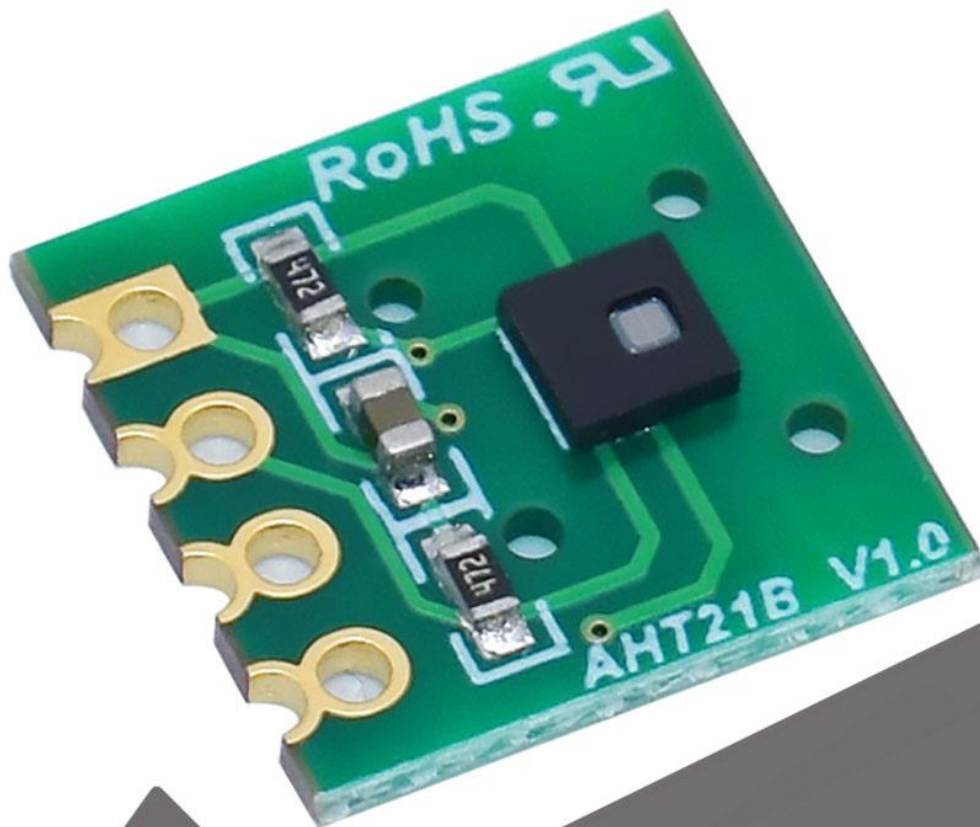


AHT21B digital temperature and humidity sensor

- ✓ Small volume and rapid industrial response



AHT21B Temperature and humidity sensor

- ✓ Complete calibration
- ✓ Quick response



- ✓ Strong anti-jamming ability
- ✓ Excellent long-term stability
- ✓ A variety of accessories to choose from
- ✓ Digital output, I2C interface

AHT21B is an integrated temperature and humidity sensor module developed on the basis of AHT21. The product is equipped with a newly designed ASIC special chip, an improved MEMS semiconductor capacitor-type humidity sensor and a standard on-chip temperature sensor. The PCB adopts gold plating process to extend the service life of the product. The output calibrated digital signal, standard IPC format, with no calibration, fast response, strong anti-interference ability, high precision, high quality, high stability characteristics, performance reached the international level, is the ideal choice of domestic to replace the import. Each sensor has been rigorously calibrated and tested at the time of delivery to ensure and meet customers' large-scale applications.



Measurement temperature:
-40°C ~ +80°C

Power supply voltage:
2.2~5.5V



Application scenarios

应用场景

Widely used in consumer, electronics, medical, automotive, industrial, meteorological and other fields, such as: HVAC, dehumidifiers and refrigerators and other home appliances, testing and testing equipment and other related temperature and humidity detection and control products.

