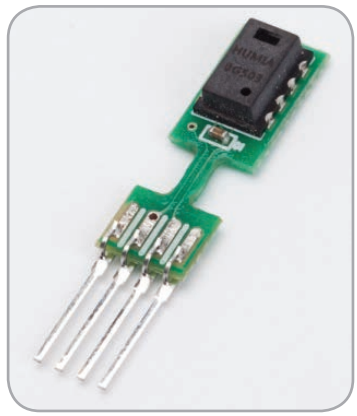
TELAIRE®

ChipCap® 2-SIP
Humidity and Temperature Sensor



Description

ChipCap 2-SIP by Telaire is a Single In-Line Package type of ChipCap with ready installed V-Core capacitor for easy and convenient application.

ChipCap offers the most advanced and cost effective humidity and temperature sensing solution for virtually any type of applications. Capacitive polymer sensor chip developed and fabricated in-house and CMOS integrated circuit with EEPROM are integrated into one embedded system.

Individually calibrated and tested, ChipCap 2-SIP performs ±2% from 20% to 80%RH (±3% over entire humidity range), and yet is simple and ready to use without further calibration or temperature compensation.

ChipCap 2-SIP offers another sensible sensing solution for excellent reliability, high accuracy, and cost effective sensing applications.

Features

- Fully Calibrated & Temperature Compensated
- Digital (I^2C) Output
- Precision and Accuracy (±2%RH, ±0.3°C, 14 bit)
- Free Operating Voltage (min 2.3V to max 5.5V)
- Low Current Consumption
- SIP (Single-In-line-Package)
- Reliable in Harsh Environment
- Eliminates the reconditioning procedure needed for surface mount RH sensors
- Field replaceable
- Allows better air circulation and response time

Applications

- Energy Saving HVAC Control: Air Conditioning, Refrigeration, IAQ monitoring, Vent Fans, Home Appliances, Humi/Dehumidifiers
- Process Control and Instrumentation: Sensor Performance
- Medical Instruments, Handheld Devices, Weather Stations, Food Processing, Printers, RFIDs
- Automobile & Transportation Cabin Climate Control, Defogging Control, Condensing Preventive Devise
- Mass Quantity Application: OEM custom specification available

Amphenol

Advanced Sensors

Sensor Performance

Relative Humidity (RH%)

* Custom Accuracy Tolerance Available

Resolution	14 bit (0.01%RH)
Accuracy[1]	±2.0%RH (20~80%RH)*
Repeatability	±0.2 %RH
Hysteresis	+/- 1.0%RH
Linearity	<2.0 %RH
Response time[2]	4.0 sec (63%)
Temp Coefficient	0.05%RH/°C @50%RH and 0.15RH/°C @90RH (both 10-60°C)
Operating range	0 ~ 100 %RH (Non-Condensing)
Long term drift	<0.5 %RH/yr (Normal condition)

Temperature (°C)

Resolution	14 bit (0.01°C)
Accuracy[3]	±0.3°C (Figure 2)
Repeatability	±0.1°C
Response time	5.0 sec (63%)
Operating range	- 40 ~ 125 °C
Long term drift	<0.05 °C/yr (Normal condition)

1. *Accuracies measured at 25°C, 5.0V*
2. *Measured at 25°C, 1m/sec airflow for achieving 63% of step from 33%RH to 90%RH*
3. *Accuracies measured at 25, 5.0V*
4. *Min 5.0 sec, Max 20 sec*

