Infrared Assemblies

Dual Channel Transmissive Optoschmitt Sensor *HOA2007 Series*

FEATURES

- Direct TTL interface
- Two channel operation
- Buffer logic
- PCB mount package
- Polarized locator pins
- Accurate position sensing
- 0,5 mm (0.020 in.) aperture windows
- 1,78 mm (0.070 in.) slot width
- Available in shipping tubes

The HOA2007 Series consists of two infrared emitting diodes facing two Optoschmitt detectors encased in a black thermoplastic housing. The photodetector consists of a photodiode, amplifier, voltage regulator, schmitt trigger and an NPN phototransistor with a 10 kΩ (nominal) pull-up resistor. Detector switching takes place whenever an opaque object passes through the slot between the emitter and the detector. The buffer logic provides a high output when the optical path is clear. The dual channels allow both the speed and the direction of the interrupter to be sensed. Emitters and detectors have a 0,5 mm (0.020 in.) vertical aperture. This feature is ideal for use in applications in which high position resolution is desired.

The sensor housing is an opaque thermoplastic with aperture openings for use in applications in which maximum rejection of ambient light is important and maximum position resolution is desired. The HOA2007 series contains plastic molded components. For additional component information see SEP8506 and SDP8601.

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

ABSOLUTE MAXIMUM RATINGS (25°C free-air temperature unless otherwise noted)

Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C
Soldering Temperature (5 sec)	240°C
IR EMITTER	
Power Dissipation	100 mW(1)
Reverse Voltage	3 V
Continuous Forward Current	50 mA
DETECTOR	
Supply Voltage	12 V(2)
Output Sink Current	18 mA
Duration of Output Short to V_{CC} or Ground	1.0 sec

Notes:
1. Derate linearly at 0.78 mW/°C above 25°C.
2. Derate linearly from 25°C to 5.5 V at 70°C.

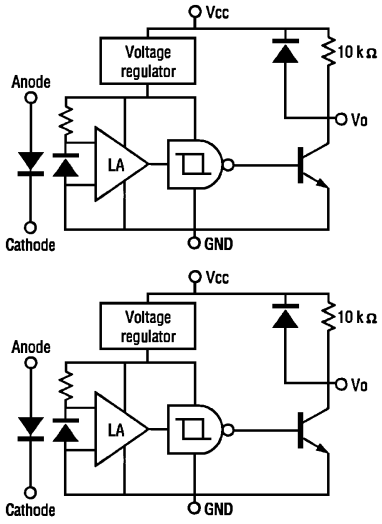
CAUTION
STRESS DAMAGE
Functional operation of the device at or above "Absolute Maximum Ratings" for extended periods of time may affect reliability.
Failure to comply with these instructions may result in product damage.

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
IR EMITTER (each)						
Forward Voltage	V_F			1.6	V	I_F=20 mA
Reverse Leakage Current	I_R			10	µA	V_R=3 V
DETECTOR (each)						
Operating Supply Voltage	V_{CC}	4.5		12	V	
Low Level Supply Current	I_{CCL}	4.0		12	mA	V_{CC}=5 V
		5.0		15		V_{CC}=12 V
High Level Supply Current	I_{CCH}	2.0		10	mA	V_{CC}=5 V
		3.0		12		V_{CC}=12 V
Low Level Output Voltage	V_{OL}			0.4	V	I_{OL}=12.8 mA, I_F=0 mA
High Level Output Voltage	V_{OH}	2.4			V	I_{OH}=0, I_F=20 mA
Hysteresis(1)	HYST		10		%	
Propagation Delay Low-High, High-Low	t_{PLH}, t_{PHL}		5		µs	V_{CC}=5 V, I_F=20 mA
Rise Time	t_r		60		ns	R_L=390 Ω, C_L=50 pF
Fall Time	t_f		15		ns	R_L=390 Ω, C_L=50 pF
COUPLED CHARACTERISTICS						
IRED Trigger Current, HOA2007-001	I_{FT}			20	mA	V_{CC}=5 V

Notes:
*Add a bypass capacitor, 0.1 µF typical, between V_{CC} and GND near the device in order to stabilize the power supply line.
1. Hysteresis is defined as the difference between the operating and release threshold intensities, expressed as a percentage of the operate threshold intensity.

