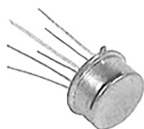


# Humidity Sensors

## Relative Humidity

HIH Series



### FEATURES

- Linear voltage output vs %RH
- Laser trimmed interchangeability
- High accuracy
- Fast response
- Stable, low drift performance
- Chemically resistant
- Built-in static protection

### TYPICAL APPLICATIONS

- Refrigeration
- Drying
- Meteorology
- Battery-powered systems
- OEM assemblies

### GENERAL INFORMATION

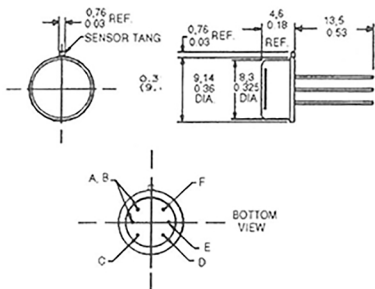
The HIH-3602-L IC (Integrated Circuit) Relative Humidity (RH) sensor delivers instrumentation quality RH sensing performance in a rugged, low cost, slotted TO-39 housing.

The RH sensor is a thermoset polymer capacitive sensing element with on-chip integrated signal conditioning. On-board signal conditioning reduces product development times while a typical current draw of only 200  $\mu\text{A}$  makes the HIH-3602-L perfect for battery powered systems.

### ORDER GUIDE

Catalog Listing	Description
HIH-3602-L	Integrated circuit humidity sensor in TO-39 can
HIH-3602-L-CP	Integrated circuit humidity sensor in TO-39 can with calibration and data printout

### MOUNTING DIMENSIONS (for reference only)

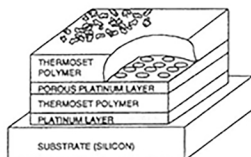


### NIST CALIBRATION

HIH-3602-L may be ordered with a NIST calibration and sensor specific data printout. Append "-CP" to the model number to order.

### RH SENSOR CONSTRUCTION

Sensor construction consists of a planar capacitor with a second polymer layer to protect against dirt, dust, oils and other hazards.



### CAUTION

#### PRODUCT DAMAGE

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation, take normal ESD precautions when handling this product.

### INTERNAL PIN CONNECTIONS

0.018 (0.46) dia. lead gold plated (6 places)	
A, B	No connection
C	+VDC supply
D	(-) Power or ground
E	VDC out
F	Case ground

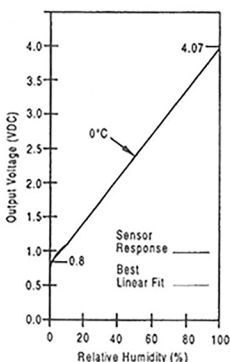
### PERFORMANCE SPECIFICATIONS

Parameter	Conditions
RH Accuracy <sup>1)</sup>	$\pm 2\%$ RH, 0-100% RH non-condensing, 25°C, $V_{\text{supply}} = 5$ VDC
RH Interchangeability	$\pm 5\%$ RH, 0-60% RH; $\pm 8\%$ @ 90% RH typical
RH Linearity	$\pm 0.5\%$ RH typical
RH Hysteresis	$\pm 1.2\%$ of RH span maximum
RH Repeatability	$\pm 0.5\%$ RH
RH Response Time, 1/e	30 seconds in slowly moving air at 25°C
RH Stability	$\pm 1\%$ RH typical at 50% RH in 5 years
Power Requirements	
Voltage Supply	4 to 5.8 VDC, sensor calibrated at 5 VDC
Current Supply	200 $\mu\text{A}$ at 5 VDC, 2 mA typical at 9 VDC
Voltage Output	$V_{\text{out}} = V_{\text{supply}} (0.0062 (\text{Sensor RH}) + 0.16)$ , typical @ 25°C (Data printout provides a similar, but sensor specific, equation at 25°C) 0.8 to 3.9 VDC output @ 25°C typical Push/pull symmetric; 50 $\mu\text{A}$ typical, 20 $\mu\text{A}$ minimum, 100 $\mu\text{A}$ maximum Turn-on $\leq 0.1$ second
Temp. Compensation	True RH = (Sensor RH)/(1.093-0.012T), T in °F True RH = (Sensor RH)/(1.0546-0.00216T), T in °C Effect @ 0% RH Effect @ 100% RH $-0.007\%$ RH/°C (negligible) $-0.22\%$ RH/°C (< 1% RH effect typical in occupied space systems above 15°C (59°F))
Humidity Range	
Operating	0 to 100% RH, non-condensing
Storage	0 to 90% RH, non-condensing <sup>2)</sup>
Temperature Range	
Operating	-40°C to 85°C (-40°F to 185°F)
Storage	-40°C to 125°C (-40°F to 257°F)
Package	Six pin TO-39 with slotted nickel cap <sup>3)</sup>
Handling	Static sensitive, diode protected to 15 kV maximum

#### Notes:

1. Extended exposure to  $\geq 90\%$  RH causes a reversible shift of 3% RH.
2. This sensor is light sensitive. For best results, shield the sensor from bright light.

### OUTPUT VOLTAGE VS RELATIVE HUMIDITY (at 0°C)



### OUTPUT VOLTAGE VS RELATIVE HUMIDITY (at 0°C, 25°C, and 85°C)

