Transmissive Sensor

FEATURES

- Phototransistor output
- · Four mounting configurations
- · Accurate position sensing
- 0.125 in.(3.18 mm) slot width
- Choice of detector aperture
- 24.0 in.(610 mm) min. 26 AWG UL 1429 wire leads
- Choice of opaque or IR transmissive housings

DESCRIPTION

The HOA088X/089X series consists of an infrared emitting diode facing an NPN silicon phototransistor encased in a black thermoplastic housing. Phototransistor switching takes place whenever an opaque object passes through the slot between emitter and detector. This series allows the user to choose from available options: (1) mounting tab configuration, (2) detector aperture size, (3) electro-optical characteristics, and (4) housing materials.

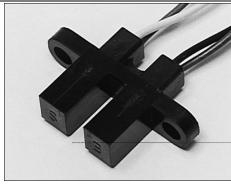
All devices employ a built-in strain relief for maximum wire attachment strength. The HOA088X series utilizes an IR transmissive polysulfone housing which features smooth optical faces without external aperture openings; this feature is desirable when aperture blockage from airborne contaminants is a possibility. The HOA089X series employs an opaque polysulfone housing with aperture openings for use in applications in which maximum rejection of ambient light is important and in situations where maximum position resolution is desired. The HOA088X/089X series employs plastic molded components. For additional component information see SEP8506 and SDP8406.

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

The detector to emitter lead spacing is 0.32 in.(8.13 mm) for all versions. Wire color code and functions are:

Red - IRED Anode White - Detector Collector Black - IRED Cathode Green - Detector Emitter

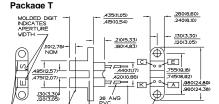
To specify the complete product characteristics, see PART NUMBER GUIDE.



INFRA-66.TIF

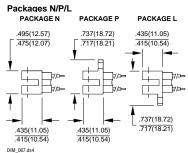
OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals $\pm 0.010(0.25)$ 2 plc decimals $\pm 0.020(0.51)$



DIM_042.cdr

OPTICAL



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.130(3,30) .120(3,05) DIA 2 PLCS

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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
	STWIBUL	IVIIIV	111	IVIAA	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						
Collector-Emitter Breakdown Voltage	V _(BR) ceo	30			V	I _C =100 μA
Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	5.0			V	I _E =100 μA
Collector Dark Current	ICEO			100	nA	V _{CE} =10 V, I _F =0
COUPLED CHARACTERISTICS						
On-State Collector Current	Ic(on)				mA	
Parameter A		0.5				V _{CE} =10, I _F =20 mA
(HOA0880/0890)						·
Parameter B		1.0				V _{CE} =5 V, I _F =10 mA
(HOA0881/0891)						, .
Parameter C		1.8				Vc==0.6. I==20 mA
(HOA0882/0892)						102 111, 11 = 1 1111
Collector-Emitter Saturation Voltage	VCE(SAT)				V	
Parameter A	VOE(SAT)			0.4	·	Ic=0.4 mA, I _E =20 mA
(HOA0880/0890)				0.1		10-0.111111, 17-2011111
Parameter B				0.4		Ic=0.8 mA, I _F =10 mA
(HOA0881/0891)				0.4		10-0.0 m/z, IF- 10 m/z
Parameter C				0.6		Ic=1.8 mA, I _F =20 mA
				0.0		IC-1.0 IIIA, IF=20 IIIA
(HOA0882/0892)			45)/ E)/ L d == 0
Rise And Fall Time	t _r , t _f		15		μs	Vcc=5 V, lc=1 mA
						$R_L=1000 \Omega$

ABSOLUTE MAXIMUM RATINGS

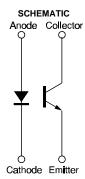
(25°C Free-Air Temperature unless otherwise noted)

Operating Temperature Range -40°C to 85°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

Collector-Emitter Voltage 30 V
Emitter-Collector Voltage 5 V
Power Dissipation 100 mW (1)
Collector DC Current 30 mA

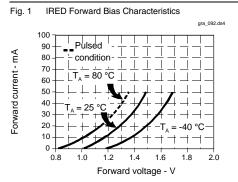


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Non-Saturated Switching Time vs Load Resistance gra_093.ds4 Response time - µs + + + | + | | | | | $\perp \sqcup \sqcup \sqcup \sqcup$ 1 1 1 1 1 1 1 1 1 ⅡⅢⅢⅢ ПППП $1 \pm 1 \pm 1 \pm 1$ Load resistance - Ohms

Fig. 3 Dark Current vs
Temperature

1000

VCE = 15 V

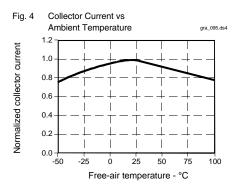
H = 0

0.1

0.01

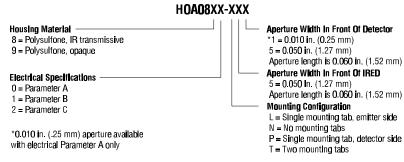
40 -20 0 20 40 60 80 100

Free-air temperature - °C



All Performance Curves Show Typical Values

PART NUMBER GUIDE



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