



### HOA0901-011



#### HOA Series Infrared Transmissive Encoder Sensor, Inverting Logic Output, No Mounting Tabs, Plastic Package

*Actual product appearance may vary.*

#### Features

- Dual channel IC
- Direct TTL interface
- Inverting logic output
- Resolution to 0.009 in [0.229 mm]
- Internal temperature compensation
- 0.126 in [3.2 mm] slot width
- Two mounting configurations

#### Description

The HOA0901 sensor consists of a dual channel IC detector and an IRED encased in a black thermoplastic housing. The device is typically used with an interrupter strip or disk (code wheel) to encode the rate and direction of mechanical motion. Applications include linear and rotary encoders; it is especially suited for the encoding function in an optical mouse. As the interruptive pattern moves, the detector generates two output signals which can be processed to provide speed and direction information.

The detector is a monolithic IC which consists 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 are capable of directly driving TTL loads. The IC design incorporates circuitry to compensate the sensitivity for the output power vs. temperature characteristic of the IRED. 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 a center-to-center spacing of 0.009 in (0.229 mm) and outside edge to edge distance of 0.017 in (0.432 mm).

Two package styles are available. HOA0901-011 is primarily intended for direct PCB mounting. HOA0901-012 has mounting tabs for chassis mounting. The HOA0901 series employs plastic molded components. For additional component information see SEP8506 and HLC2701.

Housing material is polycarbonate. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

Product Specifications	
Series Name	Encoder Sensor
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
Continuous Forward Current	50 mA
Reverse Breakdown Voltage	3 V
Power Dissipation	100 mW
Operating Temperature Range	-40 °C to 85 °C [-40 °F to 185 °F]
Hysteresis (H)	0.28
Operating Supply Voltage	4.5 V to 5.5 V
Supply Voltage	5.5 Vdc
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
Resolution	0,03 mm [0.009 in]