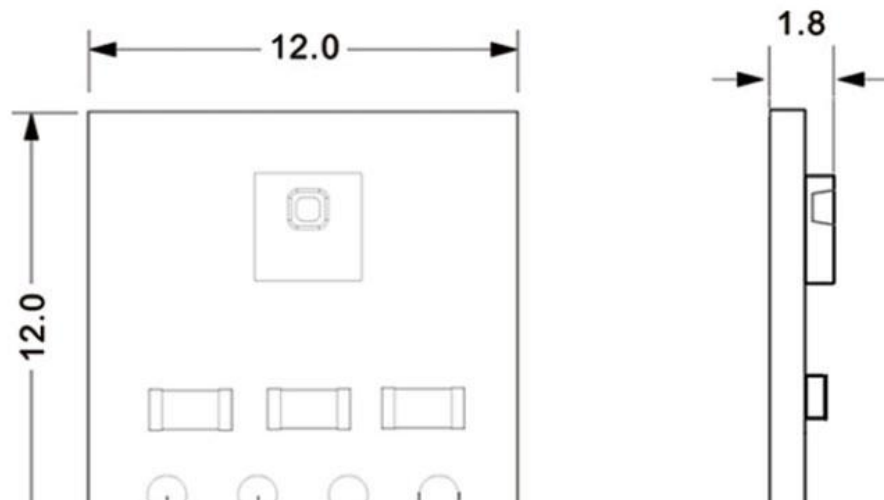


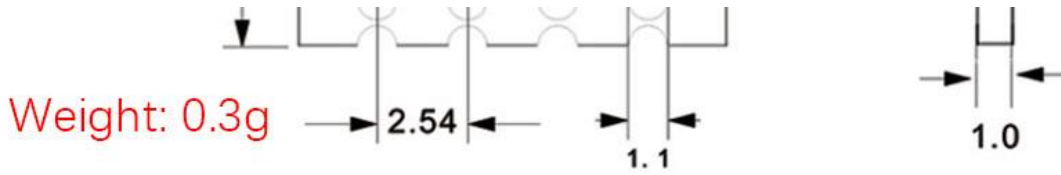


Product parameters

产品参数

| | |
|-------------------------|--|
| Model | AHT21B |
| Power supply voltage | DC:2.2~5.5V |
| Measuring range | Temperature: -40~+80°C Humidity :0~100%RH |
| Accuracy of measurement | Temperature: $\pm 0.5^{\circ}\text{C}$ Humidity: $\pm 3\%RH(25^{\circ}\text{C})$ |
| Resolution of the | Temperature: 0.01°C Humidity: $0.024\%RH$ |
| Output signal | I ² C signal |





Dimensions of AHT21B Sensor (Unit :mm, tolerance not specified :0.2mm)

Sensor performance

传感器性能

| Parameter | Conditions | Minimum | A typical | Biggest | Unit |
|-----------------------------|------------|---------|-----------|----------------------|--------|
| Resolution of the | A typical | - | 0.024 | - | %RH |
| Accuracy error ¹ | A typical | - | ±3 | As shown in figure 1 | %RH |
| Repetitive | - | - | ±0.1 | - | %RH |
| Hysteresis | - | - | ±1 | - | %RH |
| Nonlinear | - | - | <0.1 | - | %RH |
| Response time ² | 63% | - | <8 | - | S |
| Area of Work ³ | - | 0 | - | 100 | %RH |
| Long drift ⁴ | Normal | - | <1 | - | %RH/yr |

