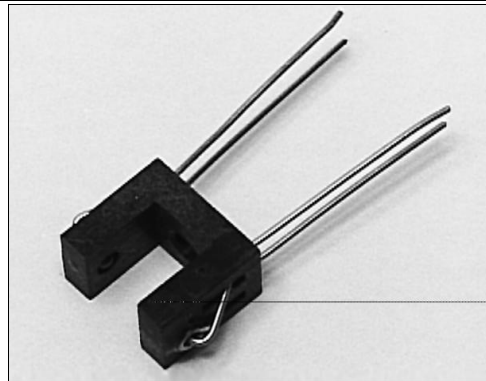


# HOA1875

## 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

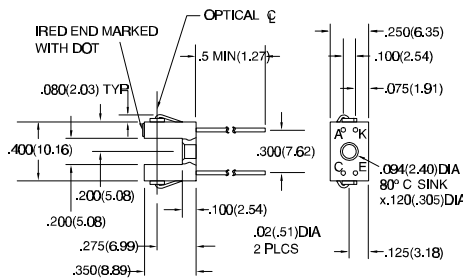
### DESCRIPTION

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	$I_F=20\text{ mA}$
Reverse Leakage Current	$I_R$			10	$\mu\text{A}$	$V_R=3\text{ V}$
<b>DETECTOR</b>						
Collector-Emitter Breakdown Voltage HOA1875-001, -002 HOA1875-003	$V_{(BR)CEO}$	30 15			V	$I_C=100\ \mu\text{A}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\ \mu\text{A}$
Collector Dark Current HOA1875-001, -002 HOA1875-003	$I_{CEO}$			100 250	nA	$V_{CE}=10\text{ V}$ $I_F=0$
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current HOA1875-001 HOA1875-002 HOA1875-003	$I_{C(ON)}$	0.15 0.6 1.8			mA	$V_{CE}=5\text{ V}$ $I_F=30\text{ mA}$
Collector-Emitter Saturation Voltage HOA1875-001 HOA1875-002 HOA1875-003	$V_{CE(SAT)}$			0.4 0.4 1.1	V	$I_F=20\text{ mA}$ $I_C=20\ \mu\text{A}$ $I_C=80\ \mu\text{A}$ $I_C=230\ \mu\text{A}$
Rise And Fall Time HOA1875-001, -002 HOA1875-003	$t_r, t_f$			15 75	$\mu\text{s}$	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\ \Omega$ $R_L=100\ \Omega$

### 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 30 V

Emitter-Collector Voltage 5 V

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

Collector DC Current 30 mA

#### TRANS. DARLINGTON

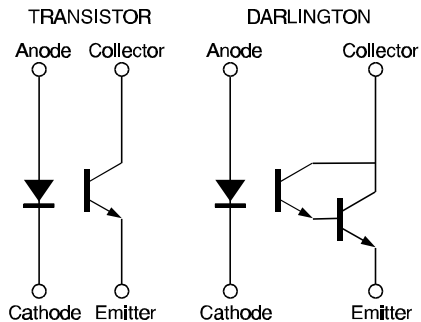
15 V

5 V

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

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

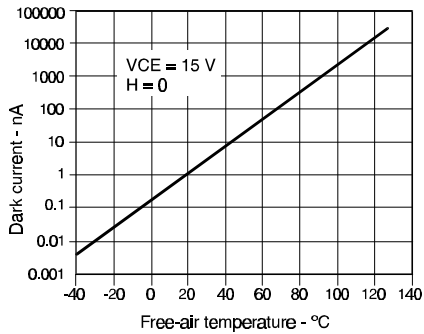


Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

**HOA1875**  
Transmissive Sensor

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