



# P14-W

## Capacitive Humidity Sensor

### Optimal for various humidity applications

#### Benefits & Characteristics

- High chemical resistance
- Wide temperature range
- Resistance to condensation
- Fast recovery time
- Very low drift
- High humidity stability
- Customer-specific sensor available upon request

#### Illustration<sup>1)</sup>



1) For actual size, see dimensions

#### Technical Data

|   | Wired  | SMD               |
|---|--|-------------------|
| Dimensions (L x W x H / H2 in mm):                                    | 5 x 3.81 x 0.4 / 0.8   | 6.35 x 2.54 x 0.4 |
| Capacitance at 30 % RH and +23 °C (C <sub>30</sub> ):*                | 150 pF ±50 pF  | 180 pF ±50 pF     |
| Sensitivity at C <sub>30</sub> = 150 pF/ 180 pF (15 % RH to 90 % RH): | 0.25 pF/% RH   | 0.3 pF/% RH       |
| Operating humidity range:   | 0 % RH to 100 % RH (maximal dew point +85 °C)  |                   |
| Operating temperature range:  | -50 °C to +150 °C  |                   |
| Loss factor:  | < 0.01 (at +23 °C, at 10 kHz, at 90 % RH)  |                   |
| Linearity error:  | < 1.5 % RH (15 % RH to 90 % RH at +23 °C after one point calibration)  |                   |
| Hysteresis:   | < 1.5 % RH   |                   |
| Response time t <sub>63</sub> :                                       | < 5 s (50 % RH to 0 % RH at +23 °C)  |                   |
| Temperature dependence (nominal):                                     | $\Delta \% RH = (B1 \times \% RH + B2) \times T [^\circ C] + (B3 \times \% RH + B4)$<br>B1 = 0.0014 [1/ °C]                      B2 = 0.1325 [% RH/ °C]<br>B3 = -0.0317                                B4 = -3.0876 [% RH] |                   |
| Measurement frequency:  | 1 kHz to 100 kHz (recommended 10 kHz)  |                   |
| Maximal supply voltage:   | < 12 V <sub>pp</sub> AC  |                   |
| Signal form:  | alternating signal without DC bias   |                   |
| Connections:*   | CuP-SiL-wire post-plated with Sn, 10 mm or Au/Cu-wire, Ø 0.4 mm, 10 mm, or SMD, automatic assembly compatible  |                   |

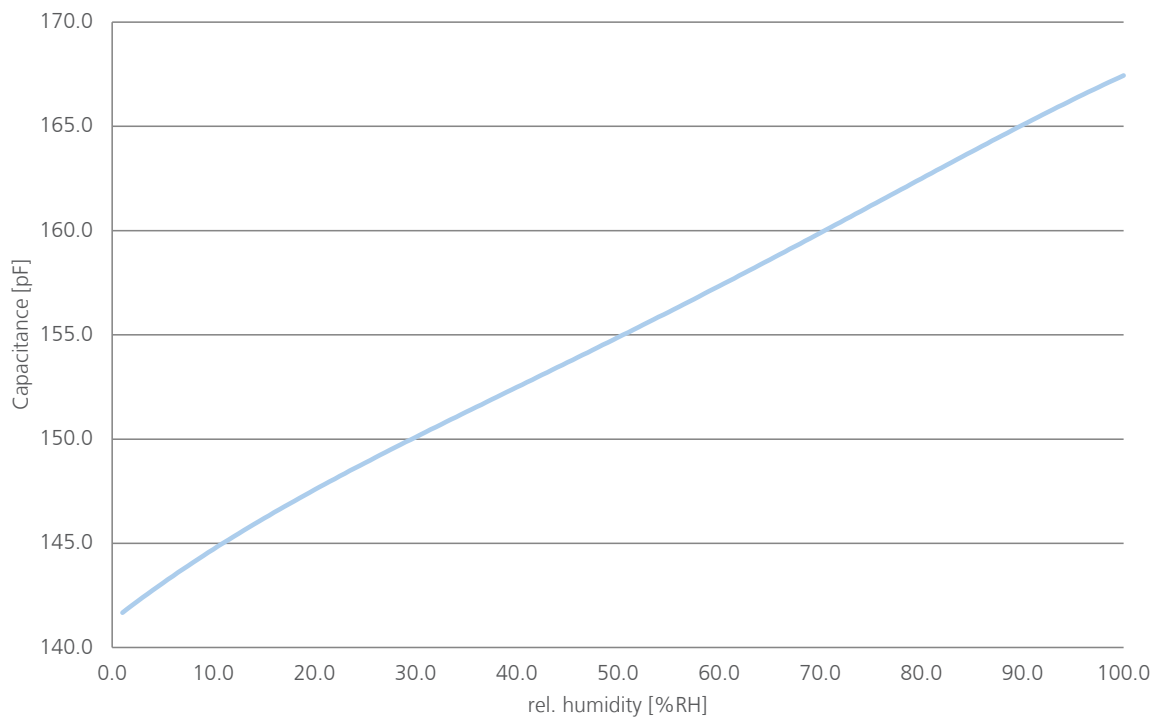
\* Customer-specific alternatives available



