

**Humidity sensor****2322 691 90001****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.

**QUICK REFERENCE DATA**

PARAMETER	VALUE	UNIT
Humidity range (RH)	10 to 90	%
Capacitance at +25 °C; 43% RH; 100 kHz	122 ±15%	pF
Sensitivity between 12 and 75% RH	0.4 ±0.05	pF/%RH
Frequency	1 to 1000	kHz
Maximum AC or DC voltage	15	V
Storage humidity range (RH)	0 to 100	%
Ambient temperature range:		
operating	0 to +65	°C
storage	-25 to +85	°C
Drop test:		
height of free fall	1	m
Mass	≈1.3	g

## Humidity sensor

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**ELECTRICAL CHARACTERISTICS**

Unless otherwise stated, measurements are in accordance with "IEC publication 60539".

Stability is in accordance with "CECC 43000" and "IEC 60068-2".

PARAMETER	VALUE	UNIT
Humidity range (RH)	10 to 90	%
Capacitance at +25 °C; 43% RH; 100 kHz	122 ±15%	pF
Tan δ at +25 °C; 100 kHz; 43% RH	≤0.035	
Sensitivity between 12 and 75% RH	0.4 ±0.05	pF/%RH
Frequency range	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%)	±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
Mass	±1.3	g

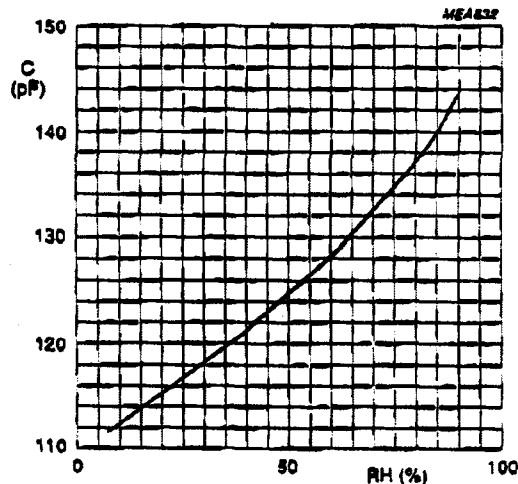


Fig.2 Typical capacitance as a function of relative humidity.

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## MECHANICAL DATA

## Marking

PHILIPS H1.

## Mounting

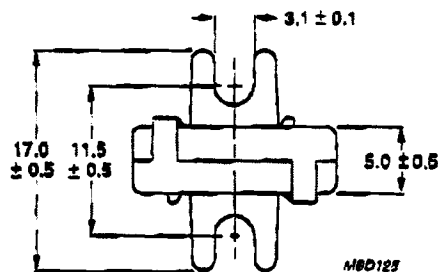
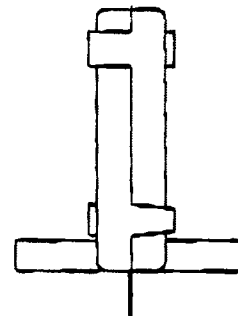
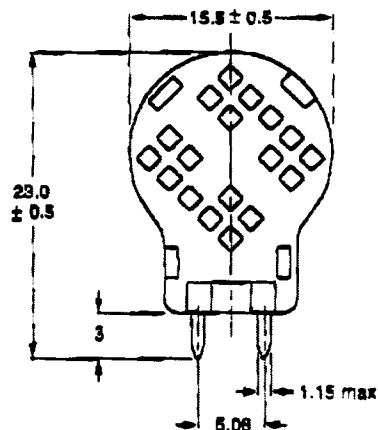
The device can be soldered directly on to a printed-circuit board or fastened with 3 mm bolts.

## 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.



Dimensions in mm.

Fig.1 Component outline.