



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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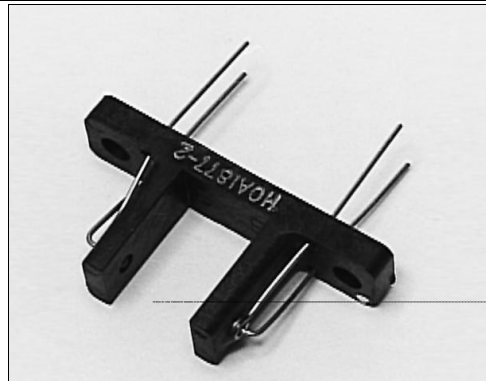


# HOA1877

## Transmissive Sensor

### FEATURES

- Choice of phototransistor or photodarlington output
- Wide operating temperature range (- 55°C to +100°C)
- 0.50 in.(12.7 mm) high optical axis position
- 0.375 in.(9.52 mm) slot width



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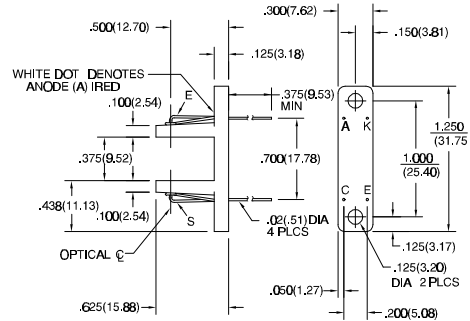
### DESCRIPTION

The HOA1877 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1877- 001, - 002) or photodarlington (HOA1877- 003) encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA1877 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 polycarbonate. 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\_049.cdr

# HOA1877

## 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 HOA1877-001, -002 HOA1877-003	$V_{(BR)CEO}$	30 15			V	$I_C=100\text{ }\mu\text{A}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current HOA1877-001, -002 HOA1877-003	$I_{CEO}$			100 250	nA	$V_{CE}=10\text{ V}$ $I_F=0$
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current HOA1877-001 HOA1877-002 HOA1877-003	$I_{C(ON)}$	0.1 0.5 1.5			mA	$V_{CE}=5\text{ V}$ $I_F=30\text{ mA}$
Collector-Emitter Saturation Voltage HOA1877-001 HOA1877-002 HOA1877-003	$V_{CE(SAT)}$			0.4 0.4 1.1	V	$I_F=30\text{ mA}$ $I_C=10\text{ }\mu\text{A}$ $I_C=60\text{ }\mu\text{A}$ $I_C=190\text{ }\mu\text{A}$
Rise And Fall Time HOA1877-001, -002 HOA1877-003	$t_r, t_f$			15 75	$\mu\text{s}$	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$ $R_L=100\text{ }\Omega$

### 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

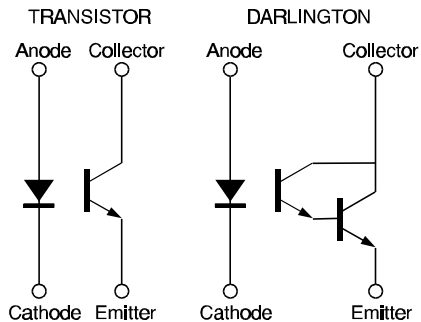
15 V

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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## Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

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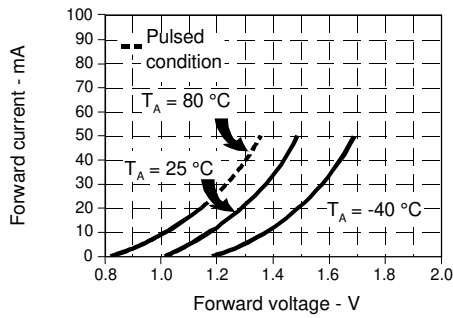


Fig. 2 Non-Saturated Switching Time vs Load Resistance

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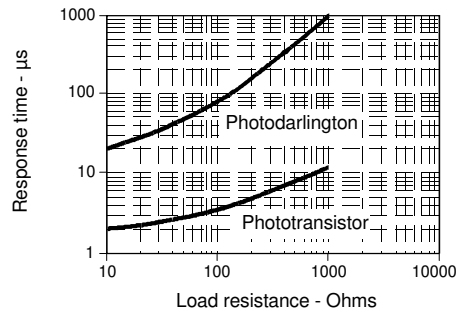


Fig. 3 Dark Current vs Temperature

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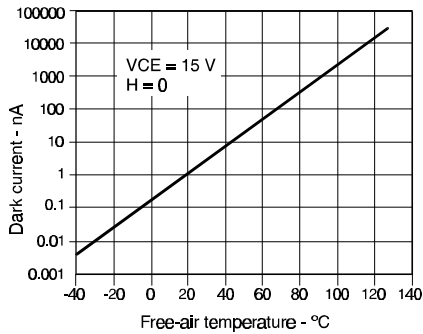
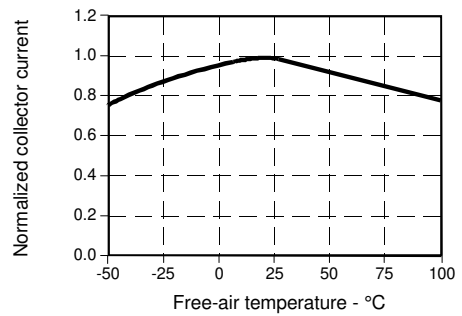


Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

**HOA1877**  
Transmissive Sensor

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