

***SENSYLINK Microelectronics***

***(CHT8555)***

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

***CHT8555 is a Low Voltage High Precision Digital Humidity and Temperature Sensor with  $\pm 3.0\%RH$  accuracy for humidity and  $\pm 0.1^{\circ}C$  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

CHT8555 is a low voltage high precision digital humidity and temperature sensor with  $\pm 2.0\%RH$ (Typ.) accuracy for humidity and  $\pm 0.1\text{ }^{\circ}C$  (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.

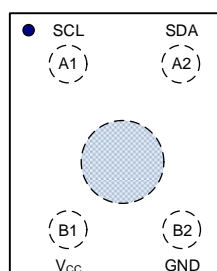
## 2. Features

- Operation Voltage: 1.35V to 5.5V
- Average Operating Current: 2.0uA (Typ.)@ 3.3V
- Standby Current: 40nA(Typ.)
- Temperature Accuracy with calibration:
  - $\pm 0.1^{\circ}C$  (Max.) from  $20^{\circ}C$  to  $50^{\circ}C$
  - $\pm 0.25^{\circ}C$  (Max.) from  $0^{\circ}C$  to  $80^{\circ}C$
  - $\pm 1.0^{\circ}C$  (Max.) from  $-40^{\circ}C$  to  $125^{\circ}C$
- Humidity Accuracy with calibration:
  - $\pm 3.0\%RH$  (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:  $-40^{\circ}C$  to  $125^{\circ}C$
- 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

