Table 1. Performance Specifications (At 3.3 Vdc supply and 25 °C [77 °F] unless otherwise noted.)

Parameter	Minimum	Typical	Maximum	Unit	Specific Note
Interchangeability (first order curve) 0% RH to 10% RH, 90% RH to 100% RH 11% RH to 89% RH	 -7 -3	 – –	 7 3	 % RH % RH	 –
Accuracy (best fit straight line) 11% RH to 89% RH	-3	–	+3	% RH	4
Hysteresis	–	2	–	% RH	–
Repeatability	–	±0.5	–	% RH	–
Settling time	–	–	70	ms	–
Response time (1/e in slow moving air)	–	5	–	s	–
Stability (at 50% RH in 5 years)	–	±1.2	–	% RH	1
Voltage supply	2.7	–	5.5	Vdc	2
Current supply	–	200	500	µA	–
Voltage output (1st order curve fit)	$V_{OUT}=(V_{SUPPLY})(0.00636(\text{sensor RH}) + 0.1515)$, typical at 25 °C				
Temperature compensation	True RH = (Sensor RH)/(1.0546 – 0.00216T), T in °C				
Output voltage temp. coefficient at 50% RH, 3.3 V	–	-2	–	mV/°C	–
Operating temperature	-40[-40]	See Figure 2.	85[185]	°C[°F]	–
Operating humidity (HIH-5030)	0	See Figure 2.	100	% RH	3
Operating humidity (HIH-5031)	0	See Figure 2.	100	% RH	–
Storage temperature	-50[-58]	–	125[257]	°C [°F]	–
Storage humidity	See Figure 3.			% RH	3

Specific Notes:

1. Includes stress outside of recommended operating zone.
2. Device is tested at 3.3 Vdc and 25 °C.
3. Non-condensing environment. When liquid water falls on the humidity sensor die, output goes to a low rail condition indicating no humidity.
4. Total accuracy including interchangeability is ±3 %RH.

General Notes:

- Sensor is ratiometric to supply voltage.
- Extended exposure to ≥90 % RH causes a reversible shift of 3 % RH.
- Sensor is light sensitive. For best performance, shield sensor from bright light.

Figure 1. Operating Environment (Non-condensing environment for HIH-5030 catalog listings only.)

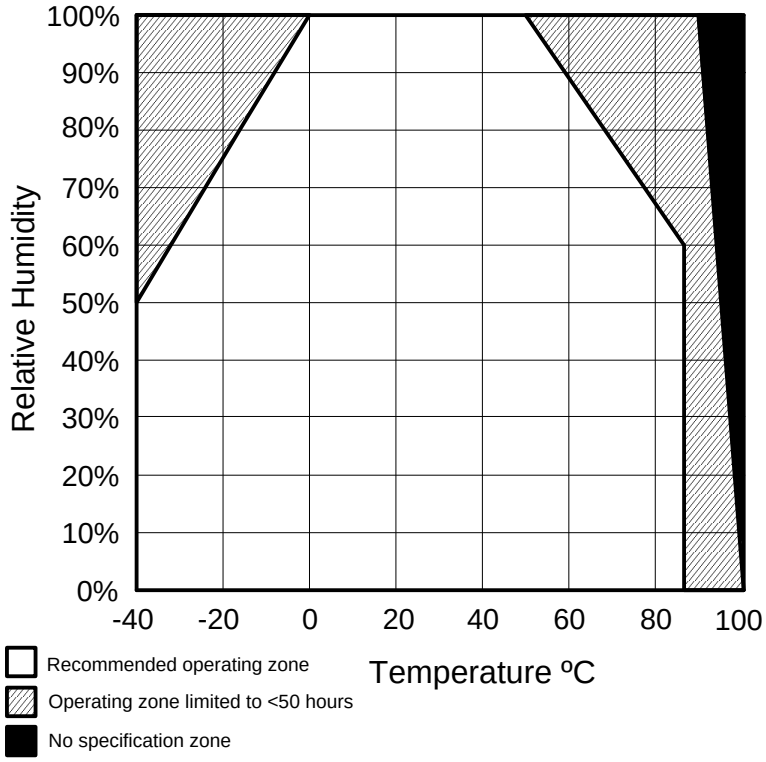


Figure 2. Storage Environment (Non-condensing environment for HIH-5030 catalog listings only.)

