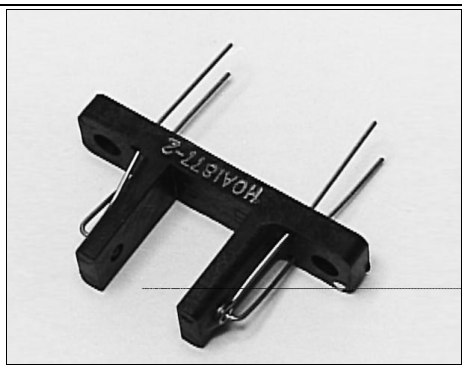
HOA1877

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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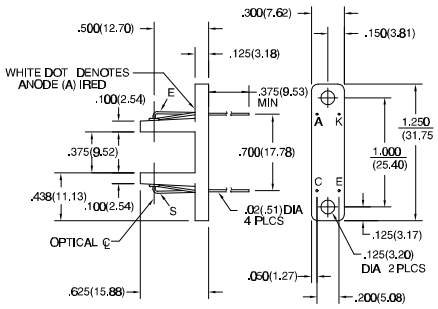
DESCRIPTION

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)



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ELECTRICAL CHARACTERISTICS (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 mA
Reverse Leakage Current	I_R			10	µA	V_R=3 V
DETECTOR						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$				V	I_C=100 µA
HOA1877-001, -002		30				
HOA1877-003		15				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	I_E=100 µA
Collector Dark Current	I_{CEO}				nA	V_{CE}=10 V
HOA1877-001, -002				100		I_F=0
HOA1877-003				250		
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	V_{CE}=5 V
HOA1877-001		0.1				I_F=30 mA
HOA1877-002		0.5				
HOA1877-003		1.5				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	I_F=30 mA
HOA1877-001				0.4		I_C=10 µA
HOA1877-002				0.4		I_C=60 µA
HOA1877-003				1.1		I_C=190 µA
Rise And Fall Time	t_r, t_f				µs	V_{CC}=5 V, I_C=1 mA
HOA1877-001, -002			15			R_L=1000 Ω
HOA1877-003			75			R_L=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 (1)	
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 (1)	75 mW (1)
Collector DC Current	30 mA	30 mA

SCHEMATIC

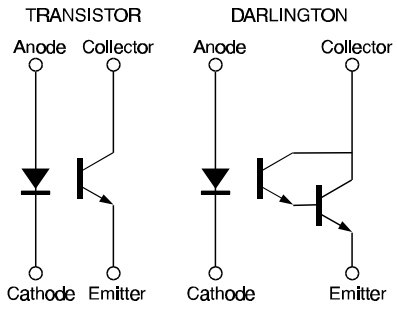

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Fig. 1 IRED Forward Bias Characteristics

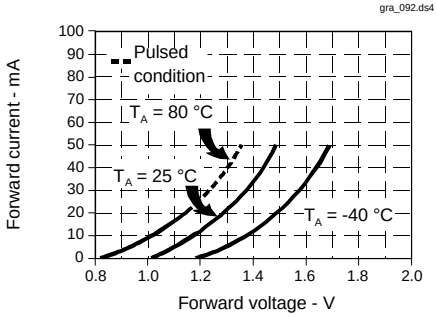


Fig. 2 Non-Saturated Switching Time vs Load Resistance

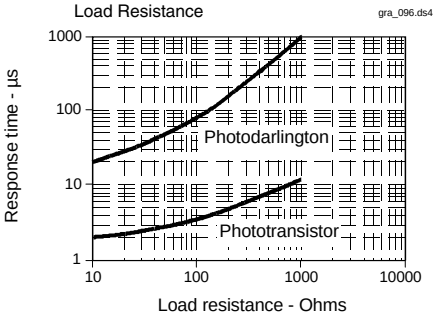


Fig. 3 Dark Current vs Temperature

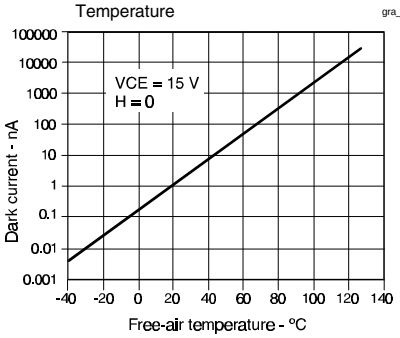
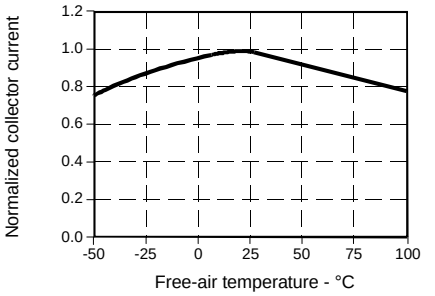


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

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