Figure 1. Typical RH% Accuracy at 25°C

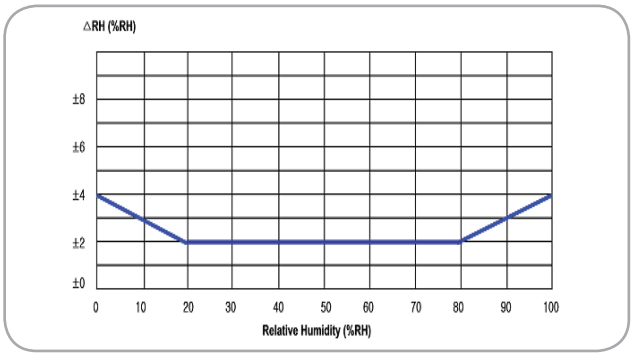
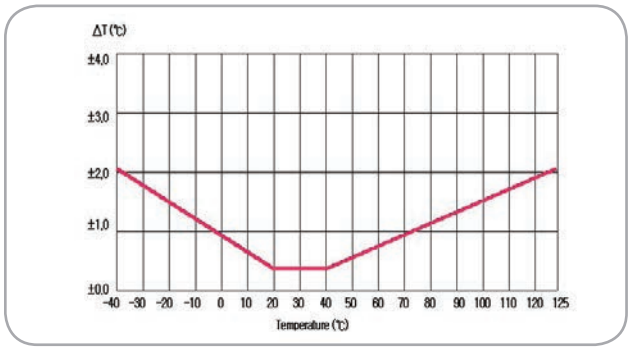
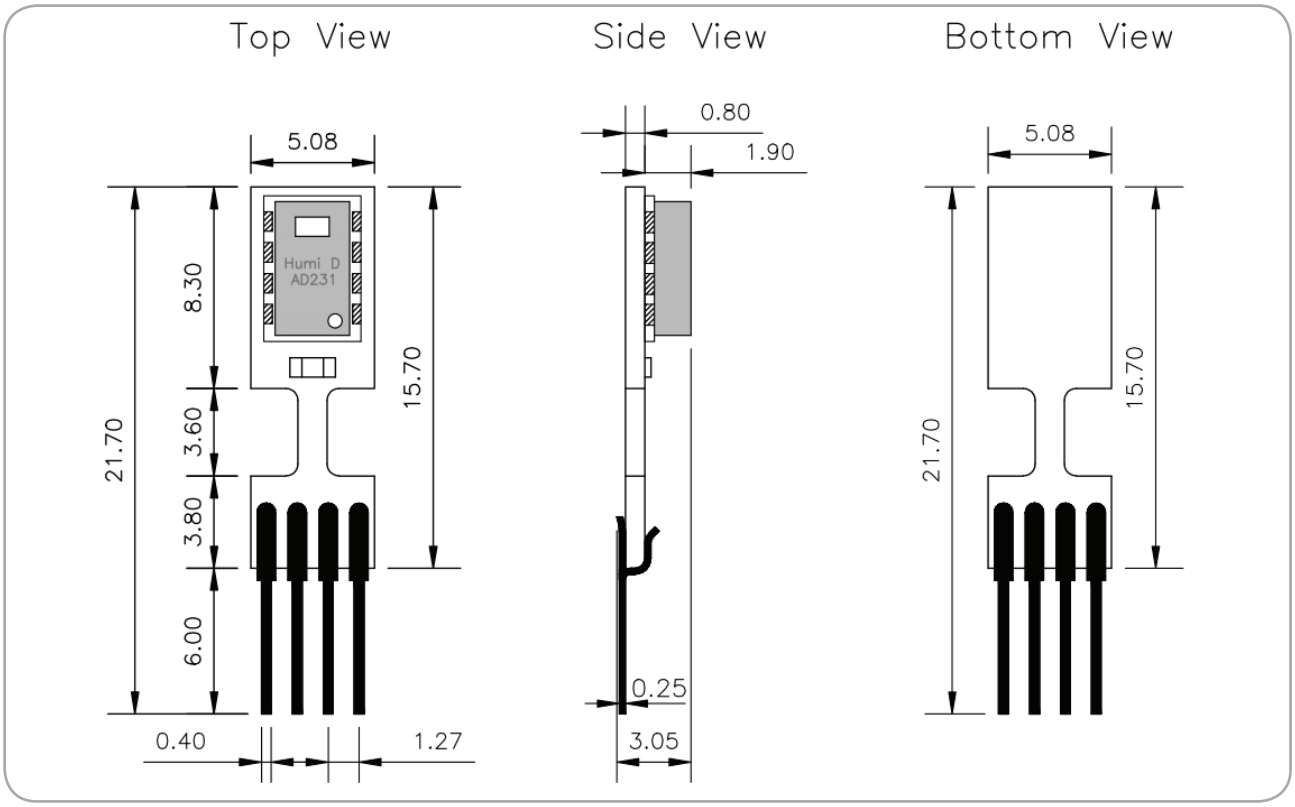


