



# P14 Rapid 2 & P14 Rapid 2 SMD



## Capacitive Humidity Sensor



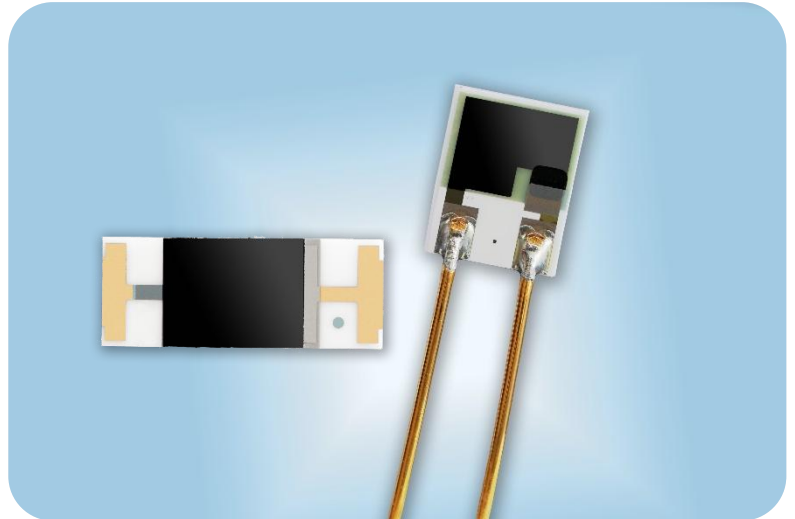
Optimal for weather balloons  
and radiosondes



### Benefits & characteristics



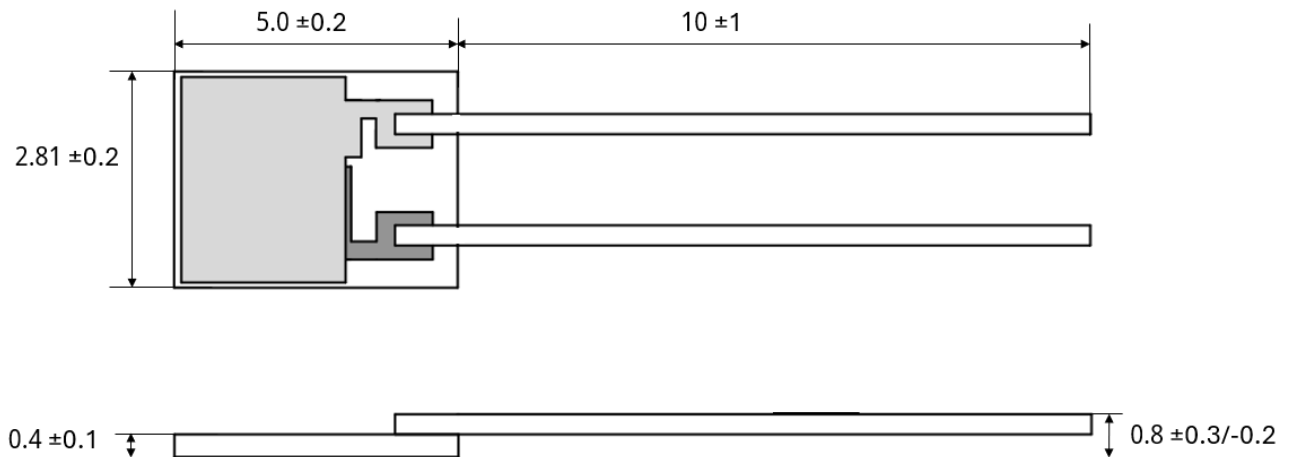
- Extraordinary fast response time: 3x faster than P14 Rapid
- Temperature shock resistant
- Fast recovery time after condensation
- High humidity stability
- Wide temperature range



