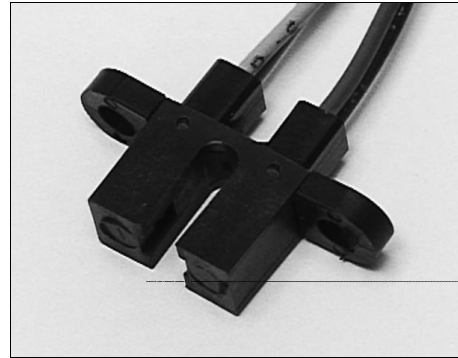


# HOA1881

## Transmissive Sensor

### FEATURES

- Choice of phototransistor or photodarlington output
- 0.060 in.(1.52 mm)dia. detector aperture
- 0.125 in.(3.18 mm) slot width
- 18.0 in.(457 mm) min. 22 AWG UL 1429 wire leads



INFRA-9.TIF

### DESCRIPTION

The HOA1881 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1881-011, -012) or photodarlington (HOA1881-013) encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The lead wires of minimum length 18.0 in.(457 mm) provide alternate electrical connection when PC board mounting is not possible. The HOA1881 series employs plastic molded components. For additional component information see SEP8506, SDP8406, and SDP8106.

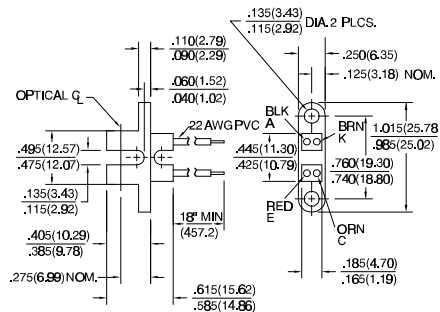
Housing material is nylon. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

Wire color code and functions are:

- Black - IRED Anode
- Orange - Detector Collector
- Brown - IRED Cathode
- Red - Detector Emitter

### OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals ±0.010(0.25)  
2 plc decimals ±0.020(0.51)



DIM\_052.cdr

# HOA1881

## Transmissive Sensor

### ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>IR EMITTER</b>						
Forward Voltage	$V_F$			1.6	V	$I_F=20$ mA
Reverse Leakage Current	$I_R$			10	$\mu$ A	$V_R=3$ V
<b>DETECTOR</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$				V	$I_C=100$ $\mu$ A
HOA1881-011, -012		30				
HOA1881-013		15				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100$ $\mu$ A
Collector Dark Current	$I_{CEO}$				nA	$V_{CE}=10$ V $I_F=0$
HOA1881-011, -012				100		
HOA1881-013				250		
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5$ V $I_F=20$ mA
HOA1881-011		0.3				
HOA1881-012		1.8				
HOA1881-013		4.0				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	$I_F=20$ mA $I_C=40$ $\mu$ A $I_C=230$ $\mu$ A $I_C=500$ $\mu$ A
HOA1881-011				0.4		
HOA1881-012				0.4		
HOA1881-013				1.1		
Rise And Fall Time	$t_r, t_f$				$\mu$ s	$V_{CC}=5$ V, $I_C=1$ mA $R_L=1000$ $\Omega$ $R_L=100$ $\Omega$
HOA1881-011, -012			15			
HOA1881-013			75			

### 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 <sup>(1)</sup>

Reverse Voltage 3 V

Continuous Forward Current 50 mA

#### DETECTOR

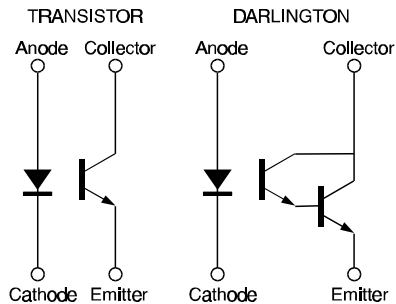
Collector-Emitter Voltage **TRANS. DARLINGTON**  
30 V 15 V

Emitter-Collector Voltage 5 V 5 V

Power Dissipation 100 mW <sup>(1)</sup> 100 mW <sup>(1)</sup>

Collector DC Current 30 mA 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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## Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

gra\_092.ds4

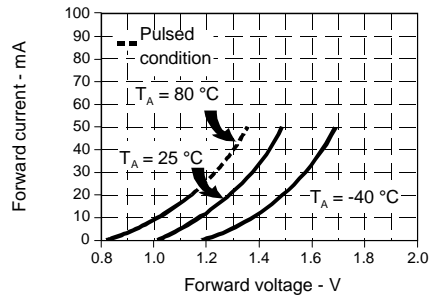


Fig. 2 Non-Saturated Switching Time vs Load Resistance

gra\_096.ds4

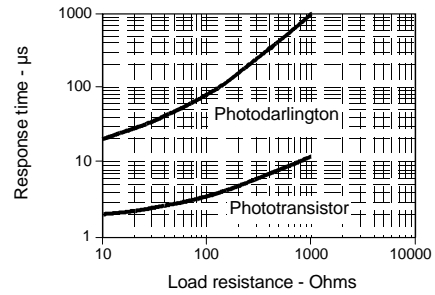


Fig. 3 Dark Current vs Temperature

gra\_301.cdr

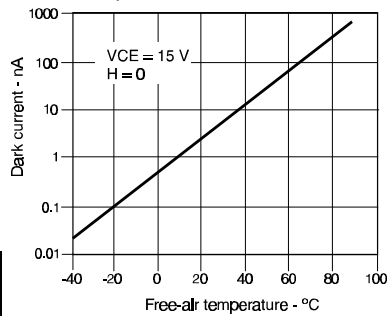
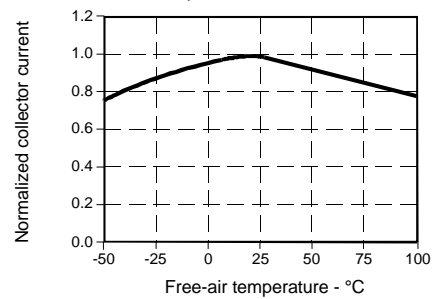


Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

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Transmissive Sensor

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