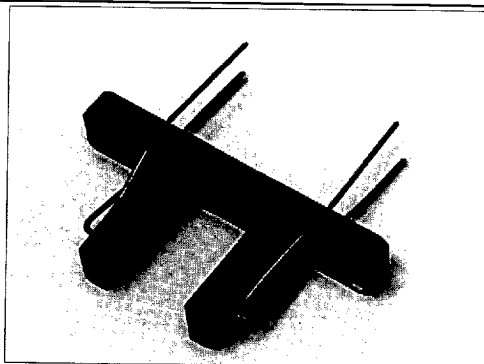


HOA1877

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



INFRA-47.TIF

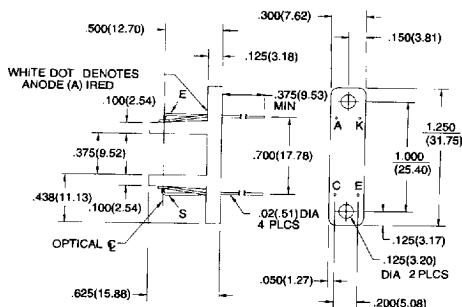
DESCRIPTION

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 $\pm 0.010(0.25)$
2 plc decimals $\pm 0.020(0.51)$



DIM_049.cdr

HOA1877

Transmissive Sensor

ELECTRICAL CHARACTERISTIC (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	V_F			1.6	V	$I_F=20\text{ mA}$
Reverse Leakage Current	I_R			10	μA	$V_R=3\text{ V}$
DETECTOR						
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	$V_{CE}=10\text{ V}$ $I_F=0$
COUPLED CHARACTERISTICS						
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		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$ $R_L=100\text{ }\Omega$

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 ⁽¹⁾

Reverse Voltage 3 V

Continuous Forward Current 50 mA

DETECTOR

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

Emitter-Collector Voltage 5 V 5 V

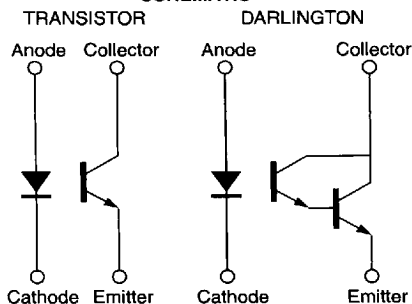
Power Dissipation 75 mW ⁽¹⁾ 75 mW ⁽¹⁾

Collector DC Current 30 mA 30 mA

Notes

1. Derate linearly at 0.71 mW/°C above 25°C.

SCHEMATIC



Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

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HOA1877

Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

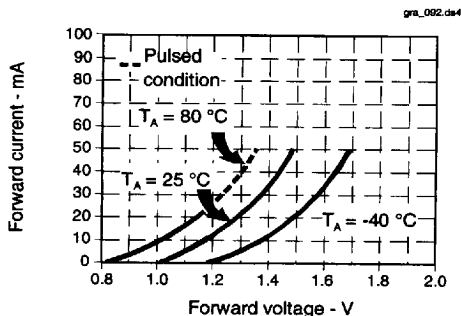


Fig. 2 Non-Saturated Switching Time vs Load Resistance

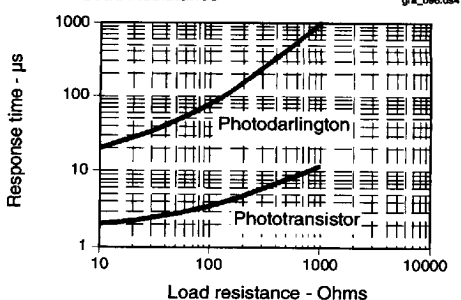


Fig. 3 Dark Current vs Temperature

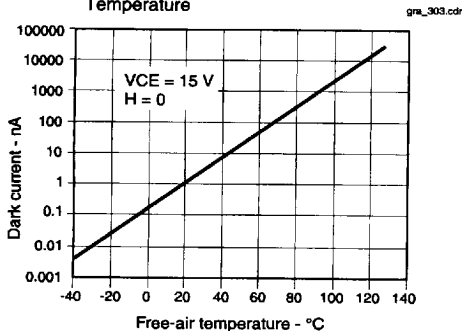
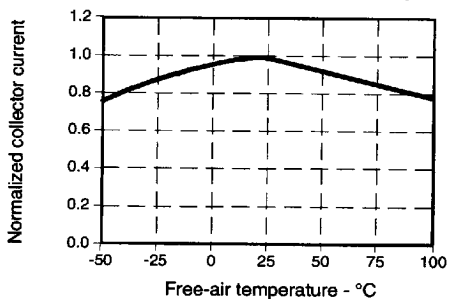


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

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