

SENSYLINK Microelectronics

(CHT8550)

***Low Voltage High Precision Digital
Humidity & Temperature Sensor***

CHT8550 is a Low Voltage High Precision Digital Humidity and Temperature Sensor with $\pm 3.0\%RH$ accuracy for humidity and $\pm 0.2^{\circ}C$ accuracy for temperature. It is compatible with SMBus, I2C Interface. It is ideally used in HVAC, environment monitor etc.

Low Voltage High Precision Digital Humidity and Temperature Sensor

1. Description

CHT8550 is a low voltage high precision digital humidity and temperature sensor with $\pm 3.0\%RH$ (Typ.) accuracy for humidity and $\pm 0.2\text{ }^\circ\text{C}$ (Typ.) accuracy for temperature. Humidity and Temperature data can be read out directly via digital interface by MCU, Bluetooth Chip or Soc chip.

The digital interface is compatible with SMBus and I2C protocol. Also, it supports communication with fast speed (up to 400kHz) and high speed (up to 1.0MHz) for I2C protocol.

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, an analog to digital converter, a calibration unit with non-volatile memory, and a digital interface block.

Available Package: CSP-4 package.

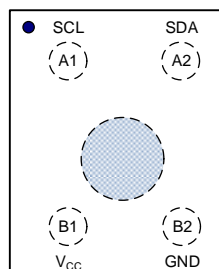
2. Features

- Operation Voltage: 1.65V to 5.5V
- Average Operating Current: 2.1uA (Typ.)@ 3.3V
- Standby Current: 50nA(Typ.)
- Temperature Accuracy with calibration:
 - $\pm 0.2\text{ }^\circ\text{C}$ (Max.) from $20\text{ }^\circ\text{C}$ to $50\text{ }^\circ\text{C}$
 - $\pm 0.5\text{ }^\circ\text{C}$ (Max.) from $0\text{ }^\circ\text{C}$ to $80\text{ }^\circ\text{C}$
 - $\pm 1.0\text{ }^\circ\text{C}$ (Max.) from $-40\text{ }^\circ\text{C}$ to $85\text{ }^\circ\text{C}$
- Humidity Accuracy with calibration:
 - $\pm 3.0\%RH$ (Max.) at 50%RH
 - $\pm 5.0\%RH$ (Max.) from 20%RH to 80%RH
- Digital Interface compatible with SMBus and I2C, support:
 - Packet Error Checking feature to improve communication reliability and robustness
 - Speed up to 1.0MHz
 - SMBus timeout feature
 - SMBus General Call
- Temperature Range: $-40\text{ }^\circ\text{C}$ to $85\text{ }^\circ\text{C}$
- Humidity Range: 0%RH to 100%RH

3. Applications

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

4. Pin Configurations(Top view)



CSP-4(Package Code J4)

5. Typical Application

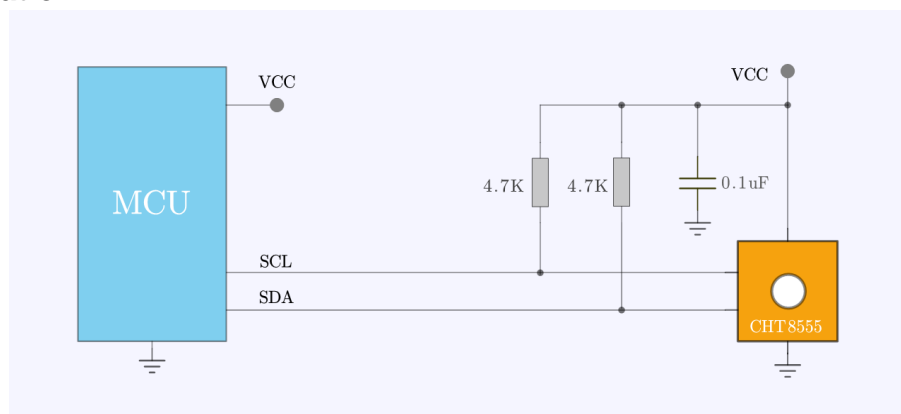


Figure 1. Typical Application of CHT8550

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6. Pin Description

PIN No.	PIN Name	Description
A1	SCL	Digital interface clock input pin, need a pull-up resistor to Vcc.
A2	SDA	Digital interface data input or output pin, need a pull-up resistor to Vcc.
B1	Vcc	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground
B2	GND	Ground pin.

