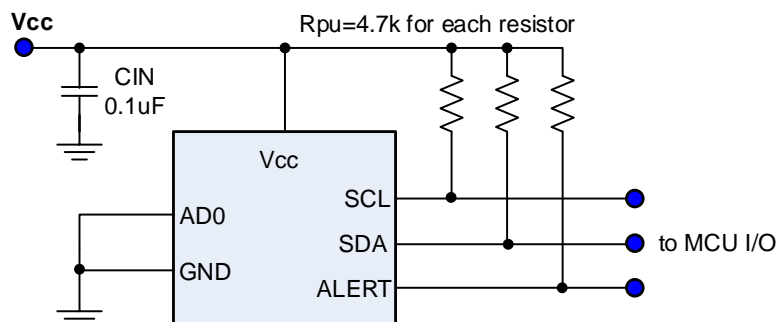DFN3x3-6(Package Code DN)
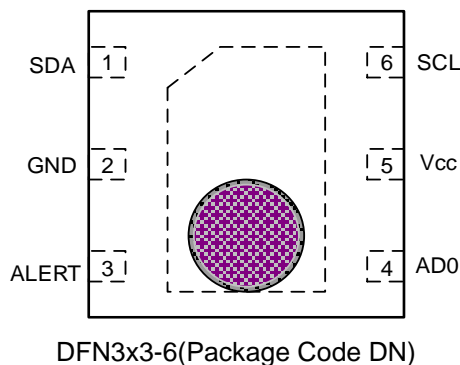
Typical Application

Figure 1. Typical Application of CHT8305C

Pin Description

| PIN No.	PIN Name	Description
1	SDA	Digital interface data input or output pin, need a pull-up resistor to Vcc.
2	GND	Ground pin.
3	ALERT	To Indicate alert status of over Humidity and/or Temperature limitation programmed by setting H_{LIMIT}/T_{LIMIT} register. Need a pull-up resistor to Vcc in application. active low with open drain output.
4	AD0	Slave Address selection pins, the chip can be defined total 4 different slave addresses by connecting this pin to GND, Vcc, SCL or SDA pin respectively. If leave this pin open, address is 0x80. See Slave Address for detail.
5	Vcc	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground
6	SCL	Digital interface clock input pin, need a pull-up resistor to Vcc.

Function Block
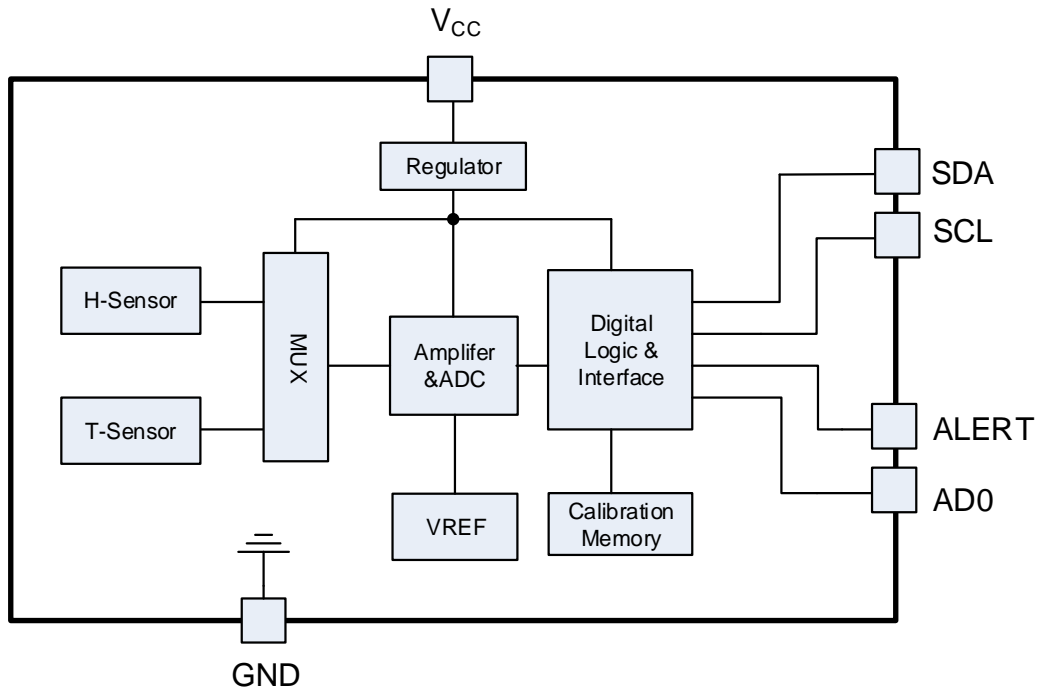
Figure 2. CHT8305C function block

Ordering Information

CHT8305C X X - X

Package Type
DN : DFN3x3-6

Packing
R: Tape & Reel

Protection
C : with Cover
Blank : without Cover

Order PN	Accuracy	Green[1]	Package	Marking ID[2]	Packing	MPQ	Operation Temperature	Protection Cover
CHT8305CDNR	$\pm0.5℃$ $\pm3\%RH$	Halogen free	DFN3x3-6	8305 YWWAXX	Tape & Reel	3,000	-40ºC~+125ºC	No
CHT8305CDNR-C	$\pm0.5℃$ $\pm3\%RH$	Halogen free	DFN3x3-6	8305 YWWAXX	Tape & Reel	3,000	-40ºC~+125ºC	Yes

Notes

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. 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

IMPORTANT NOTICE