

## Transmissive Sensor

- Phototransistor output
- Accurate position sensing
- Four mounting configurations
- 0.125 in.(3.18 mm) slot width
- Choice of detector aperture
- Choice of opaque or IR transmissive housings



The HOA086X/087X series consists of an infrared emitting diode facing an NPN silicon phototransistor encased in a black thermoplastic housing. The 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 configurations, (2) lead spacing, (3) electro-optical characteristics, (4) detector aperture size, and (5) housing materials.

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

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

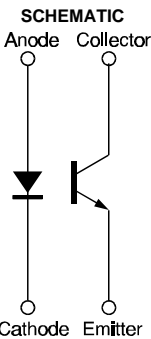


# HOA086X/087X

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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)							
PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>IR EMITTER</b>							
Forward Voltage		V <sub>F</sub>			1.6	V	I <sub>F</sub> =20 mA
Reverse Leakage Current		I <sub>R</sub>			10	μA	V <sub>R</sub> =3 V
<b>DETECTOR</b>							
Collector-Emitter Breakdown Voltage		V <sub>(BR)CEO</sub>	30			V	I <sub>C</sub> =100 μA
Emitter-Collector Breakdown Voltage		V <sub>(BR)ECO</sub>	5.0			V	I <sub>E</sub> =100 μA
Collector Dark Current		I <sub>CEO</sub>			100	nA	V <sub>CE</sub> =10 V, I <sub>F</sub> =0
<b>COUPLED CHARACTERISTICS</b>							
On-State Collector Current		I <sub>C(ON)</sub>				mA	
Parameter A (HOA0860/0865/0870/0875)			0.5				V <sub>CE</sub> =10, I <sub>F</sub> =20 mA
Parameter B (HOA0861/0866/0871/0876)			1.0				V <sub>CE</sub> =5 V, I <sub>F</sub> =10 mA
Parameter C (HOA0862/0867/0872/0877)			1.8				V <sub>CE</sub> =0.6, I <sub>F</sub> =20 mA
Collector-Emitter Saturation Voltage		V <sub>CE(SAT)</sub>				V	
Parameter A (HOA0860/0865/0870/0875)					0.4		I <sub>C</sub> =0.4 mA, I <sub>F</sub> =20 mA
Parameter B (HOA0860/0866/0871/0876)					0.4		I <sub>C</sub> =0.8 mA, I <sub>F</sub> =10 mA
Parameter C (HOA0862/0867/0872/0877)					0.6		I <sub>C</sub> =1.8 mA, I <sub>F</sub> =20 mA
Rise And Fall Time		t <sub>r</sub> , t <sub>f</sub>		15		μs	V <sub>CC</sub> =5 V, I <sub>C</sub> =1 mA R <sub>L</sub> =1000 Ω

<b>ABSOLUTE MAXIMUM RATINGS</b> (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
<b>IR EMITTER</b>	
Power Dissipation	100 mW <sup>(1)</sup>
Reverse Voltage	3 V
Continuous Forward Current	50 mA
<b>DETECTOR</b>	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	100 mW <sup>(1)</sup>
Collector DC Current	30 mA



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

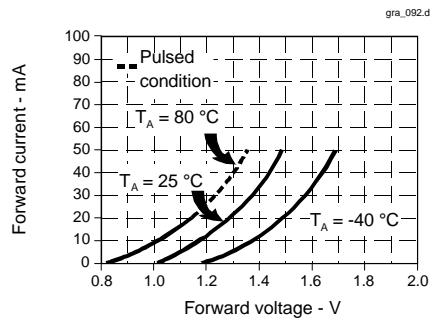


Fig. 2 Non-Saturated Switching Time vs Load Resistance

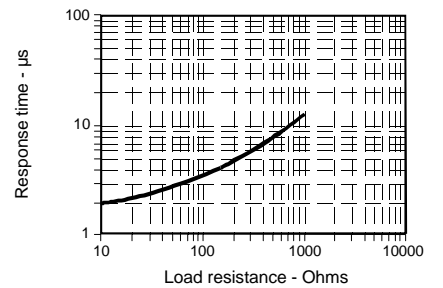


Fig. 3 Dark Current vs Temperature

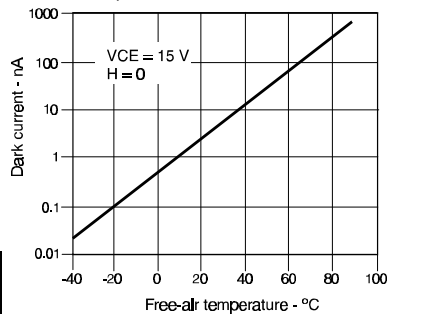
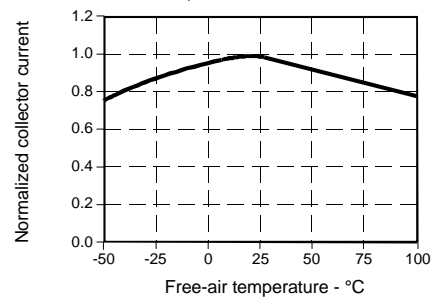


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

### PART NUMBER GUIDE

#### HOA08XX-XXX

##### Housing Material

6 = Polysulfone, IR transmissive  
7 = Polysulfone, opaque

##### Mechanical and Electrical Specifications

0 = Electrical Parameter A/lead spacing .320 in. (8.13 mm)  
1 = Electrical Parameter B/lead spacing .320 in. (8.13 mm)  
2 = Electrical Parameter C/lead spacing .320 in. (8.13 mm)  
5 = Electrical Parameter A/lead spacing .220 in. (5.59 mm)  
6 = Electrical Parameter B/lead spacing .220 in. (5.59 mm)  
7 = Electrical Parameter C/lead spacing .220 in. (5.59 mm)

\*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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