▲湿度特性表

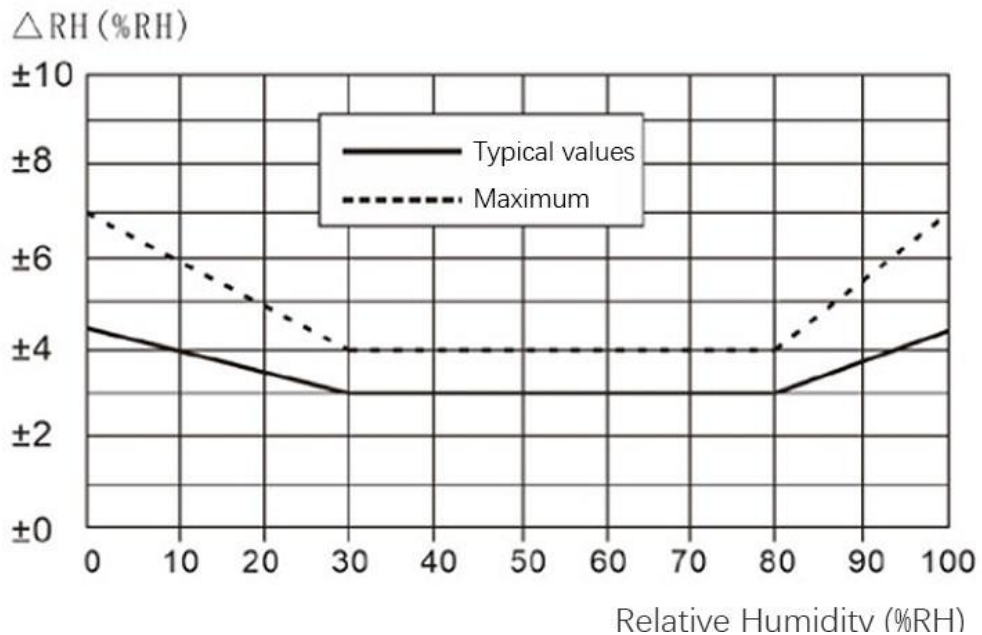


Fig. 1 Typical error and maximum error of relative humidity at 25°C

| Parameter | Conditions | Minimum | A typical | Biggest | Unit |
|-----------------------------|------------|----------------------|-----------|---------|-------|
| Resolution of the | A typical | - | 0.01 | - | °C |
| Accuracy error ⁷ | A typical | - | ±0.5 | - | °C |
| | Biggest | As shown in figure 2 | | - | °C |
| Repetitive | - | - | ±0.1 | - | °C |
| Hysteresis | - | - | ±0.1 | - | °C |
| Response time ⁸ | 63% | 5 | - | 30 | s |
| Scope of work | - | -40 | - | 80 | °C |
| Long time drift | - | - | <0.1 | - | °C/yr |

▲ Temperature characteristic table

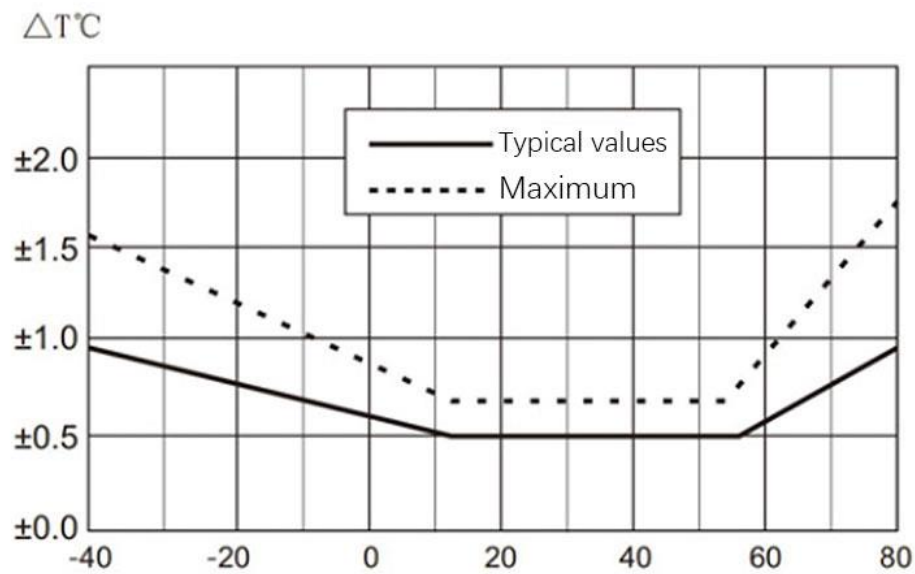
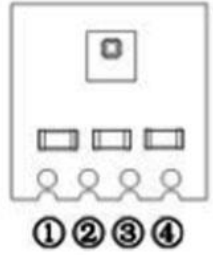


Fig. 2 Typical error and maximum error of temperature

Interface definition

接口定义

| Pin | Name | Paraphrase |  |
|-----|------|---------------------------|---|
| 1 | VDD | Connect power (2.2-5.5 V) | |
| 2 | SDA | Serial data, two-way | |
| 3 | GND | Power to | |
| 4 | SCL | Serial clock, two-way | |

AHT21B Pin Distribution (Top View)

Power Pin (VDD,GND)

The AHT21B has a power supply range of 2.2-5.5V.

Serial clock SCL

SCL is used for communication synchronization between microprocessor and AHT21B. Because the interface contains completely static logic, there is no minimum SCL frequency.

Serial data SDA

SDA pins are used for data input and output of the sensor. The SDA is effective on the rising edge of the serial clock (SCL) when sending commands to the sensor, and the SDA must remain stable when the SCL is at high levels. After the SCL falling edge, the SDA value can be changed. To ensure communication security, the effective time of SDA should be extended to TSU and THO before the rising edge of SCL and after the falling edge of SCL. When reading data from the sensor, the SDA is effective after the SCL is low (TV) and remains until the falling edge of the next SCL.





Fig. 3 Typical application circuit

Pay attention to

1. The product in the circuit use of the host MCU power supply voltage must be with the sensor - to;
2. If you need to step to improve the reliability of the system, you can control the sensor power supply.
3. When the system is just powered on, give priority to supply power to the sensor VDD, and SCL and SDA high level can be set after 5ms.

Product will

产品实拍

