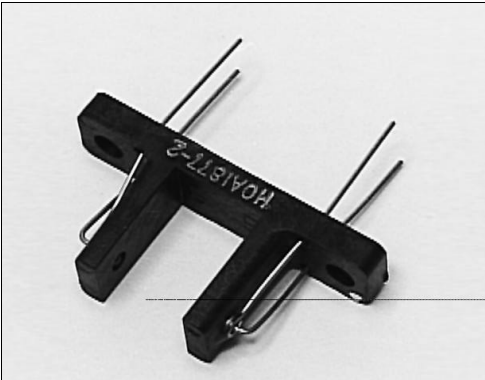


# HOA1877

## 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

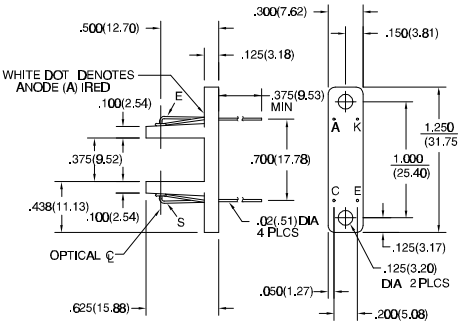
### DESCRIPTION

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	±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 <sub>F</sub>			1.6	V	I <sub>F</sub> =20 mA
Reverse Leakage Current		I <sub>R</sub>			10	µA	V <sub>R</sub> =3 V
<b>DETECTOR</b>							
Collector-Emitter Breakdown Voltage HOA1877-001, -002 HOA1877-003		V <sub>(BR)CEO</sub>	30 15			V	I <sub>C</sub> =100 µA
Emitter-Collector Breakdown Voltage		V <sub>(BR)ECO</sub>	5.0			V	I <sub>E</sub> =100 µA
Collector Dark Current HOA1877-001, -002 HOA1877-003		I <sub>CEO</sub>			100 250	nA	V <sub>CE</sub> =10 V I <sub>F</sub> =0
<b>COUPLED CHARACTERISTICS</b>							
On-State Collector Current HOA1877-001 HOA1877-002 HOA1877-003		I <sub>C(ON)</sub>	0.1 0.5 1.5			mA	V <sub>CE</sub> =5 V I <sub>F</sub> =30 mA
Collector-Emitter Saturation Voltage HOA1877-001 HOA1877-002 HOA1877-003		V <sub>CE(SAT)</sub>			0.4 0.4 1.1	V	I <sub>F</sub> =30 mA I <sub>C</sub> =10 µA I <sub>C</sub> =60 µA I <sub>C</sub> =190 µA
Rise And Fall Time HOA1877-001, -002 HOA1877-003		t <sub>r</sub> , t <sub>f</sub>		15 75		µs	V <sub>CC</sub> =5 V, I <sub>C</sub> =1 mA R <sub>L</sub> =1000 Ω R <sub>L</sub> =100 Ω

## 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

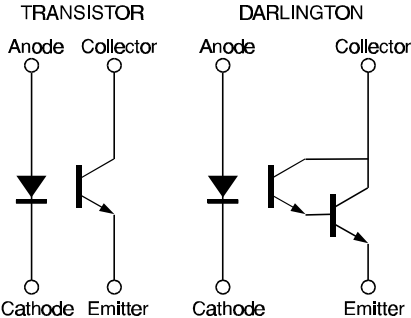
### IR EMITTER

Power Dissipation	75 mW <sup>(1)</sup>
Reverse Voltage	3 V
Continuous Forward Current	50 mA

### DETECTOR

	TRANS.	DARLINGTON
Collector-Emitter Voltage	30 V	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



# HOA1877

Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

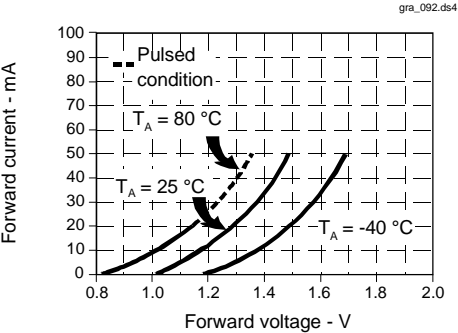


Fig. 2 Non-Saturated Switching Time vs Load Resistance

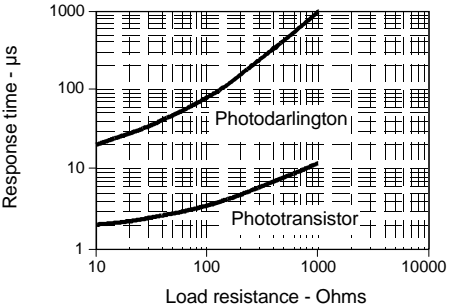


Fig. 3 Dark Current vs Temperature

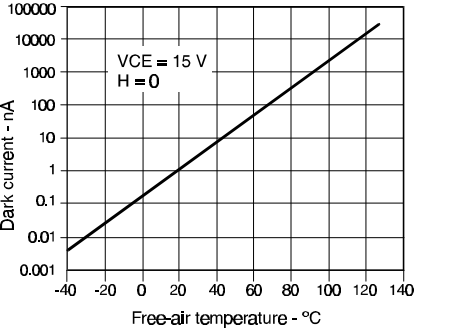
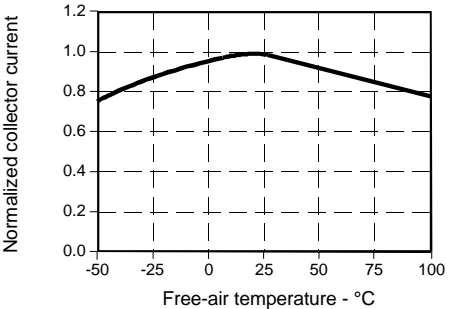


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values