

SHT-30-ARP-B

Temperature & Humidity Sensor
Analog output module (DFN-8)



Features

- Fully calibrated, Linearized Temp compensated sensor
- Wide input : 2.4~5.5V
- Low power consumption (217 μ A,2Hz)
- Analog voltage output
- Small foot print 2.5 x 2.5 x 0.9mm(8pins)

Application

- HVAC
- Automotive
- Humidifiers
- Medical
- Automation
- Measurement
- Weather station
- Data Logger
- White Goods
- Consumer Goods

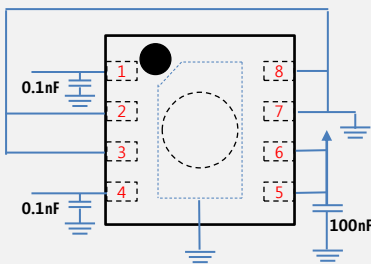
Humi Specifications

Range	0~100%RH
Accuracy (@ 25°C)	$\pm 3.0\%$ RH(10 to 90%RH)
	$\pm 4.5\%$ RH(Other Range)
Hysteresis	$\pm 0.8\%$ RH @ 25°C
Resolution	14bit
Response time	time < 8s ($\tau 63$)

Temp Specifications

Range	-40~125°C
Accuracy	$\pm 0.3^\circ\text{C}$ (10 to 55°C)
	$\pm 1.3^\circ\text{C}$ (Other Range)
Resolution	14bit
Response time	>2s ($\tau 63$)

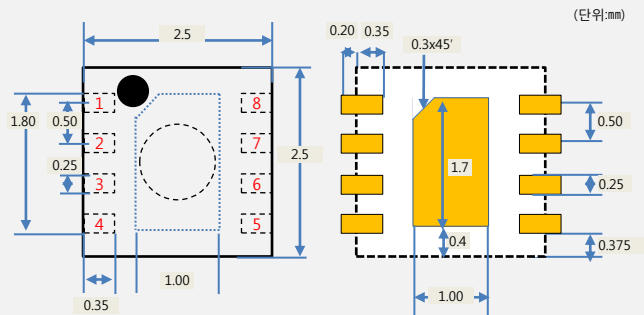
Pin layout



PIN	I/O	Description
1	RH	Humidity Voltage out
2	-	N/C, connect to VSS
3	-	N/C, connect to VSS
4	T	Humidity Voltage out
5	VDD	Supply Voltage,Input
6	nRESET	Active Low, If not used, connect to VDD
7	-	N/C, connect to VSS
8	VSS	GROUND
9	Die Pad	Connect to VSS

Top view through package

Dimensions & Solder pattern



Top view of Sensor

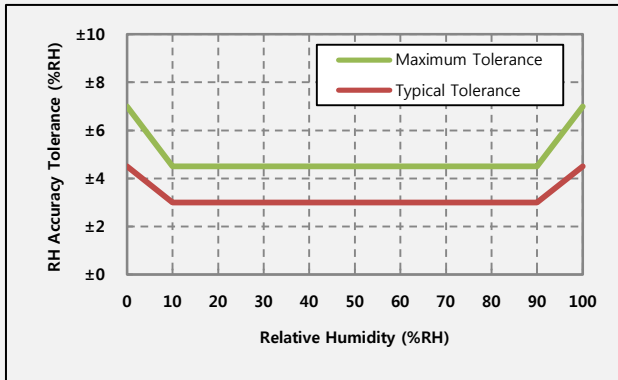
Top view of PCB

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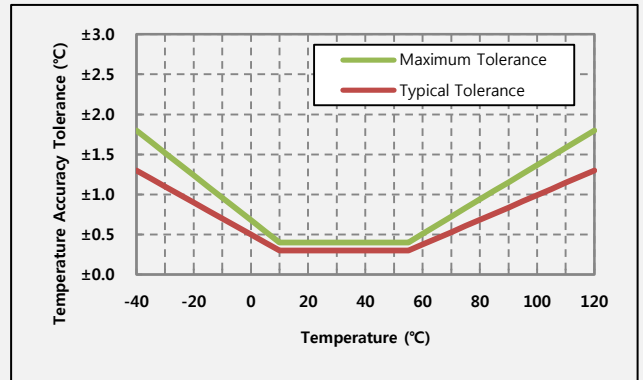
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Tolerance



Tolerance of Relative Humidity @ 25°C



Tolerance of Temperature

Electrical Specifications

Parameters	Units	Min	Typ	Max
Supply Voltage	V	2.4	3.3	5.5
Supply Current (2Hz)	μA(Avr.)		217	

Environmental conditions

Parameters	Units	Ratings
Operating Temperature range	°C	-40 ~ 125
Storage Temperature range	°C	-55 ~ 150

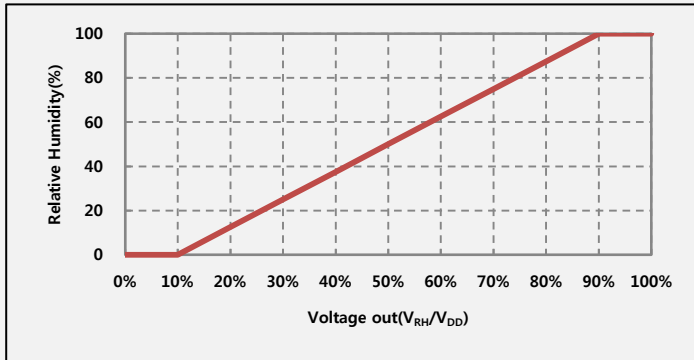
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Output

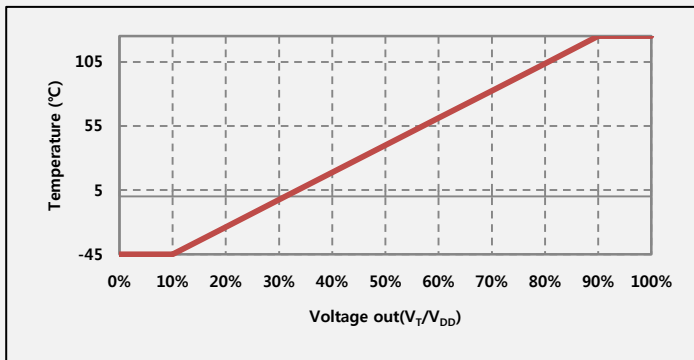
1) Relative Humidity output



$$RH[\%] = -\frac{10}{0.8} + \frac{100}{0.8} \times \frac{V_{RH}}{V_{DD}}$$

- RH : Relative Humidity (%)
- V_{RH} = Relative Humidity Voltage Out
- V_{DD} = Supply Voltage

2) Temperature output



$$T[^\circ\text{C}] = -45 - \frac{17.5}{0.8} + \frac{175}{0.8} \times \frac{V_T}{V_{DD}}$$

- T : Temperature (°C)
- V_T = Temperature Voltage Out
- V_{DD} = Supply Voltage

Tip for HT-01SV user

Changing point	HT-01SV	SHT30-ARP-B
Size	8 x 6.5 x 2.05 mm	2.5 x 2.5 x 0.9 mm
Output Formula	$RH[\%] = (V_{RH} \div V_{DD}) \times 100$ $T[^\circ\text{C}] = (V_T \div V_{DD}) \times 165 - 40$	$RH[\%] = (V_{RH} \div V_{DD}) \times 125 - 12.5$ $T[^\circ\text{C}] = (V_T \div V_{DD}) \times 217.75 - 66.875$