



### HIH-4602-L



*Actual product appearance may vary.*

**HIH-4602 Series monolithic IC humidity sensor with integral precision RTD in TO-39 can**

#### Features

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

#### Potential Applications

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

#### Description

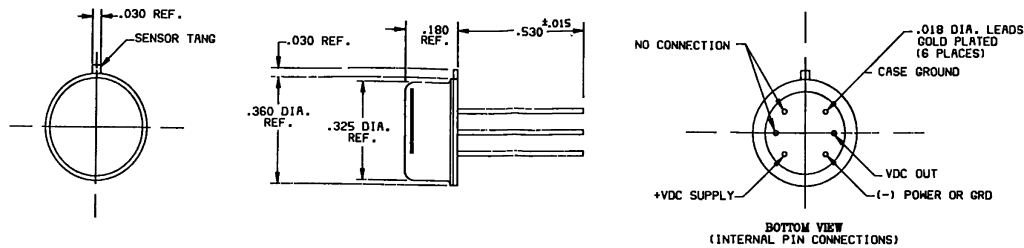
The HIH-4602-L Relative Humidity (RH) sensors deliver instrumentation-quality RH sensing performance in a rugged, low cost, slotted TO-39 housing that provides a quick response while still maintaining the robustness of an enclosed component. The laser-trimmed, thermoset polymer capacitive sensing elements have on-chip integrated signal conditioning. The HIH-4602-L-CP includes calibration and data printout.

Product Specifications	
Package Type	TO-39 can
Operating Temperature Range	-40 °C to 85 °C [-40 °F to 185 °F]
Operating Humidity Range	0% RH to 100% RH
Interchangeability	0% RH to 59% RH ±5%, 60% RH to 100% RH ±8%
Accuracy (BFSL)	±3.5%
Hysteresis	3% RH
Response Time	5 s 1/e in slow moving air
Repeatability	±0.5% RH
Settling Time	70 ms max.
Max. Supply Voltage	5.8 Vdc
Max. Supply Current	500 µA

Stability at 50% RH	±1.2% RH
Output Signal	Analog voltage
Covered Device	Yes
Moisture/Dust Filter	No
Combined Humidity and Temperature Sensor	No
Calibration and Data Printout	No
Series Name	HIH-4602
Availability	Global

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REV	DOCUMENT	CHANGED BY	CHECK
A	0008903	AS 05NOV04	AK
B	0017867	MPH 14.12.05	RK



**OPERATING CHARACTERISTICS**  
at 5.0 VDC AND 25°C UNLESS OTHERWISE NOTED

SPECIFICATION	MIN	TYP	MAX	UNIT
INTERCHANGEABILITY				
0 to 60%RH	-5		5	% RH
60% to 100%RH	-8		8	% RH
ACCURACY, (BFSL)		±3.5		% RH
ACCURACY, (2nd ORDER CURVE)		±2.5		% RH
HYSTERESIS		3		% RH
REPEATABILITY		±0.5		% RH
SETTLING TIME			70	mS
RESPONSE TIME, 1/e IN SLOW MOVING AIR		30		Sec.
STABILITY, AT 50%RH IN 1 YEAR		1.2		% RH
POWER REQUIREMENTS				
VOLTAGE SUPPLY	4		5.8	VDC
CURRENT SUPPLY			500	µA
VOLTAGE OUTPUT, 1st ORDER CURVE FIT	$V_{out} = (V_{supply}) (0.0062 (SENSOR RH) + 0.16)$ TYP at 25°C			
VOLTAGE OUTPUT, 2nd ORDER CURVE FIT	$V_{out} = 0.00003 (SENSOR RH)^2 + 0.0281 (SENSOR RH) + 0.820$ , TYP at 25°C			
TEMPERATURE COMPENSATION	$V_{out} = (0.0305 + 0.000044T - 0.000011T^2) (SENSOR RH) + (0.9237 - 0.0041T + 0.000040T^2)$ , T=TEMPERATURE IN °C			
OPERATING TEMPERATURE	-40	SEE CHART	85	°C
OPERATING HUMIDITY	0	SEE CHART	100	% RH
STORAGE TEMPERATURE	-40		125	°C
STORAGE HUMIDITY		SEE CHART		% RH

**DATA PRINTOUT (EXAMPLE)**

MODEL	HH-4602-L
CHANNEL	92
WAFER	030996M
MRP	337313
CALCULATED VALUES AT 5 V	
Vout @ 0% RH	0.958 V
Vout @ 75.3% RH	3.268 V
LINEAR OUTPUT FOR 2% RH	
ACCURACY @ 25 °C	
ZERO OFFSET	0.958 V
SLOPE	30.680 mV/%RH
RH	(Vout-ZERO OFFSET)/SLOPE
	(Vout-0.958)/0.0307
RATIOMETRIC RESPONSE FOR 0 TO 100% RH	
Vout	Vsupply (0.1915 TO 0.8130)

NOTES

- 1 - DEVICE IS CALIBRATED AT 5 VDC AND 25°C
- 2 - NONCONDENSING ENVIRONMENT
- 3 - CROSS-HATCHED OPERATING ZONE LIMITED TO <50 HOURS
- 4 - NO SPECIFICATION ZONE
- 5 - DEVICE IS RATIOMETRIC TO SUPPLY VOLTAGE
- 6 - EXTENDED EXPOSURE TO >=90% CAUSES A REVERSIBLE SHIFT OF 3% RH
- 7 - THIS SENSOR IS LIGHT SENSITIVE AND SHOULD BE SHIELDED FROM BRIGHT LIGHT TO ACHIEVE BEST PERFORMANCE



DESIGN UNITS: INCH	DRAWN	AS	05NOV04
TOLERANCES UNLESS NOTED:	CHECK	AK	05NOV04
NO PLACE .X ±	THIS DRAWING COVERS A PROPRIETARY ITEM AND IS THE PROPERTY OF HONEYWELL. THIS DRAWING IS NOT TO BE COPIED OR USED WITHOUT THE PERMISSION OF HONEYWELL.		
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THREE PLACE .XXXX ±	SCALE 3:1		
FOUR PLACE .XXXXX ±	SHEET 1 OF 2		
ANGLES X ±			

		<b>Honeywell</b>	
		TITLE <b>RH SENSOR IN TO-5 CAN                  HH-4602 SERIES</b>	
SIZE	TYPE	DRAWING NAME	REV
C	I	HH-4602-L	B