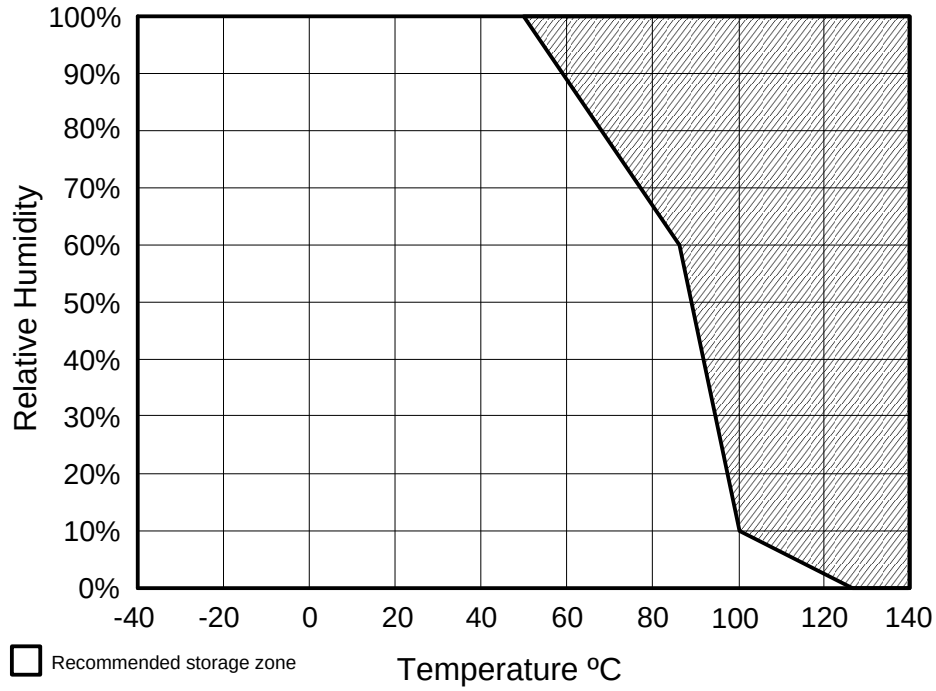


Figure 3. Typical Output Voltage vs Relative Humidity (At 25 °C and 3.3 Vdc.)

