

Honeywell Sensing and Control

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HOA0901-012



HOA Series Infrared Transmissive Encoder Sensor, Inverting Logic Output, Two 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.

Supporting Documentation

Dimensions

Block Diagram and Engineering **Performance Drawing Charts**

Series NameEncoder SensorProduct TypeIR ComponentTurn-on Threshold Irradiance0.05 mW/cm² to 2.0 mW/cm²Output OptionDirectionPackage StyleChassis MountPackage ComponentsPlasticContinuous Forward Current50 mAReverse Breakdown Voltage3 VPower Dissipation100 mWOperating Temperature Range-40 °C to 85 °C [-40 °F to 185 °F]Hysteresis (H)0.28Operating Supply Voltage4.5 V to 5.5 VSupply Voltage5.5 VdcHigh Level Output Voltage2.4 V minimumLow Level Output Voltage0.4 V maximumInternal Pull-up Resistor5.0 kOhm min., 10.0 kOhm typ., 20.0 kOhm max.Output Rise Time100 nsOutput Fall Time100 nsPropagation Delay, Low-High, High-Low5.0 μsDuration of Output Short Vcc or Ground1.0 secondCommentThe radiation source is IRED with a peak wavelength of 880 nm.AvailabilityGlobalResolution0,03 mm [0.009 in]	Product Specifications	
Turn-on Threshold Irradiance0.05 mW/cm² to 2.0 mW/cm²Output OptionDirectionPackage StyleChassis MountPackage ComponentsPlasticContinuous Forward Current50 mAReverse Breakdown Voltage3 VPower Dissipation100 mWOperating Temperature Range-40 °C to 85 °C [-40 °F to 185 °F]Hysteresis (H)0.28Operating Supply Voltage4.5 V to 5.5 VSupply Voltage5.5 VdcHigh Level Output Voltage2.4 V minimumLow Level Output Voltage0.4 V maximumInternal Pull-up Resistor5.0 kOhm min., 10.0 kOhm typ., 20.0 kOhm max.Output Rise Time100 nsOutput Fall Time100 nsPropagation Delay, Low-High, High-Low5.0 μsDuration of Output Short Vcc or Ground1.0 secondCommentThe radiation source is IRED with a peak wavelength of 880 nm.AvailabilityGlobal	Series Name	Encoder Sensor
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Package StyleChassis MountPackage ComponentsPlasticContinuous Forward Current50 mAReverse Breakdown Voltage3 VPower Dissipation100 mWOperating Temperature Range-40 °C to 85 °C [-40 °F to 185 °F]Hysteresis (H)0.28Operating Supply Voltage4.5 V to 5.5 VSupply Voltage5.5 VdcHigh Level Output Voltage2.4 V minimumLow Level Output Voltage0.4 V maximumInternal Pull-up Resistor5.0 kOhm min., 10.0 kOhm typ., 20.0 kOhm max.Output Rise Time100 nsOutput Fall Time100 nsPropagation Delay, Low-High,High-Low5.0 μsDuration of Output Short Vcc or Ground1.0 secondCommentThe radiation source is IRED with a peak wavelength of 880 nm.AvailabilityGlobal	Turn-on Threshold Irradiance	0.05 mW/cm ² to 2.0 mW/cm ²
Package Components 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 Low Level Output Voltage 10.4 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 Duration of Output Short Vcc or Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Output Option	Direction
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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 0.4 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	Continuous Forward Current	50 mA
Operating Temperature Range -40 °C to 85 °C [-40 °F to 185 °F] Hysteresis (H) Operating Supply Voltage 4.5 V to 5.5 V Supply Voltage High Level Output Voltage Low Level Output Voltage 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 Duration of Output Short Vcc or Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Reverse Breakdown Voltage	3 V
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20.0 kOhm max. Output Rise Time 100 ns Output Fall Time 100 ns Propagation Delay, Low-High, High-Low 1.0 second Duration of Output Short Vcc or Ground The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Low Level Output Voltage	0.4 V maximum
Output Fall Time Propagation Delay, Low-High, High-Low Duration of Output Short Vcc or Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Internal Pull-up Resistor	
Propagation Delay, Low-High, High-Low Duration of Output Short Vcc or Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Output Rise Time	100 ns
Low Duration of Output Short Vcc or Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global	Output Fall Time	100 ns
Ground Comment The radiation source is IRED with a peak wavelength of 880 nm. Availability Global		5.0 μs
peak wavelength of 880 nm. Availability Global		1.0 second
	Comment	
Resolution 0,03 mm [0.009 in]	Availability	Global
	Resolution	0,03 mm [0.009 in]

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