

Transmissive Sensor

- 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

The HOA088X/089X series consists of an infrared emitting diode facing an NPN silicon phototransistor enclosed 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.



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

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



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

DIM 067.ds4

HOA088X/089X

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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	V_F			1.6	V	$I_F=20\text{ mA}$
Reverse Leakage Current	I_R			10	μA	$V_R=3\text{ V}$
DETECTOR						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	$I_C=100\text{ }\mu\text{A}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CE0}			100	nA	$V_{CE}=10\text{ V}, I_F=0$
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	
Parameter A (HOA0880/0890)		0.5				$V_{CE}=10, I_F=20\text{ mA}$
Parameter B (HOA0881/0891)		1.0				$V_{CE}=5\text{ V}, I_F=10\text{ mA}$
Parameter C (HOA0882/0892)		1.8				$V_{CE}=0.6, I_F=20\text{ mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	
Parameter A (HOA0880/0890)			0.4			$I_C=0.4\text{ mA}, I_F=20\text{ mA}$
Parameter B (HOA0881/0891)			0.4			$I_C=0.8\text{ mA}, I_F=10\text{ mA}$
Parameter C (HOA0882/0892)			0.6			$I_C=1.8\text{ mA}, I_F=20\text{ mA}$
Rise And Fall Time	t_r, t_f		15		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$

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

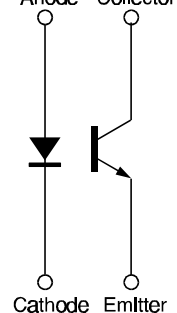
IR EMITTER

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

SCHEMATIC



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

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Fig. 1 IRED Forward Bias Characteristics

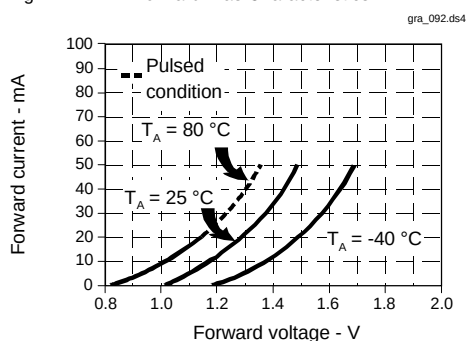


Fig. 2 Non-Saturated Switching Time vs Load Resistance

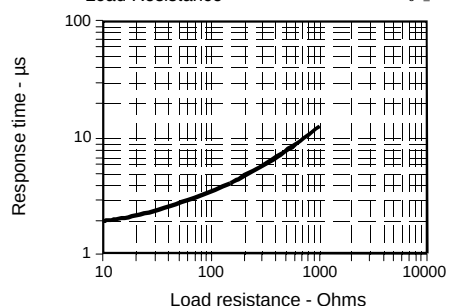


Fig. 3 Dark Current vs Temperature

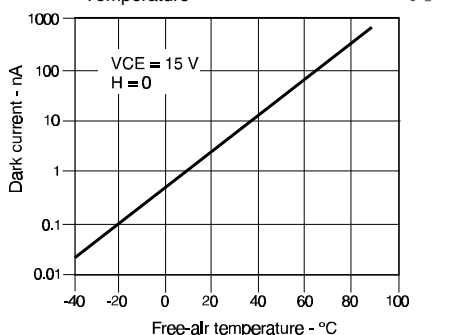
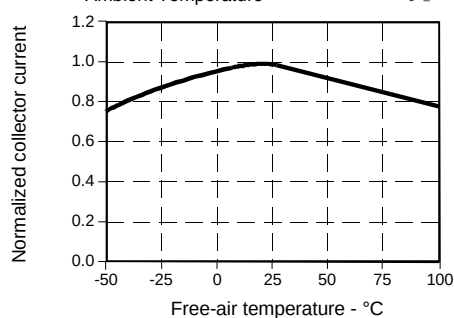


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

PART NUMBER GUIDE

HOA08XX-XXX

Housing Material

8 = Polysulfone, IR transmissive
9 = Polysulfone, opaque

Electrical Specifications

0 = Parameter A
1 = Parameter B
2 = Parameter C

*0.010 in. (.25 mm) aperture available
with electrical Parameter A only

Aperture Width In Front Of Detector

*1 = 0.010 in. (0.25 mm)
5 = 0.050 in. (1.27 mm)
Aperture length is 0.060 in. (1.52 mm)

Aperture Width In Front Of IRED

5 = 0.050 in. (1.27 mm)
Aperture length is 0.060 in. (1.52 mm)

Mounting Configuration

L = Single mounting tab, emitter side
N = No mounting tabs
P = Single mounting tab, detector side
T = Two mounting tabs

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