Transmissive Optoschmitt Sensor

FEATURES

- · Direct TTL interface
- Buffer logic
- · Side mount package
- · Ambient light and dust protective filter
- Accurate position sensing
- 0.010 in.(0.25mm) aperture windows
- 0.125 in.(3.18 mm) slot width
- 24.0 in.(610 mm) min. 26 AWG UL 1429 wire

DESCRIPTION

The HOA2005 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 10 k Ω (nominal) pullup resistor. The buffer logic provides a high output when the optical path is clear, and a low output when the path is blocked. The side mounting package is useful in applications in which the interruptive element is parallel to the mounting plane. Both emitter and detector have a 0.010 in.(.25 mm) x .060 in.(1.52 mm) vertical aperture. This feature is ideal for use in applications in which maximum postion resolution is desired.

All devices employ a built- in strain relief for maximum wire attachment strength. The sensor housing contains IR transmissive optical windows. This arrangement provides excellent protection against ambient light while eliminating aperture openings which could be clogged by airborne contaminants. The HOA2005 series employs plastic molded components. For additional component information see SEP8506, and SDP8600.

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

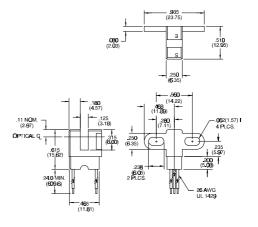
Wire color and functions are:

Red - IRED Anode Black - IRED Cathode Green - Detector Ground White - Detector Vcc Blue - Detector Output



OUTLINE DIMENSIONS in inches (mm)

3 plc decimals ±0.005(0.12) 2 plc decimals ±0.020(0.51)



DIM 063 cdr

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Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	VF			1.6	V	I _F =20 mA
Reverse Leakage Current	IR			10	μΑ	V _R =3 V
DETECTOR						
Operating Supply Voltage	Vcc	4.5		12	V	
Low Level Supply Current	Iccl	4.0		12	mA	Vcc=5 V
		5.0		15		Vcc=12 V
High Level Supply Current	Іссн	2.0		10	mA	Vcc=5 V
		3.0		12		Vcc=12 V
Low Level Output Voltage	Vol			0.4	V	I _{OL} =12.8 mA, I _F =0 mA
High Level Output Voltage	Voн	2.4			V	Iон=0, I _F =20 mA
Hysteresis (2)	HYST		10		%	
Propagation Delay, Low-High, High-Low	t _{PLH} , t _{PHL}		5		μs	Vcc=5 V, I _F =20 mA
Rise Time	t _r		60		ns	R _L =390 Ω , C _L =50 pF
Fall Time	t _f		6		ns	R _L =390 Ω , C _L =50 pF
COUPLED CHARACTERISTICS						
IRED Trigger Current	IFT			20	mA	Vcc=5 V
HOA2005-001				20		

ABSOLUTE MAXIMUM RATINGS SCHEMATIC (25°C Free-Air Temperature unless otherwise noted) Q Vcc Operating Temperature Range -40°C to 70°C **≨10** kΩ Voltage -40°C to 85°C Storage Temperature Range regulator Soldering Temperature (5 sec) 240°C IR EMITTER -O Vo Power Dissipation 100 mW (1) Reverse Voltage 3 V Continuous Forward Current 50 mA DETECTOR 12 V (2) Supply Voltage Output Sink Current 18 mA Cathode O GND **Duration of Output** Short to V_{CC} or Ground 1.0 sec

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Notes 1. It is recommended that a bypass capacitor, 0.1 μ F typical, be added between V_{CC} and GND near the device in order to stabilize power supply line.

2. 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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SWITCHING WAVEFORM

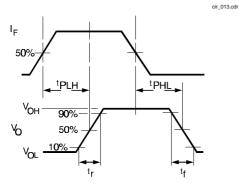
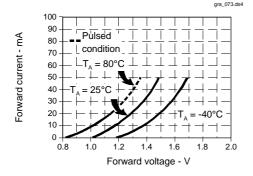


Fig. 2 IRED Forward Bias Characteristics



All Performance Curves Show Typical Values

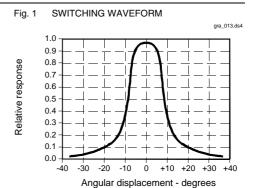
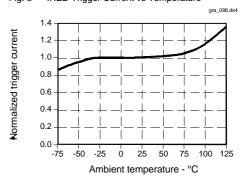


Fig. 3 IRED Trigger Current vs Temperature



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