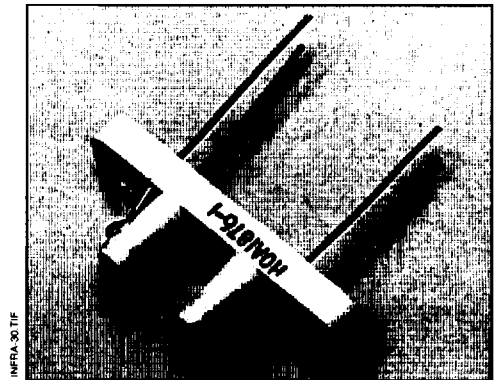


Transmissive Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Wide lead spacing
- Wide operating temperature range (-55°C to +100°C)
- 0.200 in. (5.08 mm) slot width



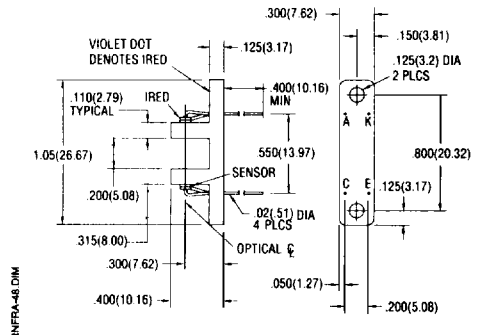
DESCRIPTION

The HOA1876 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1876-001, -002) or photodarlington (HOA1876-003) encased in a white thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA1876 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	$\pm 0.020(0.51)$



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HOA1876

Transmissive Sensor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	V_F			1.6	V	$I_F=20\text{ mA}$
Reverse Leakage Current	I_R			10	μA	$V_R=3\text{ V}$
DETECTOR						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	$I_C=100\text{ }\mu\text{A}$
HOA1876-001, -002		15				
HOA1876-003		5.0				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$				V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CEO}			100	nA	$V_{CE}=10\text{ V}$ $I_F=0$
HOA1876-001, -002				250		
HOA1876-003						
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$	0.15			mA	$V_{CE}=5\text{ V}$ $I_F=30\text{ mA}$
HOA1876-001		0.6				
HOA1876-002		1.8				
HOA1876-003						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	$I_F=30\text{ mA}$ $I_C=20\text{ }\mu\text{A}$
HOA1876-001				0.4		$I_C=80\text{ }\mu\text{A}$
HOA1876-002				1.1		$I_C=230\text{ }\mu\text{A}$
HOA1876-003						
Rise And Fall Time	t_r, t_f		15		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$
HOA1876-001, -002			75			$R_L=100\text{ }\Omega$
HOA1876-003						

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 30 V

Emitter-Collector Voltage 5 V

Power Dissipation 75 mW⁽¹⁾

Collector DC Current 30 mA

TRANS.

DARLINGTON

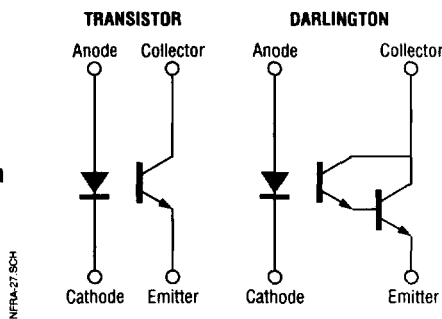
15 V

5 V

75 mW⁽¹⁾

30 mA

SCHEMATIC



Notes

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

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HOA1876

Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

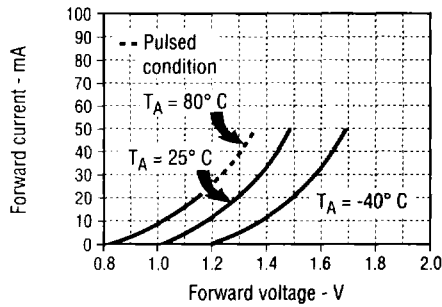


Fig. 2 Non-Saturated Switching Time vs Load Resistance

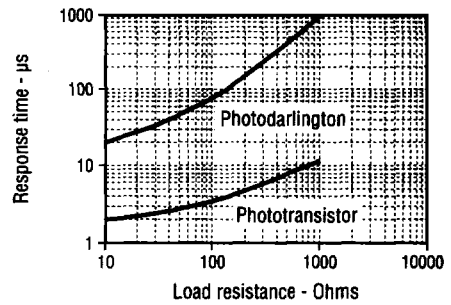


Fig. 3 Detector Dark Current vs Temperature

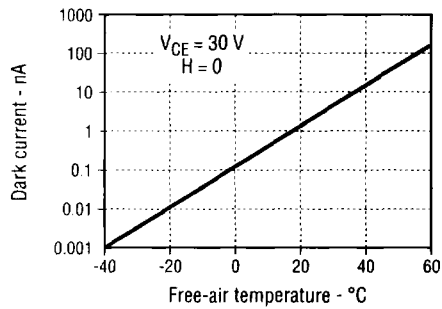
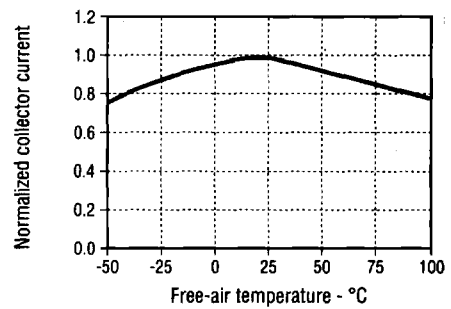


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

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