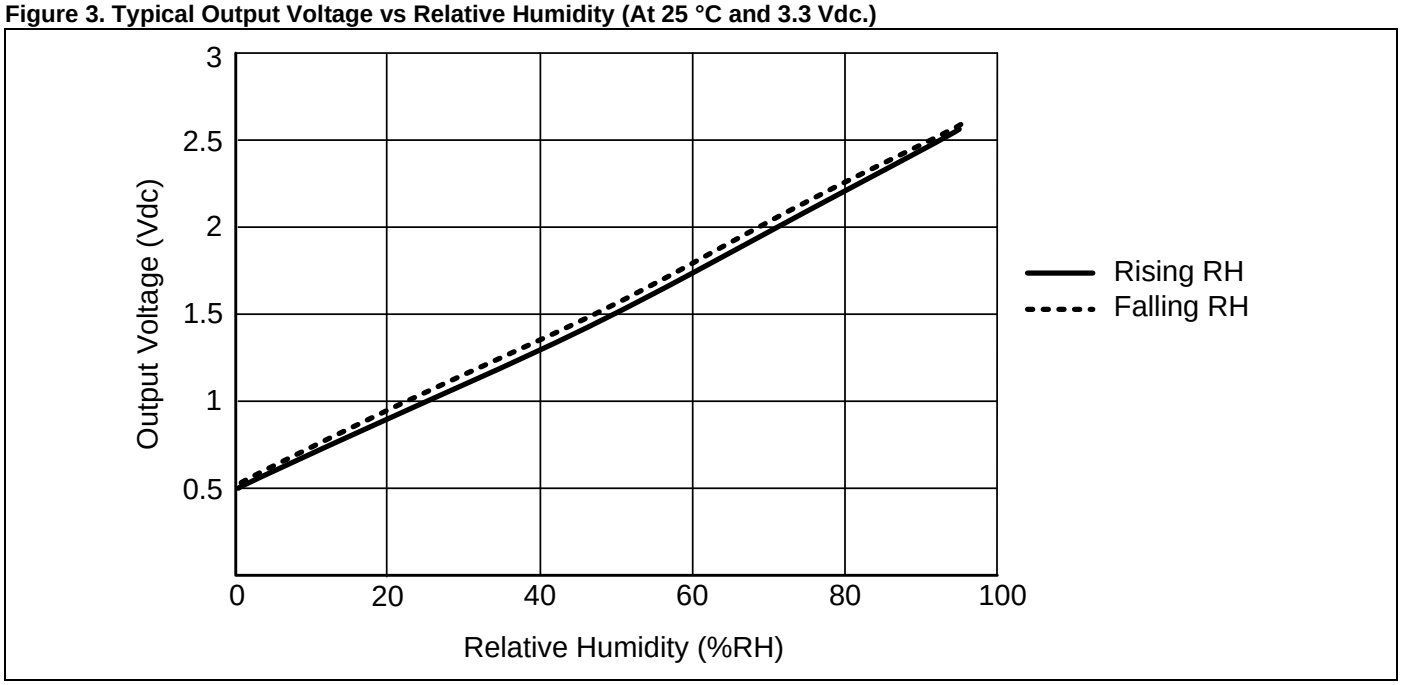


Figure 4. Typical Output Voltage (BFSL) vs Relative Humidity (At 0 °C, 70 °C and 3.3 Vdc.)

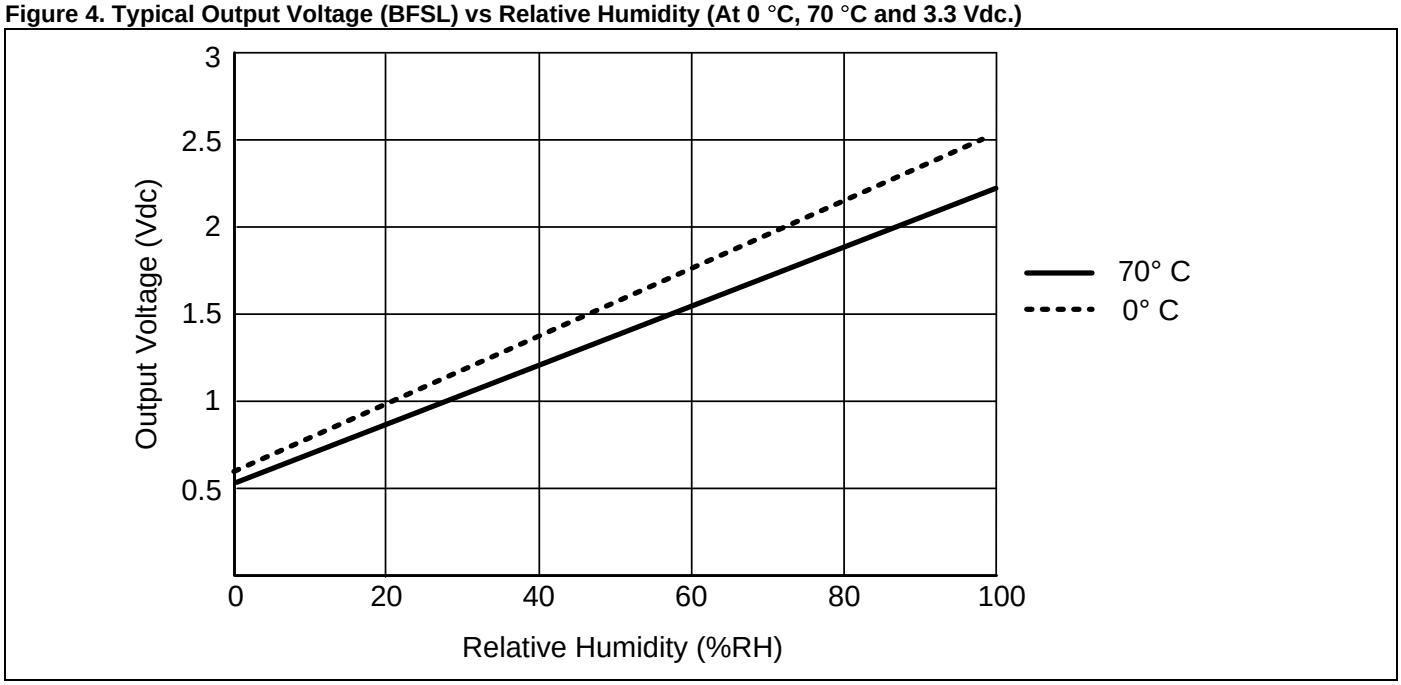


Figure 5. HIH-5030 Mounting Dimensions (For reference only. mm/[in])

