

# Humidity Sensor



## APPLICATIONS

- Humidity measurements in electronic hygrometers for domestic use
- Self-regulating air humidifiers, etc.

## DESCRIPTION

This capacitive atmospheric humidity sensor consists of a non-conductive foil, which is covered on both sides with a layer of gold. The dielectric constant of the foil changes as a function of the relative humidity of the ambient atmosphere and, accordingly, the capacitance value of the sensor is a measure for relative humidity. The foil is clamped between contact springs and assembled in a plastic housing. It is provided with two connecting pins which fit printed-circuit boards with a grid pitch of 2.54 mm, provision is also made for fastening with 3 mm bolts. The characteristics are not affected by incidental water condensation on the sensor foil. It should not be exposed to either acetone or chlorine vapours.

## MOUNTING

The device can be soldered directly on to a printed-circuit board or fastened with 3 mm bolts.

## SOLDERING

- Solderability:  $\leq 240\text{ }^\circ\text{C}; \leq 4\text{ s}$
- Resistance to heat:  $\leq 240\text{ }^\circ\text{C}; \leq 4\text{ s}$

## ROBUSTNESS OF TERMINATIONS

Tensile strength: 10 N

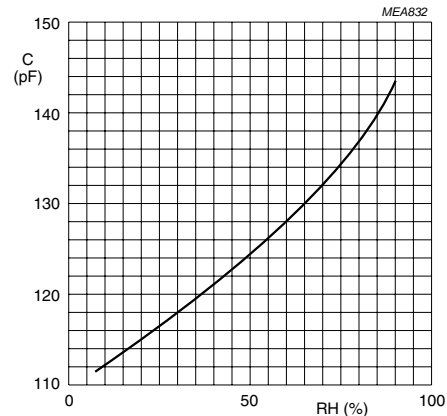
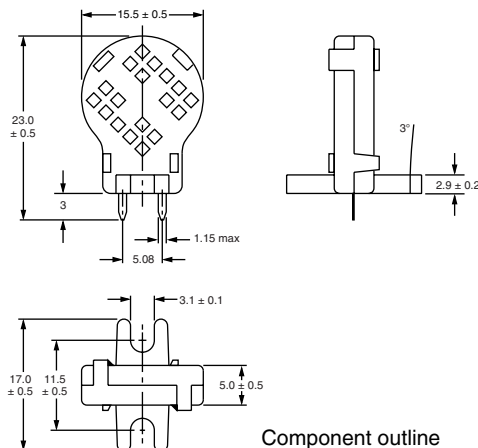
## ELECTRICAL CHARACTERISTICS

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Humidity range (RH)	10 to 90	%
Capacitance at + 25 °C; 43 % RH; 100 kHz	$122 \pm 15\%$	pF
Tan $\delta$ at + 25 °C; 100 kHz; 43 % RH	$\leq 0.035$	
Sensitivity between 12 % and 75 % RH	$0.4 \pm 0.05$	pF/%RH
Frequency	1 to 1000	kHz
Temperature dependence	+ 0.1	%RH/K
Response time in minutes (to 90 % of indicated RH change at + 25 °C, in circulating air):		
Between 10 % and 43 % RH	< 3	
Between 43 % and 90 % RH	< 5	
Hysteresis (for RH excursion of 10 % to 90 % to 10 %)	$\approx 3$	%
Maximum AC or DC voltage	15	V
Storage humidity range (RH)	0 to 100	%
Ambient temperature range:		
Operating	0 to + 85	°C
Storage	- 25 to + 85	°C
Weight	$\approx 1.3$	g

### Note

Unless otherwise stated, measurements are in accordance with "IEC publication 60539"  
 Component is 100 % lead (Pb)-free  
 Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC  
 Stability is in accordance with "CECC 43000" and "IEC 60068-2"

## DIMENSIONS in millimeters



Typical capacitance as a function of relative humidity



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