7. Function Block

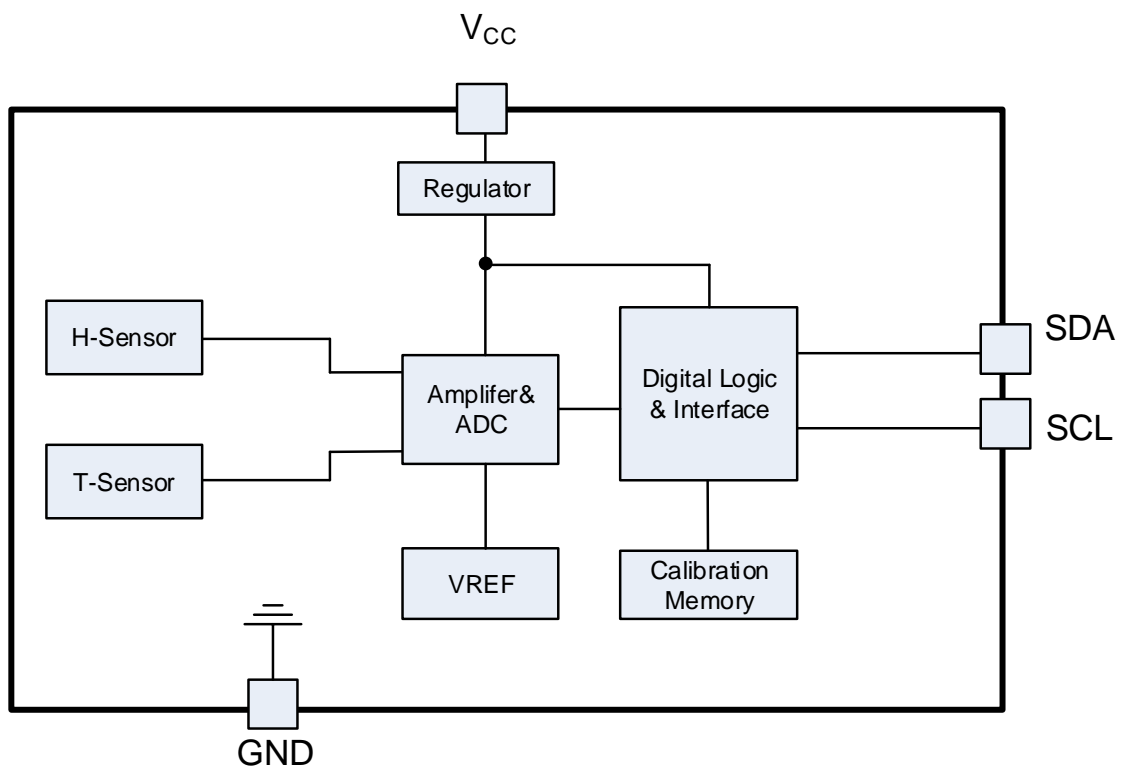
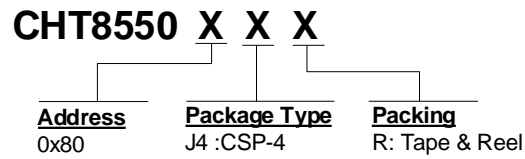


Figure 2. CHT8550 function block

Low Voltage High Precision Digital Humidity and Temperature Sensor
8. Ordering Information


Order PN	Address	Accuracy	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CHT8550AJ4R	0x80	±0.1°C ±3%RH	Halogen free	CSP-4	JQ	Tape & Reel	3,000	-40°C~+85°C

Notes

1. Based on ROHS Y2012 spec, 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 outline package, Marking ID includes 2 digits to stands for product information.



SENSYLINK Microelectronics Inc.

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