Figure 2. Typical Temperature Accuracy



Dimensions

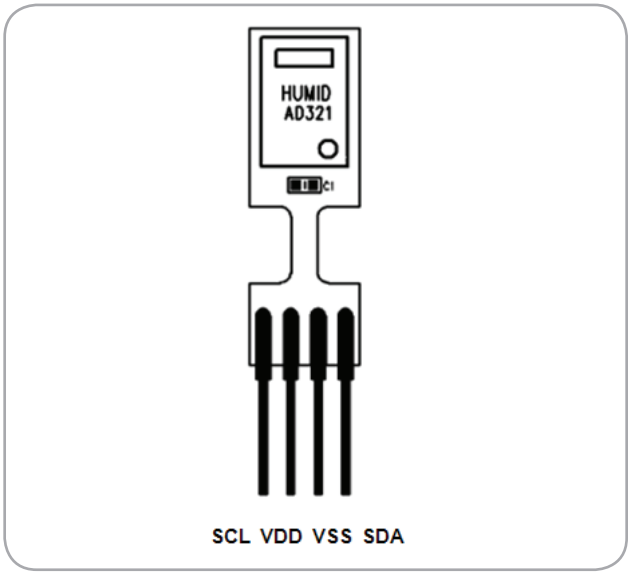


Electrical Specification

Supply Voltage*1	1 min 2.3V ~ max 5.5V
Supply Current (I_{DD})	750 µA (typical)
Sleep Current (Isleep)*2	0.6 µA (typical)

1. Lower than 2.7V supply voltage may increase the accuracy tolerance of the Temperature.
2. At -40 ~85°C

Pin Connection



**.Chip on Board is 100 nF capacitor for Vcore.*

Package Contents

ChipCap® 2-SIP consists of a ChipCap 2 and a V-core capacitor soldered on the top of a FR4 substrate. Lead Pins are made of Cu, Sn, P alloy and all parts are fully RoHS and REACH compliant.

Ordering Information

Output	Accuracy	VVD	Mode	Part Number
I²C	2%	3.3 V	Update	CC2D23-SIP
I²C	2%	5 V	Update	CC2D25-SIP
I²C	2%	3.3 V	Sleep	CC2D23S-SIP
I²C	2%	5 V	Sleep	CC2D25S-SIP
I²C	3%	3.3 V	Update	CC2D33-SIP
I²C	3%	5 V	Update	CC2D35-SIP
I²C	3%	3.3 V	Sleep	CC2D33S-SIP
I²C	3%	5 V	Sleep	CC2D35S-SIP

Environmental

Operating Temperature	- 40 ~ 125°C
Operating Humidity	0~100%RH (non condensing)

Absolute Maximum Rating

Parameter	Min	Max
Supply Voltage (VDD)	-0.3V	6.0V
Storage Temp	-55°C	150°C
Junction Temp	-55°C	150°C

Soldering Information

Standard or IR Solder Reflow.

Tp: 260°C, tp: 40 sec. (qualify Pb free profile) For manual soldering, contact time should not exceed 4 seconds at up to 350°C.

Shipping

Tray : 100 ea
Inner Box : 500 ea
Out Box : 5,000 ea

Standard Digital (I²C) Output :
Factory setting is Sleep Mode and calibrated at 3.3V.

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