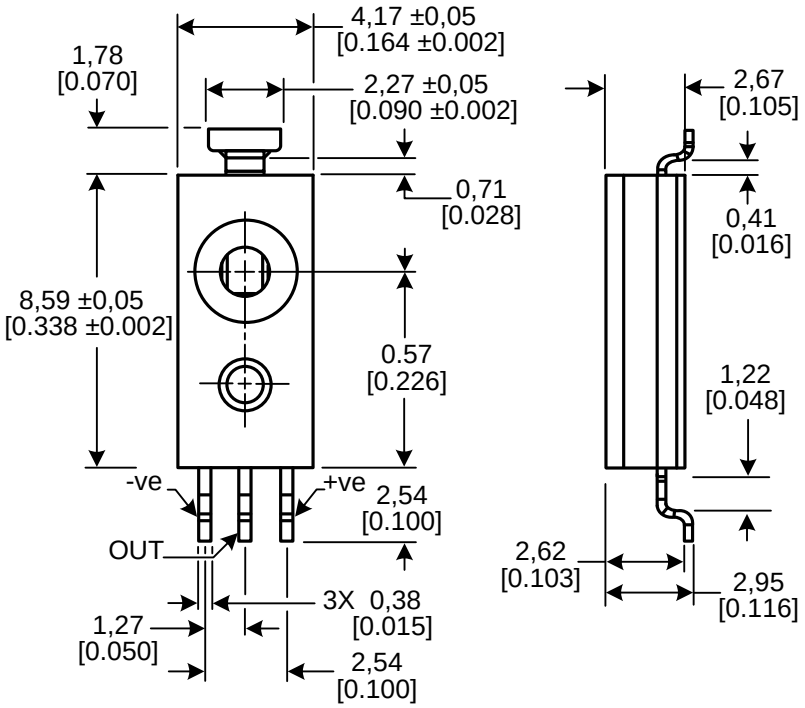


Figure 6. HIH-5030 PCB Landing Pattern (For reference only. mm/[in])

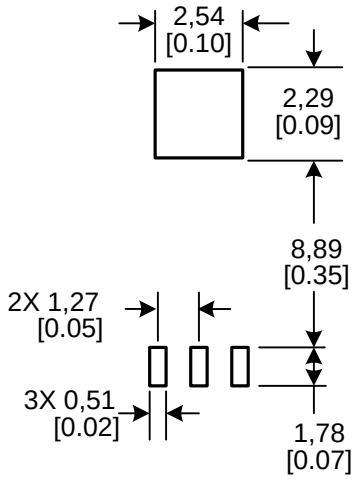


Figure 7. HIH-5031 Mounting Dimensions (For reference only. mm/[in])

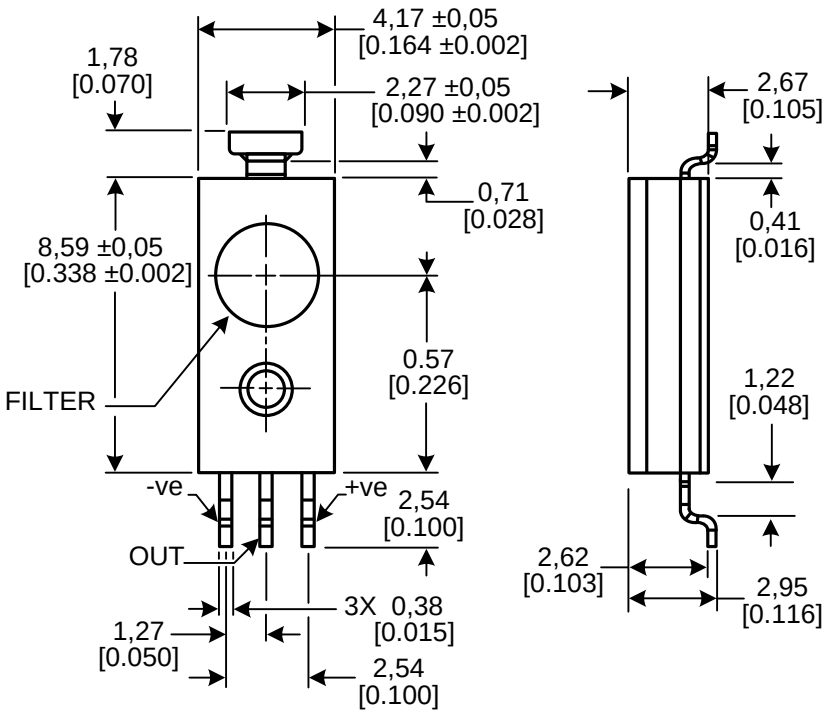


Figure 8. HIH-5031 PCB Landing Pattern (For reference only. mm/[in])