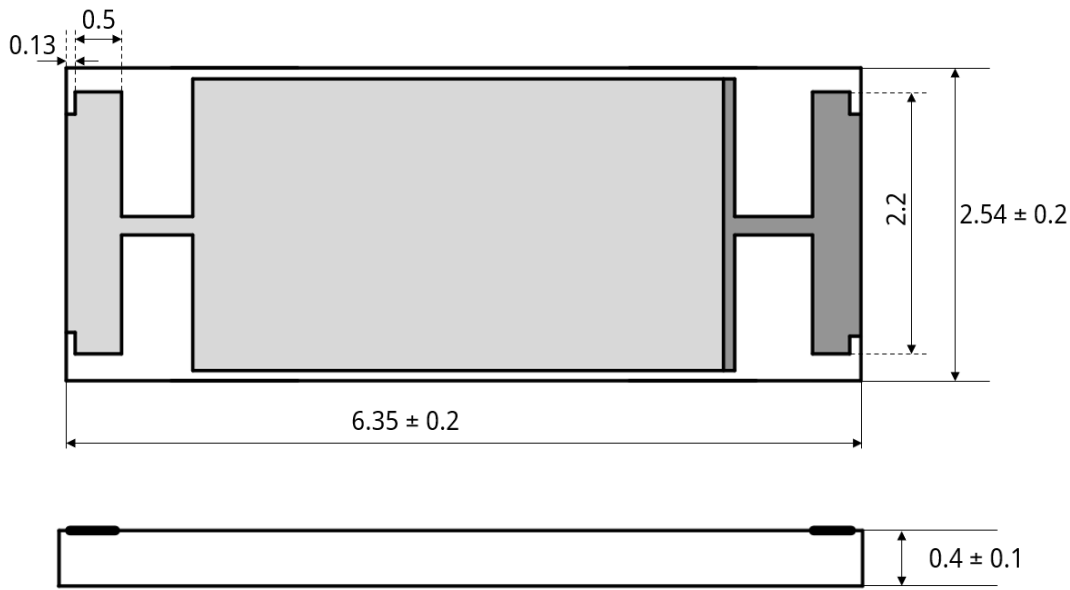
### Illustration

Measurements in mm

Sensor with wires



SMD



## Technical data

	Wired	SMD
Dimensions (L x W x H/H2 in mm):	5 x 2.81 x 0.4 / 0.8	6.35 x 2.54 x 0.4
Capacitance at 30 % RH and +23 °C	650 pF ±150 pF	
Typical sensitivity (C30 = 650 pF, 15 % RH to 90 % RH):	1.1 pF/% RH	
Operating humidity range:	0 % RH to 100 % RH (maximal dew point: +85 °C)	
Operating temperature range:	-80 °C to +150 °C	
Loss factor:	< 0.05 (at 23 °C, at 10 kHz, at 15% RH to 90 % RH)	
Linearity error:	< 1.5 % RH (15 % RH to 90 % RH at +23 °C after one-point calibration)	
Response time $t_{63}$ : <sup>2)</sup>	0.3 s ± 0.2 s (50 % RH to 0 % RH at +23 °C)	
<small>2) The response time is often measured for increasing humidity steps, whereas physics predicts that decreasing humidity leads to generally far longer response times for capacitive humidity sensors. IST thus measures response times always for decreasing humidity values, since this is the worst case</small>		
Temperature dependence (nominal):	$\Delta \% RH = (B1 \times \% RH + B2) \times T [^\circ C] + (B3 \times \% RH + B4)$	
	B1 = 0.0014 [1/ °C]    B2 = 0.1325 [% RH/ °C]	
	B3 = -0.0317            B4 = -3.0876 [% RH]	
Measurement frequency range:	1 kHz to 100 kHz (recommended 10 kHz)	
Maximal supply voltage:	< 12 V <sub>pp</sub> AC	
Signal form:	alternating signal without DC bias	





