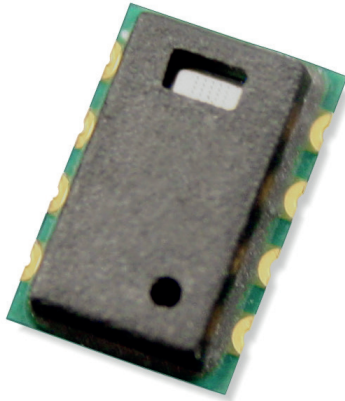


# DATA SHEET



## Digital humidity sensor HYT131

### Description



#### Humidity measurement

Humidity measuring range <sup>2</sup>	0 ... 100% RH see figure 3
Humidity accuracy <sup>1</sup>	max $\pm 3\%$ RH see figure 1
Reproducibility	$\pm 0,2\%$ RH
Hysteresis (50% RH)	$< \pm 2\%$ RH
Humidity resolution	0,01% RH, 14 bit
Linearity error	$< \pm 2\%$ RH
Response time $t_{63}$	$< 7$ s
Tk Residual error (50% RH)	0,06% RH/K (0...60 °C)
Long term drift	$< 0,5\%$ RH/a

#### Temperature measurement

Temperature measuring range	-40...+125 °C
Temperature accuracy	$\pm 0,3$ °C (20...40 °C) see figure 2
Reproducibility	$\pm 0,1$ K
Response time $t_{63}$	$< 5$ s
Temperature resolution	0,03 °C
Long term drift	$< 0,05$ K / a

#### Operating data

Operating voltage	2,3...5,5 V
Current consumption (Nominal)	$< 750\mu$ A
Current consumption (Sleep)	$< 1\mu$ A
Einsatztemperatur	-40...125 °C
Application temperature	0...100% RH
Humidity application range	I <sup>2</sup> C, address 0x28 or alternative address

#### Limits

Operating voltage	-0,3...6,0 V
Storage temperature	-20...+50 °C

### Characteristic features

- Measuring range 0 ... 100 % RH, -40 ... 125 °C
- Precisely calibrated and temperature compensated
- designed for automated processing
- Micro-system structure
- Dimensions 4 x 6 x 1.9 mm
- Accuracy  $\pm 3\%$  RH, Temperature  $\pm 0.3$  °C
- Dew formation resistant
- Low Hysteresis
- Compensated Linearity error and Temperature drift
- Operating voltage 2.3 ... 5.5V
- I<sup>2</sup>C, address 0x28 or alternative address
- RoHS conformance

### Application

- Consumer products
- Home automation
- Air conditioning

### Features

With the application of inexpensive FR4 Epoxy substrate and a simplified calibration process, this SMD variant normally offers the similar performance characteristics of the product family at the most favourable price performance ratio of its class.

The basic accuracy of  $\pm 3\%$  RH and  $\pm 0.3$  °C is higher than the accuracy of regular competitor's products, with clearly better chemical resistance and long-term stability.

Despite the miniaturised dimensions of only 4 x 6 x 1,9 mm, this digital humidity sensor offers a measuring range of 0 ... 100% RH as well as -40 ... 125 °C and therefore has a wide application window.

The signal processing integrated in the sensor completely processes the measured values and directly delivers the physical parameters of relative humidity and temperature over the I<sup>2</sup>C compatible interface as digital values. The module is precisely calibrated at works and hence, it is fully interchangeable without adjustment. Both the linearity error as well as temperature drift are corrected "OnChip" through computation, because of which an outstanding accuracy is achieved over a wide range of application.

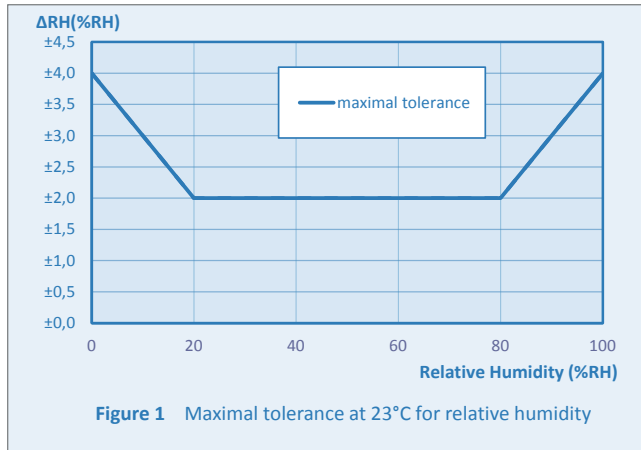
Because of the automatic processing, the production costs are minimised, and hence, saving potentials are fully utilised. Therefore, this model is ideal for commercial applications and is of interest in the higher volume range. Especially low cost consumer products, building automation and air-conditioning systems are typical areas of application.

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## Digital humidity sensor HYT131

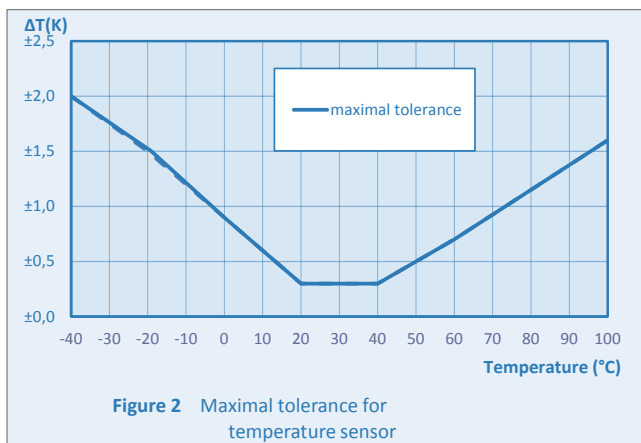
### Relative humidity accuracy



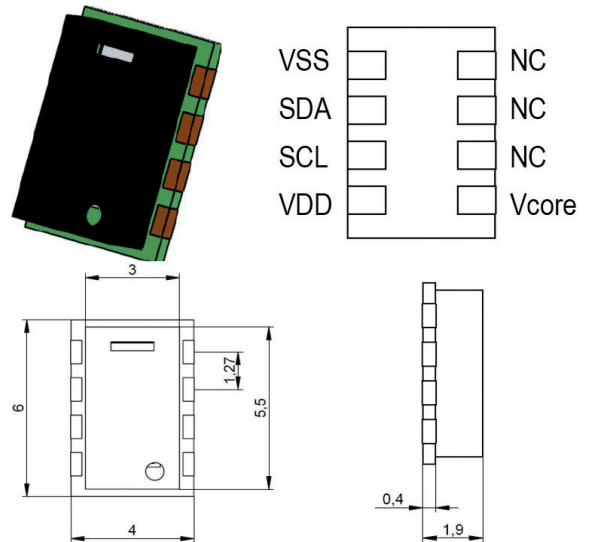
<sup>1</sup> The accuracy is tested at 23 °C and 3.3 V operating voltage in the direction of rising humidity. The accuracy does not include Tk-Residual error, residual linearity error or Hysteresis effect.

<sup>2</sup> The maximum dew point is brought down to 80 °C.

### Temperature measurement accuracy



### Mechanical dimensions



### Ordering information

Article

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Art.-No.: HYT131