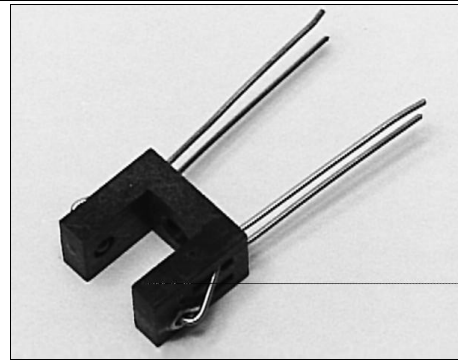


# HOA1875

## Transmissive Sensor

### FEATURES

- Choice of phototransistor or photodarlington output
- Low profile package
- Wide operating temperature range (-55°C to +100°C)
- 0.200 in.(5.08 mm) slot width



INFRA-12.TIF

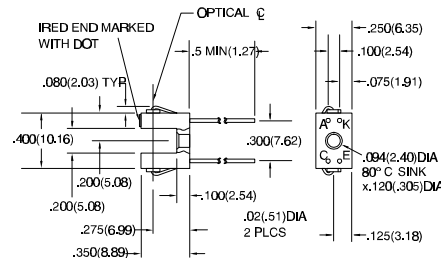
### DESCRIPTION

The HOA1875 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1875-001, -002) or photodarlington (HOA1875-003) encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA1875 series has a 0.050 in.(1.27 mm) dia. detector aperture and employs metal can packaged components. For additional component information see SE1450, SD1440, and SD1410.

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

### OUTLINE DIMENSIONS in inches (mm)

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



DIM\_047.cdr

# HOA1875

## 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
HOA1875-001, -002		30				
HOA1875-003		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
HOA1875-001, -002				100		$I_F=0$
HOA1875-003				250		
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5$ V
HOA1875-001		0.15				$I_F=30$ mA
HOA1875-002		0.6				
HOA1875-003		1.8				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	$I_F=20$ mA
HOA1875-001				0.4		$I_C=20$ $\mu$ A
HOA1875-002				0.4		$I_C=80$ $\mu$ A
HOA1875-003				1.1		$I_C=230$ $\mu$ A
Rise And Fall Time	$t_r, t_f$				$\mu$ s	$V_{CC}=5$ V, $I_C=1$ mA
HOA1875-001, -002			15			$R_L=1000$ $\Omega$
HOA1875-003			75			$R_L=100$ $\Omega$

### ABSOLUTE MAXIMUM RATINGS

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

Operating Temperature Range -55°C to 100°C

Storage Temperature Range -55°C to 125°C

Soldering Temperature (10 sec) 260°C

#### IR EMITTER

Power Dissipation 75 mW <sup>(1)</sup>

Reverse Voltage 3 V

Continuous Forward Current 50 mA

#### DETECTOR

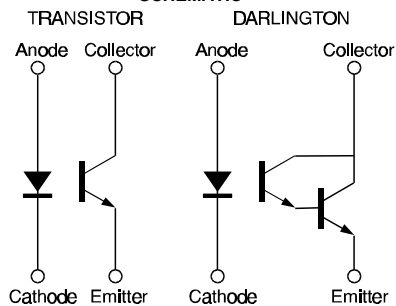
Collector-Emitter Voltage **TRANS.** 30 V **DARLINGTON** 15 V

Emitter-Collector Voltage 5 V 5 V

Power Dissipation 75 mW <sup>(1)</sup> 75 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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# HOA1875

## Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

gra\_092.ds4

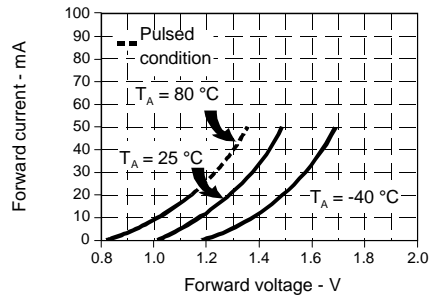


Fig. 2 Non-Saturated Switching Time vs Load Resistance

gra\_096.ds4

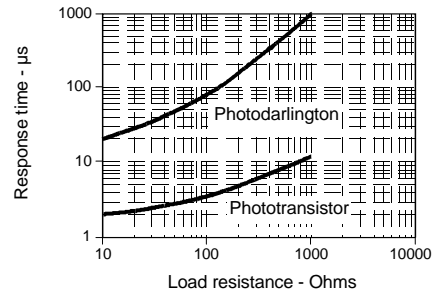


Fig. 3 Dark Current vs Temperature

gra\_303.cdr

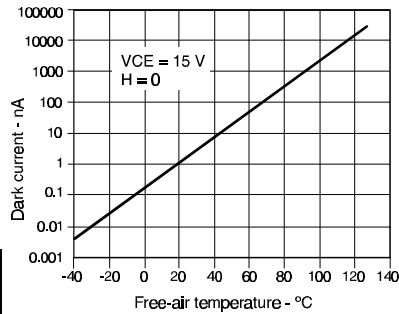
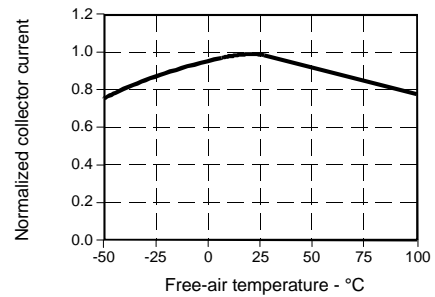


Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

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