Connection: \*

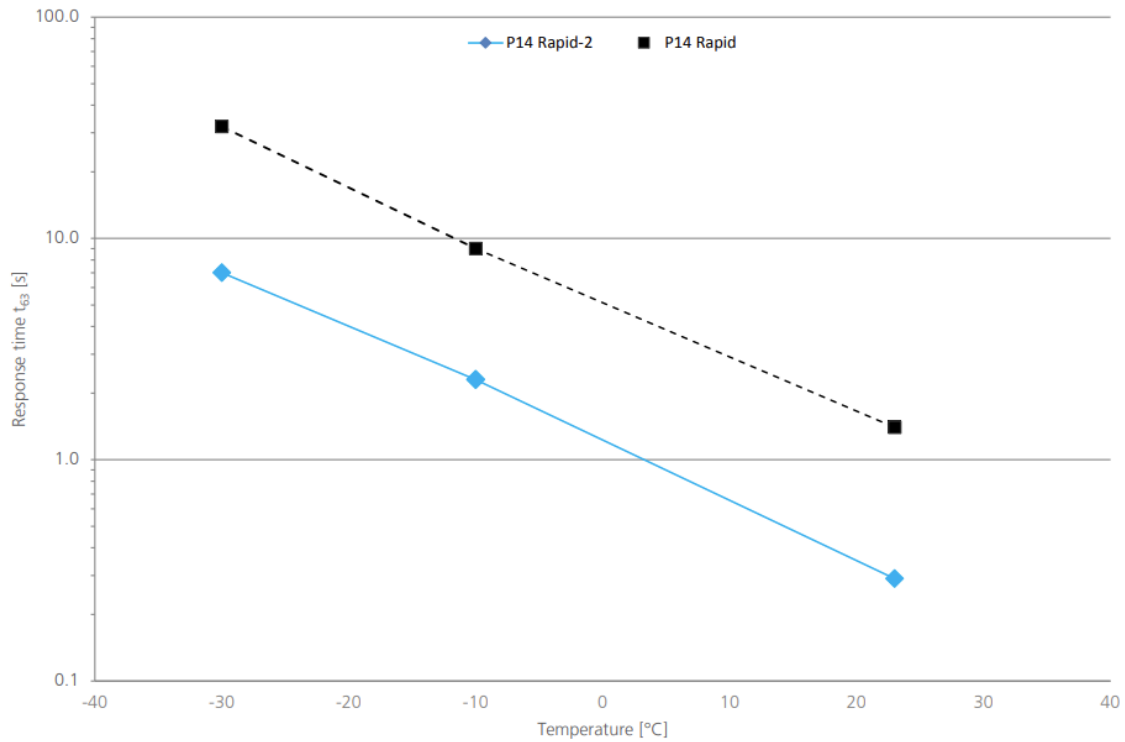
Au/Cu-wire, Ø 0.4 mm

SMD compatible for automatic assembly

\*Customer-specific alternatives available

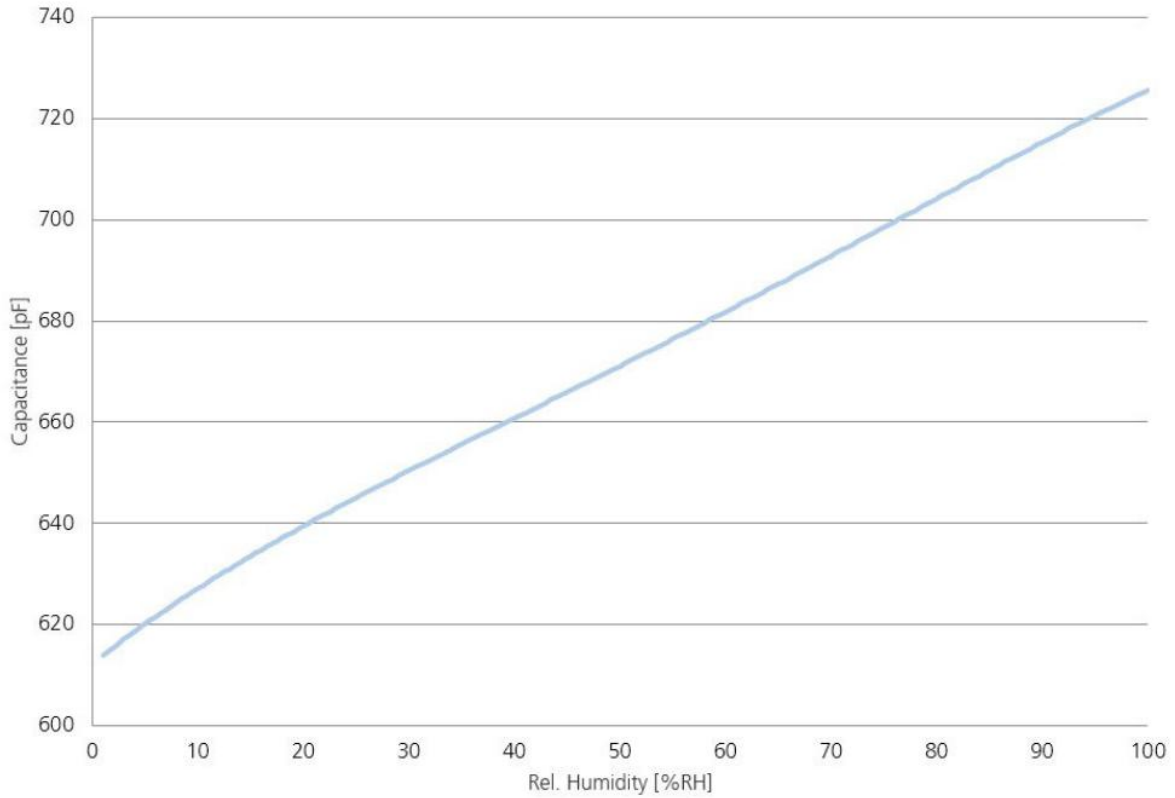
The calibration of the sensor must be done 5 days after soldering at the earliest

## Response Time





## Characteristic Curve (typical)



## Order Information

Product Title:	P14 Rapid-2	P14 Rapid-2 SMD
Order code	104932	157782

## Additional Documents

Document name:

Application Note Humidity Elements	AH_E
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