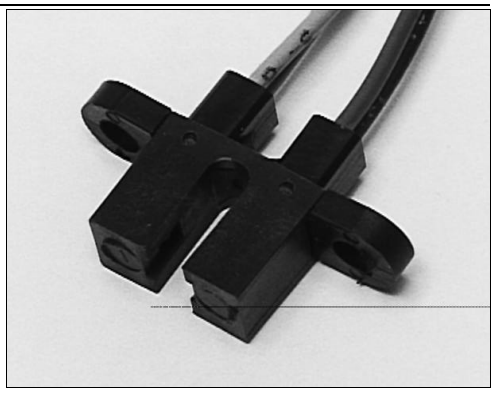
HOA1881

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



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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.

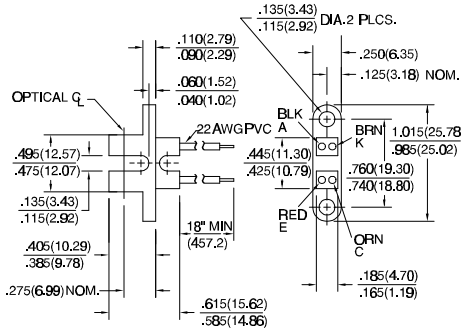
Housing material is nylon. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

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)



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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 mA
Reverse Leakage Current	I_R			10	µA	V_R=3 V
DETECTOR						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$				V	I_C=100 µA
HOA1881-011, -012		30				
HOA1881-013		15				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	I_E=100 µA
Collector Dark Current	I_{CEO}				nA	V_{CE}=10 V
HOA1881-011, -012				100		I_F=0
HOA1881-013				250		
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	V_{CE}=5 V
HOA1881-011		0.3				I_F=20 mA
HOA1881-012		1.8				
HOA1881-013		4.0				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	I_F=20 mA
HOA1881-011				0.4		I_C=40 µA
HOA1881-012				0.4		I_C=230 µA
HOA1881-013				1.1		I_C=500 µA
Rise And Fall Time	t_r, t_f				µs	V_{CC}=5 V, I_C=1 mA
HOA1881-011, -012			15			R_L=1000 Ω
HOA1881-013			75			R_L=100 Ω

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	**TRANS.**	**DARLINGTON**
Collector-Emitter Voltage	30 V	15 V
Emitter-Collector Voltage	5 V	5 V
Power Dissipation	100 mW (1)	100 mW (1)
Collector DC Current	30 mA	30 mA

SCHEMATIC

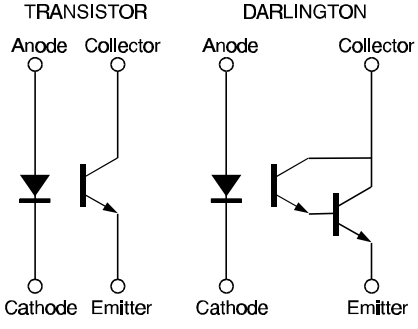

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Fig. 1 IRED Forward Bias Characteristics

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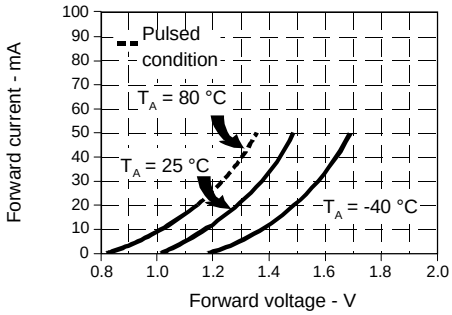

Fig. 2 Non-Saturated Switching Time vs Load Resistance

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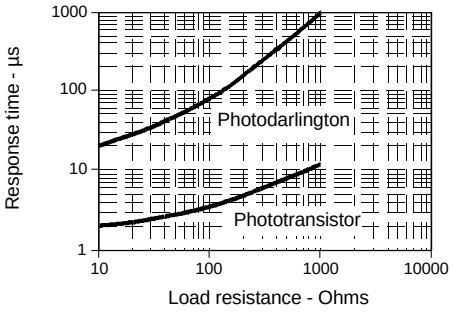

Fig. 3 Dark Current vs Temperature

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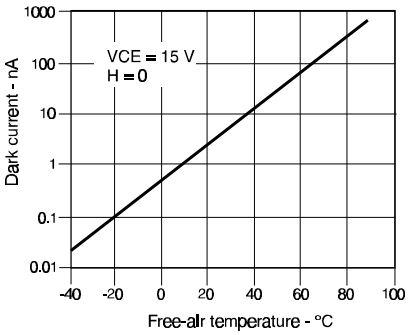

Fig. 4 Collector Current vs Ambient Temperature

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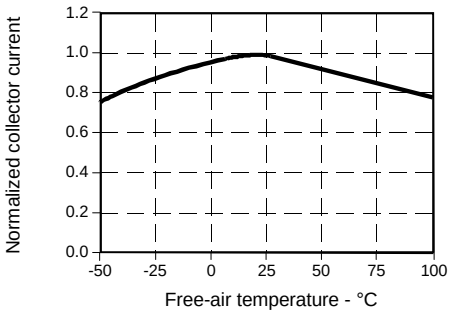

All Performance Curves Show Typical Values

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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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