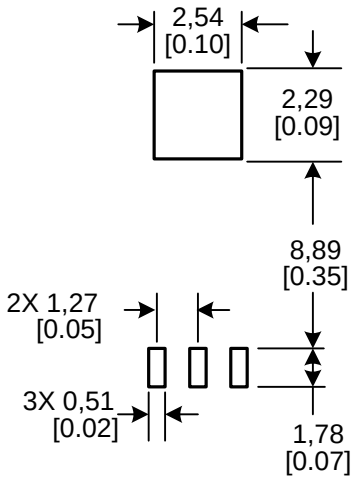


Figure 9. Tape and Reel Dimensions (For reference only. mm/[in])

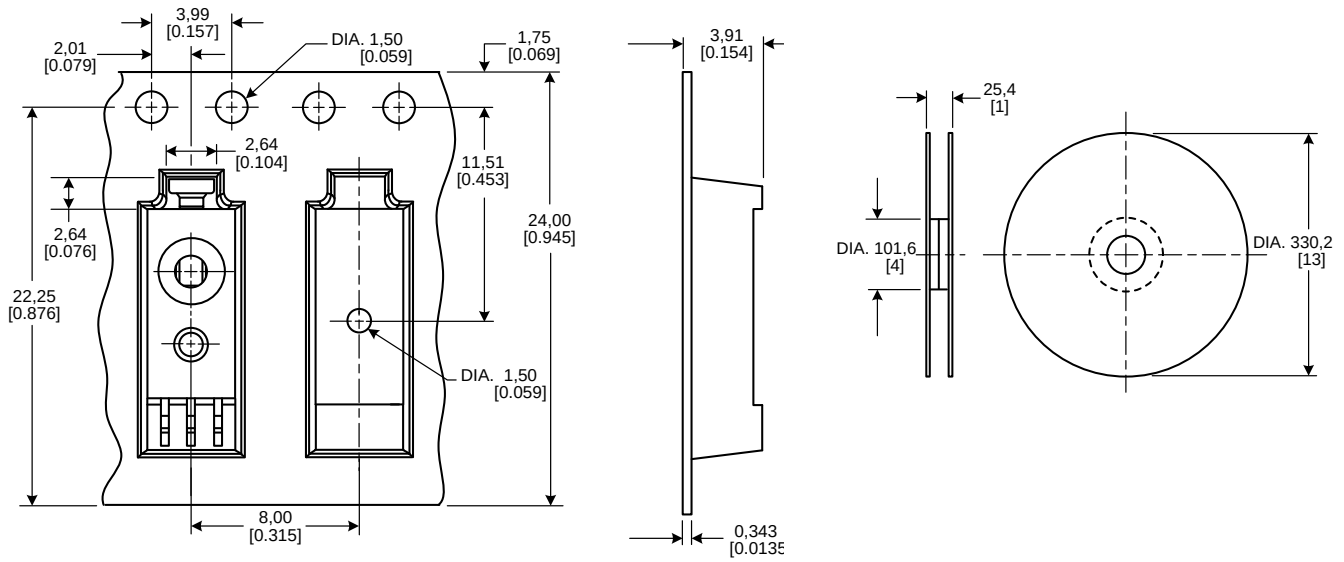
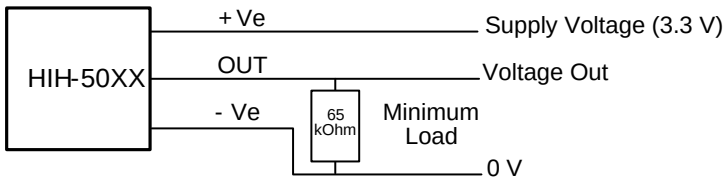


Figure 10. Typical Application Circuit



ORDER GUIDE

Catalog Listing	Description
HIH-5030-001	Covered integrated circuit humidity sensor, SMD, 1000 units on tape and reel
HIH-5031-001	Covered, filtered integrated circuit humidity sensor, SMD, 1000 units on tape and reel
HIH-5030-001S	Sample pack: covered integrated circuit humidity sensor, SMD, five units on tape
HIH-5031-001S	Sample pack: covered, filtered integrated circuit humidity sensor, SMD, sample pack, five units on tape

ADDITIONAL HUMIDITY SENSOR INFORMATION

See the following associated literature is available on the Web**:**

- Product installation instructions
- Application sheets:
  - Humidity Sensor Performance Characteristics
  - Humidity Sensor Theory and Behavior
  - Humidity Sensor Moisture and Psychrometrics
  - Thermoset Polymer-based Capacitive Sensors

HIH-5030/5031 Series

Low Voltage Humidity Sensors

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Sensing and Control
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422
www.honeywell.com

Honeywell

009050-2-EN IL50 GLO Printed in USA
Mar 2010