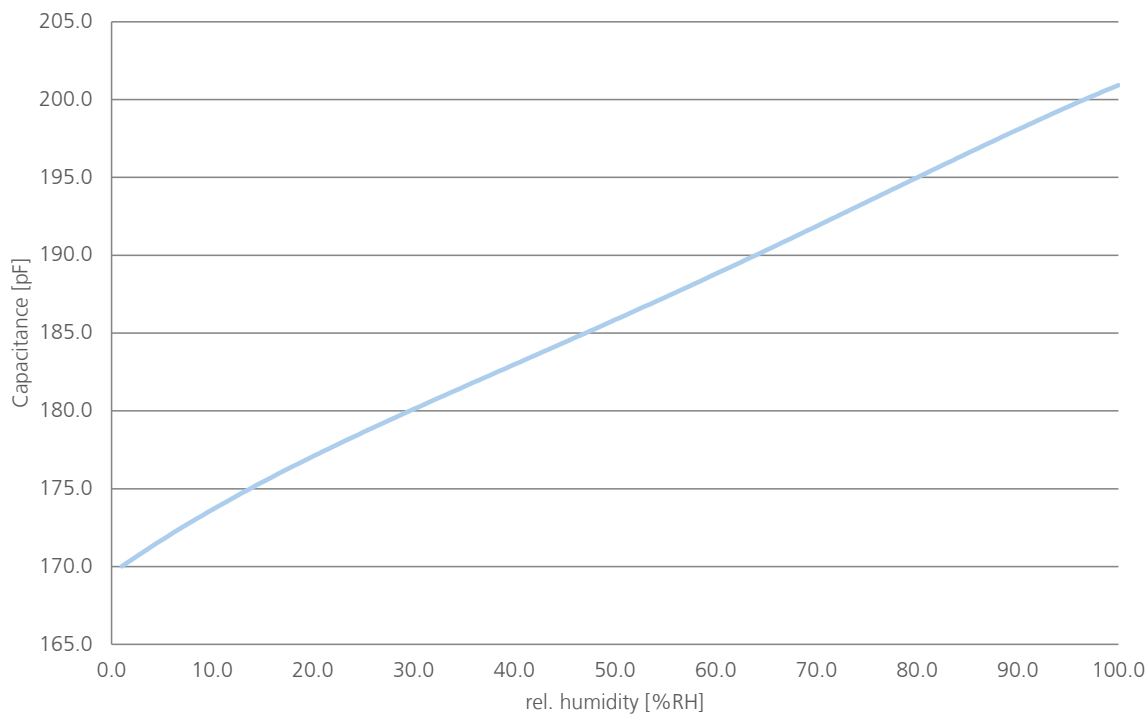
The calibration of the sensor must be done 5 days after soldering at the earliest.

## Characteristic Curve

### Wired

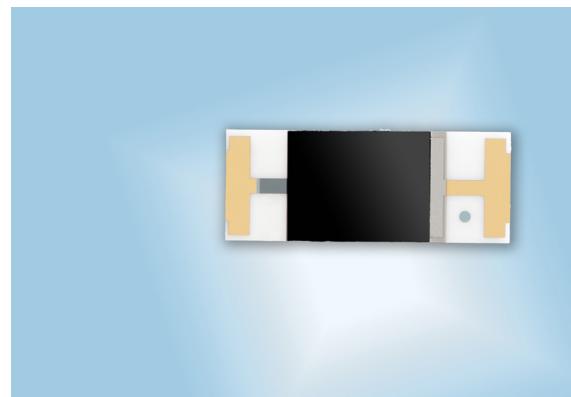
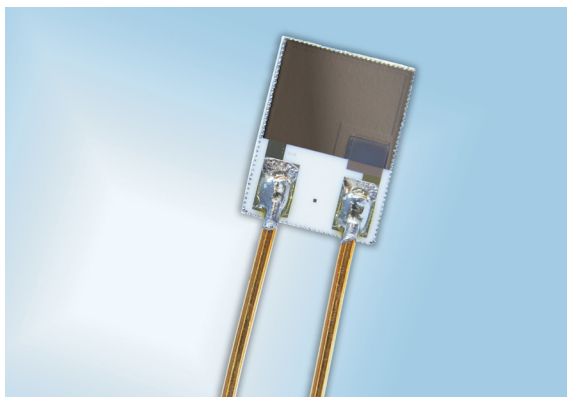


### SMD





Product Photos



Order Information - SIL (CuP-SIL-wire post-plated with Sn, 10 mm)

|                   |                      |                    |
|-------------------|----------------------|--------------------|
|                   | P14 (150pF<br>±50pF) |                    |
| Order code        | 103580               | replaced by 150473 |
| Former order code | 040.00191            |                    |

Order Information - SMD

|                   |                            |  |
|-------------------|----------------------------|--|
|                   | P14 SMD-G<br>(180pF ±50pF) |  |
| Order code        | 103562                     |  |
| Former order code | 040.00109                  |  |

Order Information - Au/Cu-wire, Ø 0.4 mm, 10 mm

|                   |                        |                    |
|-------------------|------------------------|--------------------|
|                   | P14-W (150pF<br>±50pF) |                    |
| Order code        | 103572                 | replaced by 150466 |
| Former order code | 040.00174              |                    |

Order Information - Cu/Ag-wire, 18 mm, AWG26, PTFE, insulated 8 mm

|                   |                          |                    |
|-------------------|--------------------------|--------------------|
|                   | P14.S-W<br>(150pF ±50pF) |                    |
| Order code        | 103577                   | replaced by 150470 |
| Former order code | 040.00184                |                    |