

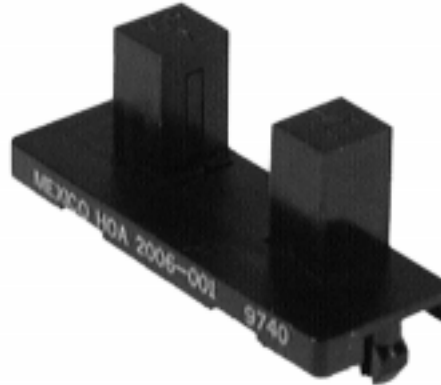
Infrared Assemblies

Wide Gap Transmissive Optoschmitt Sensor

HOA2006 Series

FEATURES

- Direct TTL interface
- Buffer logic
- Visible ambient light and dust protective filter
- 12 mm (0.47 in.) slot width
- Snap-in housing



The HOA2006 consists of an infrared emitting diode facing an Optoschmitt detector encased in a black thermoplastic housing. The photodetector consists of a photodiode, amplifier, voltage regulator, schmitt trigger, and an NPN output transistor with a 10 K ohm (nominal) pull-up resistor. The buffer logic provides a high output when the optical path is clear, and a low output when the path is blocked. Both emitter and detector have 1,52 mm (0.060 in.) x 1,52 mm (0.060 in.) vertical apertures.

The sensor housing contains IR (Infrared) transmissive optical windows. This arrangement provides excellent protection against visible ambient light while eliminating aperture openings which could be clogged by airborne contaminants.

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

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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						
Forward Voltage	V _F			1.7	V	I _F =20 mA
Reverse Leakage Current	I _R			10	μA	V _R =3 V
DETECTOR						
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	t _{PLH} , t _{PHL}		5		μs	V _{CC} =5 V, I _F =20 mA
Low-High, High-Low						
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						
IREDD Trigger Current	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.

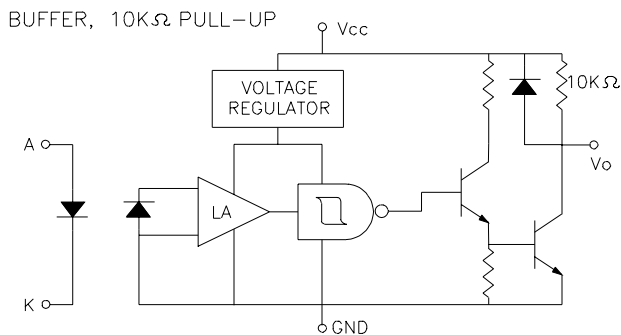
1. Hysteresis is defined as the difference between the operating and release threshold intensities, expressed as a percentage of the operate threshold intensity.

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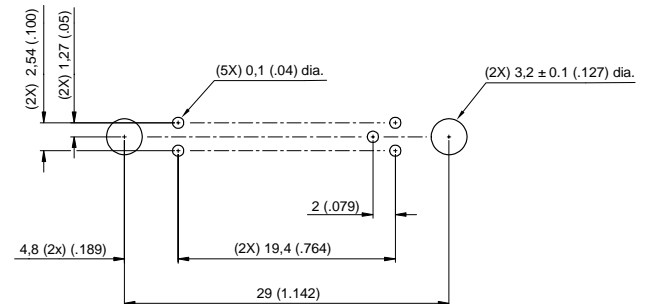
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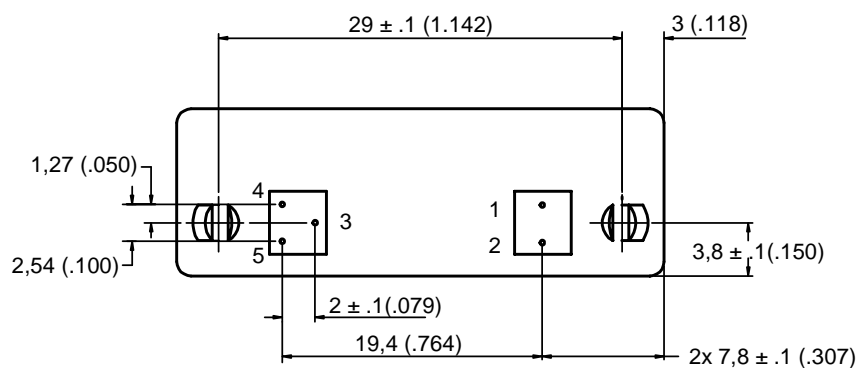
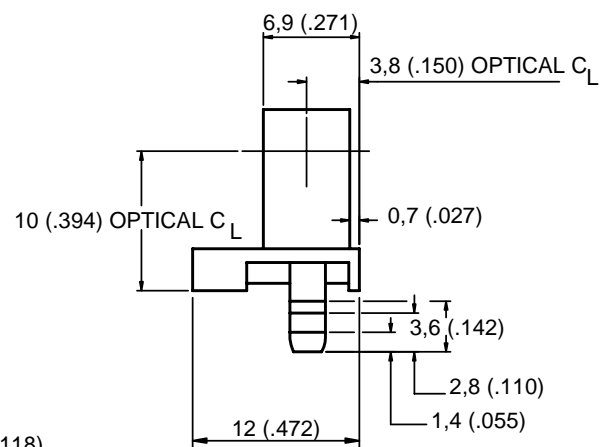
SCHEMATIC



RECOMMENDED PCB MOUNTING HOLE DIMENSIONS mm (in.)



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



LEADS:

- | | |
|------------|--------|
| 1. ANODE | 4. GND |
| 2. CATHODE | 5. VCC |
| 3. VO | |

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HOA2006 Series

ORDER GUIDE

Catalog Listing	Description
HOA2006-001	Wide Gap Transmissive Optoschmitt Sensor

WARRANTY/REMEDY

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