

# 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

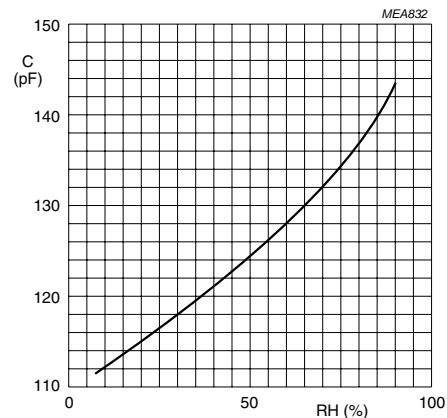
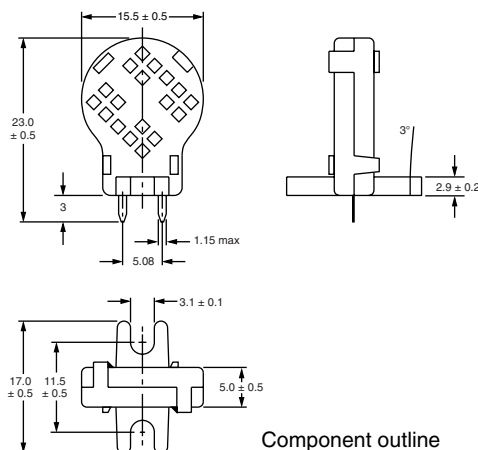
## ELECTRICAL CHARACTERISTICS

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	$^{\circ}\text{C}$
Storage	- 25 to + 85	$^{\circ}\text{C}$
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



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.