SCHEMATIC



SWITCHING WAVEFORM

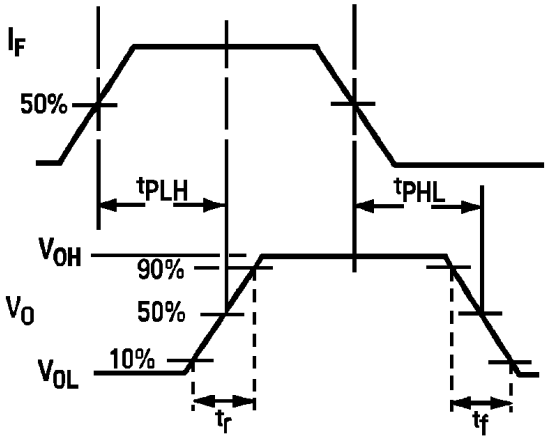
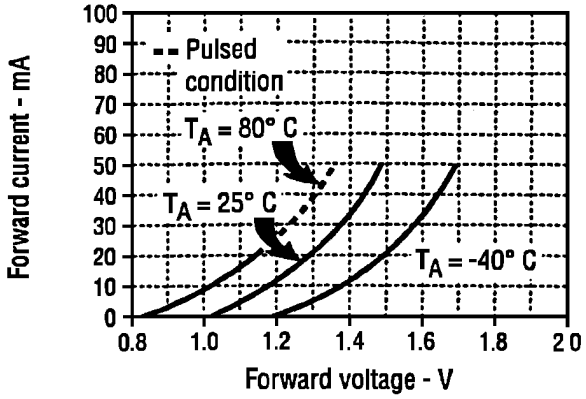
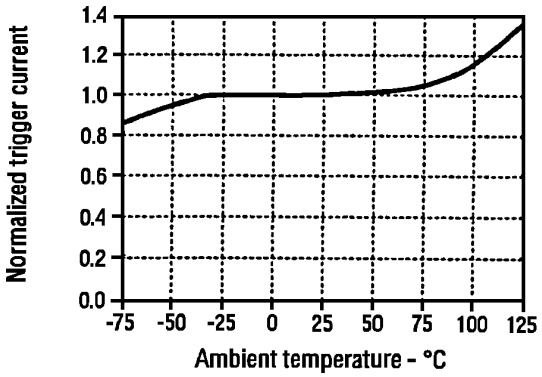


Figure 1
IRED Forward Bias Characteristics

Figure 2
IRED Trigger Current vs Temperature





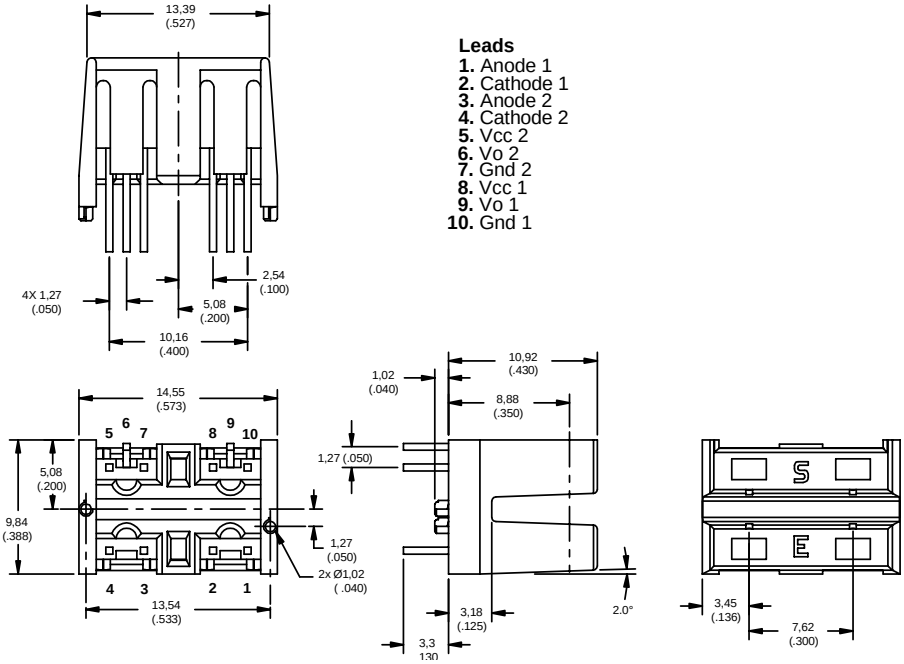
Infrared Assemblies

Dual Channel Transmissive Optoschmitt Sensor *HOA2007 Series*

ORDER GUIDE

Catalog Listing	Description
HOA2007-001	Dual Channel Transmissive Optoschmitt Sensor

OUTLINE DIMENSIONS mm/(in.)
(for reference only)



Leads
1. Anode 1
2. Cathode 1
3. Anode 2
4. Cathode 2
5. Vcc 2
6. Vo 2
7. Gnd 2
8. Vcc 1
9. Vo 1
10. Gnd 1

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective material and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during that period of coverage, Honeywell will repair or replace 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.**

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

Specifications may change at any time 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.

SALES AND SERVICE

MICRO SWITCH Sensing and Control serves its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact a nearby sales office or call:

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1-800-737-3360 (Canada)
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