



P14 Thermo

Capacitive Humidity- and Temperature Sensor





Product

The P14 Thermo was designed especially for applications in dew point applications and humidity generators. The favourable one chip solution consists of a capacitive humidity sensor, based on the famous P14 sensor, together with a heating element which is also a valid Pt100 or Pt1000 sensor, at the same time. The achieved outstanding measurement accuracy due to optimal thermal coupling makes your application top of the edge in the industry.

Advantages

- Measure comfortably also at dew point
- Humidity and temperature sensor on one chip
- Outstanding accuracy due to optimal thermal coupling
- High chemical resistance
- Condensation resistant – fast recovering time after dewing, and at high dew point temperatures as well
- Wide temperature operating range

Technical Data

	Wired	SMD
		
Temperature Sensor:	Pt100 Ω (2 x DIN EN 60751, F0.3)	Pt100 Ω or Pt1000 Ω (DIN EN 60751, F0.3)
Humidity Operating Range:	0 ... 100% RH (max. dew point 85 °C)	0 ... 100% RH (max. dew point 85 °C)
Operating Temperature Range:	-50 ... +150 °C	-50 ... +150 °C
Capacitance (C ₃₀) (at 23 °C and 30% RH):	150 pF ± 50 pF	180 pF ± 50 pF
Sensitivity (15 ... 90% RH):	0.25 pF / % RH (at C ₃₀ = 150 pF)	0.3 pF / % RH (at C ₃₀ = 180 pF)
Loss Factor (at 23 °C, at 10 kHz, at 90% RH):	< 0.01	< 0.01
Linearity Error (15 ... 90% RH at 23 °C, after one-point calibration):	< 1.5% RH	< 1.5% RH
Hysteresis: 1 h, 20% RH at 23 °C → 1 h, 85% RH at 70 °C → 1 h, 20% RH at 23 °C	< 1.5% RH	< 1.5% RH
Response Time t ₆₃ (at 23 °C):	< 6 s (50% RH → 0% RH)	< 6 s (50% RH → 0% RH)
Frequency Range:	1 ... 100 kHz (recommended 10 kHz)	1 ... 100 kHz (recommended 10 kHz)
Maximum Operating Voltage:	< 12 V _{pp} AC	< 12 V _{pp} AC
Signal Form:	alternating signal without DC bias	alternating signal without DC bias
Connectors:	Wires or customer specific	SMD, reflow compatible



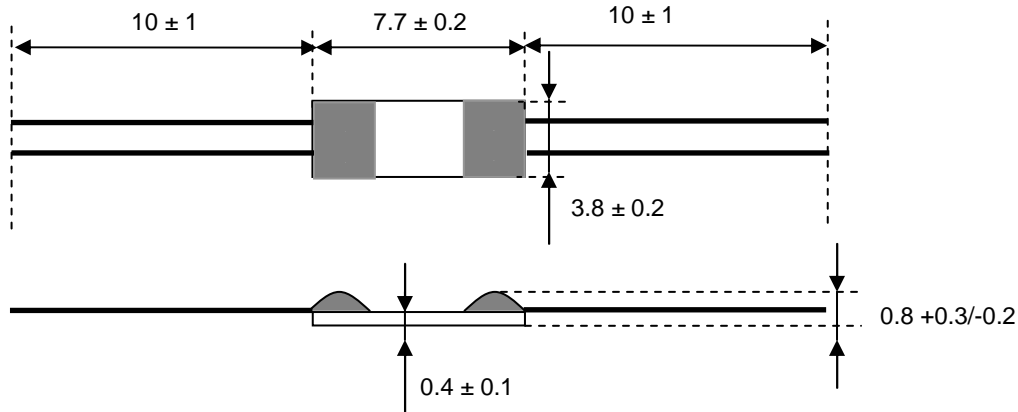
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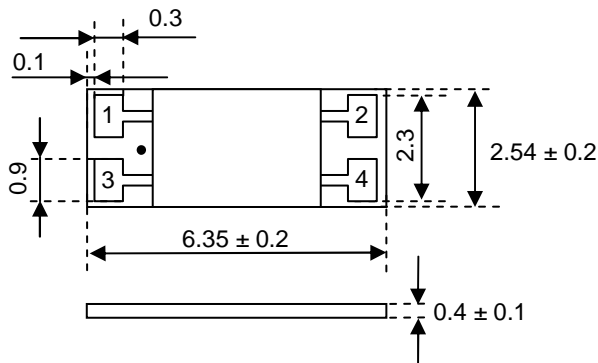
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Construction Sizes

Wired (in mm)



SMD (in mm)



- 1 Temperature sensor
- 2 Temperature sensor
- 3 Humidity sensor
- 4 Humidity sensor

All mechanical dimensions are valid at 25°C ambient temperature, if not differently indicated. ■ All data except the mechanical dimensions only have information purposes and are not to be understood as assured characteristics. ■ Technical changes without previous announcement as well as mistakes reserve. ■ The information on this data sheet was examined carefully and will be accepted as correct; No liability in case of mistakes. ■ Load with extreme values during a longer period can affect the reliability. All rights reserved. The material contained herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner. Typing errors and mistakes reserved. Product specifications are subject to change without notice. All rights reserved.



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