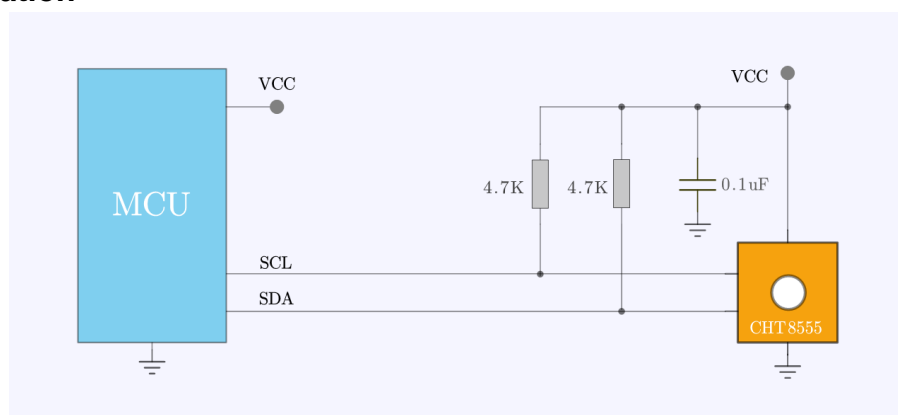


Figure 1. Typical Application of CHT8555

## Low Voltage High Precision Digital Humidity and Temperature Sensor

### 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

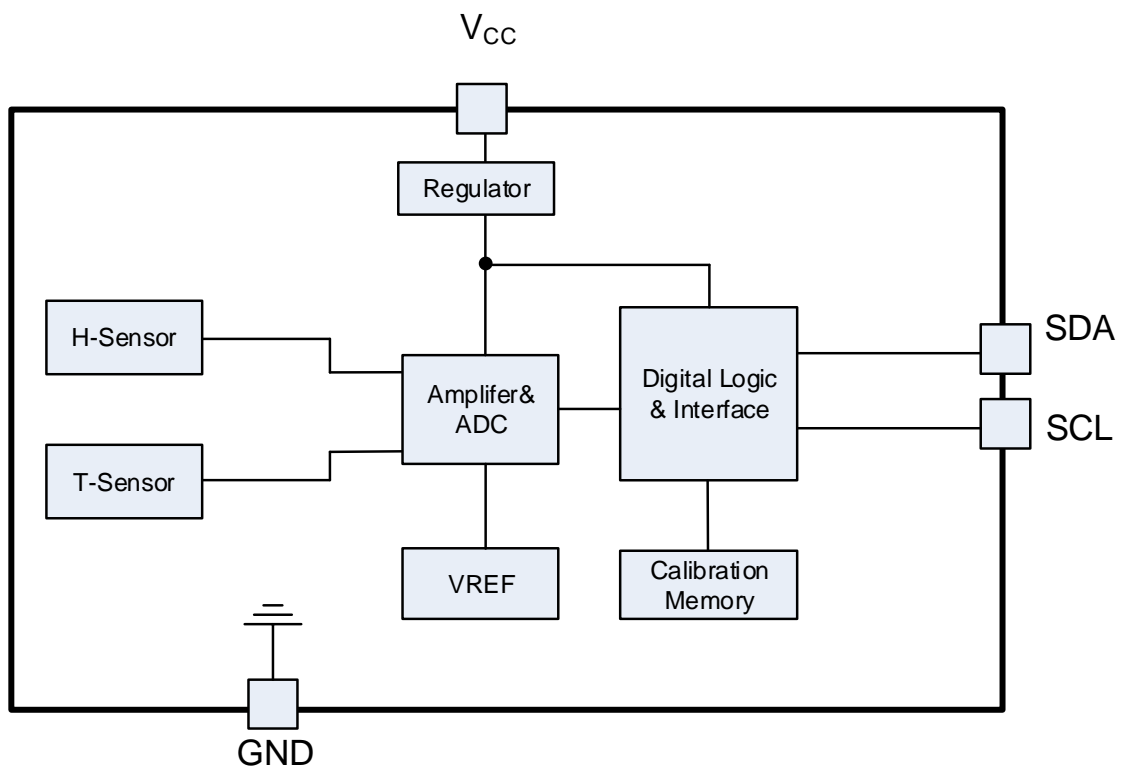
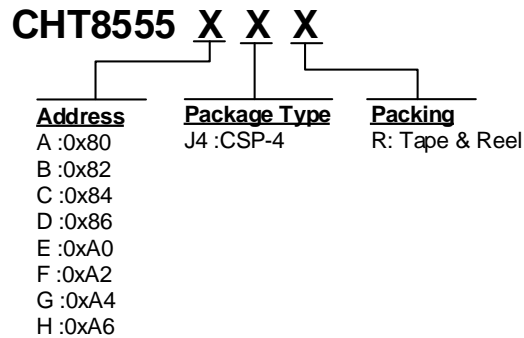


Figure 2. CHT8555 function block

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


Order PN	Address	Accuracy	Green <sup>1</sup>	Package	Marking ID <sup>2</sup>	Packing	MPQ	Operation Temperature
CHT8555AJ4R	0x80	±0.1°C ±3%RH	Halogen free	CSP-4	GQ	Tape & Reel	3,000	-40°C~+125°C
CHT8555BJ4R	0x82	±0.1°C ±3%RH	Halogen free	CSP-4	GR	Tape & Reel	3,000	-40°C~+125°C
CHT8555CJ4R	0x84	±0.1°C ±3%RH	Halogen free	CSP-4	GS	Tape & Reel	3,000	-40°C~+125°C
CHT8555DJ4R	0x86	±0.1°C ±3%RH	Halogen free	CSP-4	GT	Tape & Reel	3,000	-40°C~+125°C
CHT8555EJ4R	0xA0	±0.1°C ±3%RH	Halogen free	CSP-4	GU	Tape & Reel	3,000	-40°C~+125°C
CHT8555FJ4R	0xA2	±0.1°C ±3%RH	Halogen free	CSP-4	GY	Tape & Reel	3,000	-40°C~+125°C
CHT8555GJ4R	0xA4	±0.1°C ±3%RH	Halogen free	CSP-4	GZ	Tape & Reel	3,000	-40°C~+125°C
CHT8555HJ4R	0xA6	±0.1°C ±3%RH	Halogen free	CSP-4	HA	Tape & Reel	3,000	-40°C~+125°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.***

***[www.sensylink.com](http://www.sensylink.com)***

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