



*Representative photograph, actual product appearance may vary.*

*Due to regional agency approval requirements, some products may not be available in your area. Please contact your regional Honeywell office regarding your product of choice.*

## HLC2701-001

**HLC2701 Series Infrared Component, Encoder Sensor, Output Option, Direction Side-Looking, Plastic Package**

### Features

- Side-looking plastic package
- TTL/LSTTL/CMOS compatible
- Inverting logic output
- Linear or rotary encoder applications
- Resolution to 0.009 in [0.229 mm]
- Sensitivity versus temperature compensation
- Mechanically and spectrally matched to SEP8506 and SEP8706 infrared emitting diodes

### Description

The HLC2701 detector is designed to sense speed and direction of mechanical motion. Applications include rotary and linear encoders; the device is especially well suited for the encoding function in an optical mouse. The detector is a monolithic IC, consisting of two narrow adjacent photodiodes, amplifiers, and Schmitt trigger output stages. The outputs are NPN collectors with internal 10 kOhm (nominal) pull-up resistors to Vcc which can directly drive TTL loads. It incorporates circuitry to compensate the sensitivity for the output power versus temperature characteristics of an IRED. The IC is encapsulated in a molded, unlensed black plastic package which is transmissive to IR energy, yet provides shielding from visible light.

In a typical application, the HLC2701 is used in conjunction with an IRED and an encoder disk or linear encoder strip attached to an element for which speed and direction of movement is to be sensed. As the interruptive pattern moves, the sensor provides two phase shifted output signals (active low) which can be processed to provide the speed and direction information.

The sensing areas of the IC are each 0.008 in (0.203 mm) in width and 0.015 in (0.381 mm) in height with a 0.001 in (0.0254 mm) separation, for center-to-center spacing of 0.009 in (0.203 mm), and outside edge to edge distance of 0.017 in (0.432 mm).



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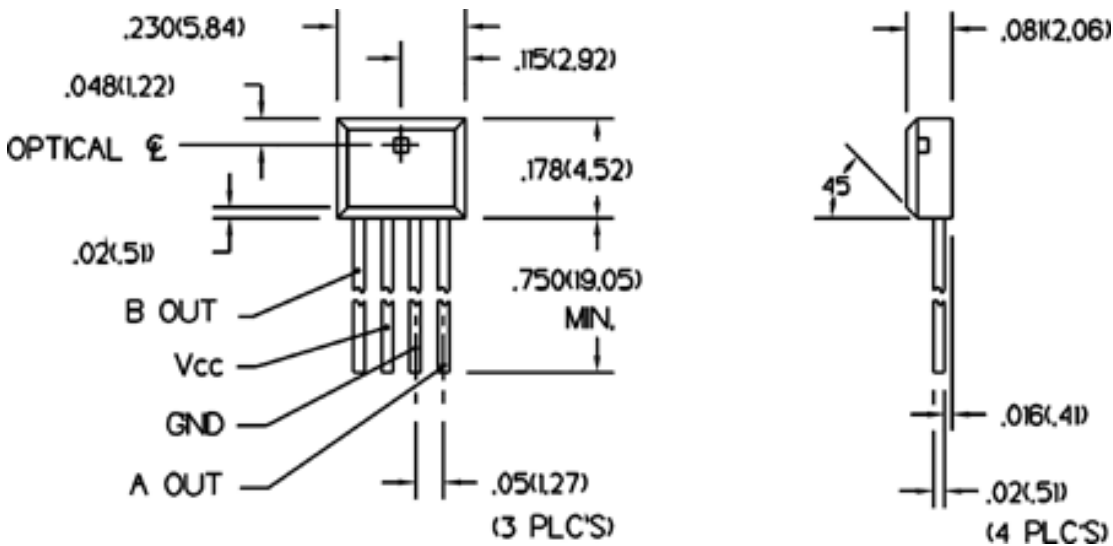
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Product Specifications	
Product Type	IR Component
Turn-on Threshold Irradiance	0.05 mW/cm <sup>2</sup> to 2.0 mW/cm <sup>2</sup>
Output Option	Direction
Package Style	PC Mount
Package Components	Plastic
Operating Temperature Range	-40 °C to 85 °C [-40 °F to 185 °F]
Hysteresis (H)	28%
Operating Supply Voltage	4.5 V to 5.5 V
High Level Output Voltage	2.4 V minimum
Low Level Output Voltage	0.4 V maximum
Internal Pull-up Resistor	5.0 kOhm min., 10.0 kOhm typ., 20.0 kOhm max.
Output Rise Time	100 ns
Output Fall Time	100 ns
Propagation Delay, Low-High,High-Low	5.0 µs
Duration of Output Short Vcc or Ground	1.0 second
Comment	The radiation source is IRED with a peak wavelength of 880 nm.
Availability	Global
Product Name	Encoder Sensor
Resolution	0,03 mm [0.009 in]

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### **⚠ 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.**

### **⚠ WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet (or catalog) is for reference only. DO NOT USE this document as product installation information.
- 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.**