

ETH-01S-D

Temperature & Humidity Sensor
Digital(I²C) output module (DFN-6)



Features

- Fully calibrated, Linearized Temp compensated sensor
- Wide input : 1.8~5.5V
- Low power consumption (24.4μA)
- Digital I²C interface
- Small foot print 3 x 2.41 x 0.8mm (6pins)

Application

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

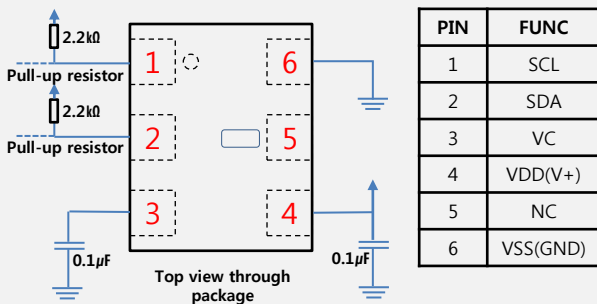
Humi Specifications

Range	0~100%RH
Accuracy (@ 25°C)	±3.8%RH(20 to 80%RH)
	±5.0%RH(Other Range)
Hysteresis	±1.0%RH @ 25°C
Resolution	14bit
Response time	time < 6s

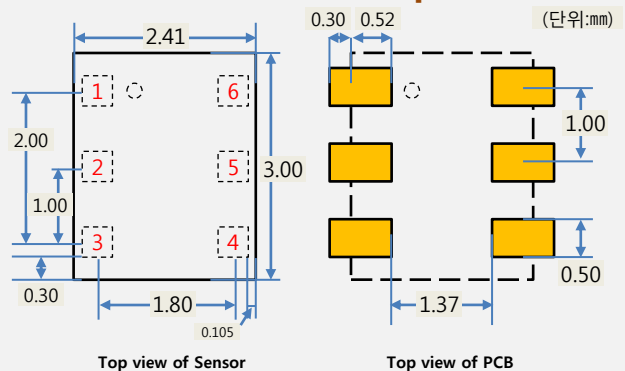
Temp Specifications

Range	-40~125°C
Accuracy	±0.3°C (0 to 70°C)
	±0.5°C(Other Range)
Resolution	14bit
Response time	>5s (τ63)

Pin layout



Dimensions & Solder pattern

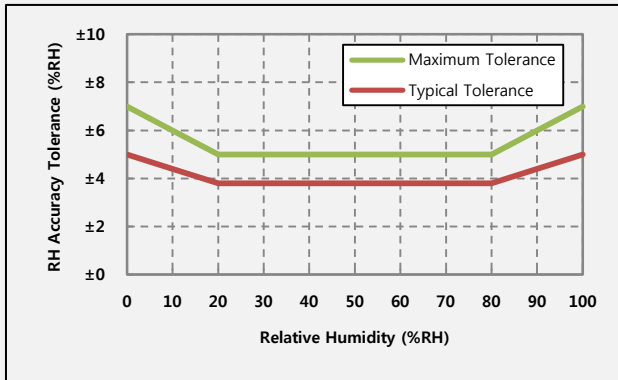


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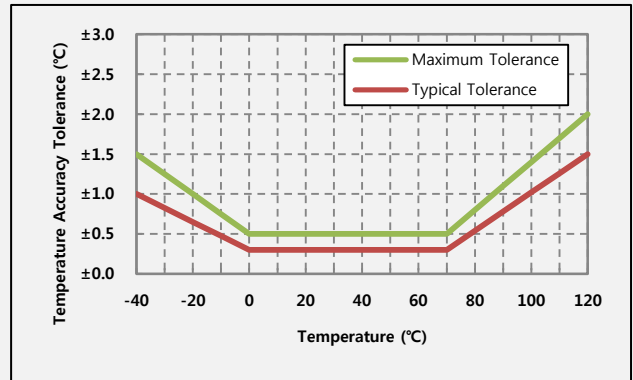
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Tolerance



Tolerance of Relative Humidity @ 25°C



Tolerance of Temperature

Electrical Specifications

Parameters	Units	Min	Typ	Max
Supply Voltage	V	1.8	3.3	5.5
Supply Current (14bit)	μA(Avr.)	20.1	24.4	24.4
Sleep Current	μA		0.6	

Environmental conditions

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

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I²C Protocol

Step 1

Initiation of measurement sequence

I2C slave address **0x44** (7bit)
Data Rate upto 400kHz



I2C Address **0x44** = 1000100, Write = 0

Step 2

Request for measurement data transfer



I2C Address **0x44** = 1000100, Read = 1

S Start bit from the master

P Stop bit from the master

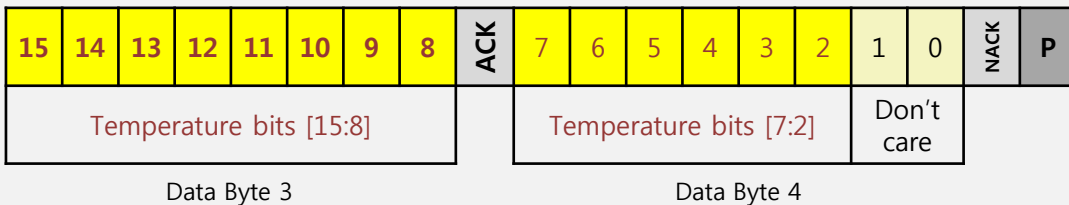
Bits generated by Master

Bits generated by Sensor

Relative Humidity data transfer



Temperature data transfer



RH and Temp formula :

○ Humidity [%RH] = Humidity[13:0] ÷ (2¹⁴-1) × 100

○ Temperature [°C] = (Temperature [15:2] ÷ 4) ÷ (2¹⁴-1) × 165 - 40