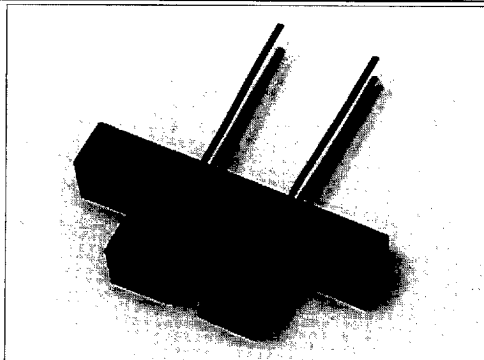


HOA1873

Transmissive Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Three sensitivity ranges
- Choice of metal can package or plastic molded components
- 0.100 in. (2.54 mm) slot width



INFRA-13.TIF

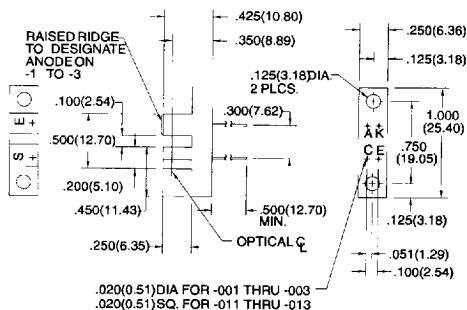
DESCRIPTION

The HOA1873 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1873-001, -002, -011, -012) or photodarlington (HOA1873-003, -013) encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA1873-001, -002, and -003 have a 0.050 in. (1.27 mm) dia. detector aperture and employ metal can packaged components, while the HOA1873-011, -012, and -013 have a 0.060 in. (1.52 mm) dia. detector aperture and contain plastic molded components. For additional component information see SE1450, SD1440, SD1410, SEP8506, SDP8406, and SDP8106.

HOA1873-001, 002, 003 housing material is acetal copolymer. HOA1873-011, 012, 013 housing material is polyester. 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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HOA1873

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	$V_{(BR)CEO}$	30			V	$I_C=100\text{ }\mu\text{A}$
HOA1873-001, -002, -011, -012		15				
HOA1873-003, -013		5.0				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$				V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CEO}			100	nA	$V_{CE}=10\text{ V}$ $I_F=0$
HOA1873-001, -002, -011, -012				250		
HOA1873-003, -013						
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$	0.3			mA	$V_{CE}=5\text{ V}$ $I_F=20\text{ mA}$
HOA1873-001, -011		1.8				
HOA1873-002, -012		4.0				
HOA1873-003, -013						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	$I_F=20\text{ mA}$ $I_C=40\text{ }\mu\text{A}$
HOA1873-001, -011				0.4		$I_C=230\text{ }\mu\text{A}$
HOA1873-002, -012				1.1		$I_C=500\text{ }\mu\text{A}$
HOA1873-003, -013						
Rise And Fall Time	t_r, t_f				μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$ $R_L=100\text{ }\Omega$
HOA1873-001, -002, -011, -012			15			
HOA1873-003, -013			75			

ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

Operating Temperature Range

HOA1873-001, -002, -003	-55°C to 100°C
HOA1873-011, -012, -013	-40°C to 85°C

Storage Temperature Range

HOA1873-001, -002, -003	-55°C to 125°C
HOA1873-011, -012, -013	-40°C to 85°C

Soldering Temperature

HOA1873-001, -002, -003	260°C (10 sec)
HOA1873-011, -012, -013	240°C (5 sec)

IR EMITTER

Power Dissipation:

HOA1873-001, -002, -003	75 mW ⁽¹⁾
HOA1873-011, -012, -013	100 mW ⁽²⁾

Reverse Voltage

3 V

ABSOLUTE MAXIMUM RATINGS (continued)

Continuous Forward Current

50 mA

DETECTOR

Collector-Emitter Voltage

TRANS. 30 V

DARLINGTON 15 V

Emitter-Collector Voltage

5 V

5 V

Power Dissipation

HOA1873-001, -002, -003	75 mW ⁽¹⁾	75 mW ⁽¹⁾
HOA1873-011, -012, -013	100 mW ⁽²⁾	100 mW ⁽²⁾
Collector DC Current	30 mA	30 mA

Notes

- Derate linearly at 0.71 mW/°C above 25°C.
- Derate linearly at 0.78 mW/°C above 25°C.

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

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HOA1873

Transmissive Sensor

SCHEMATIC

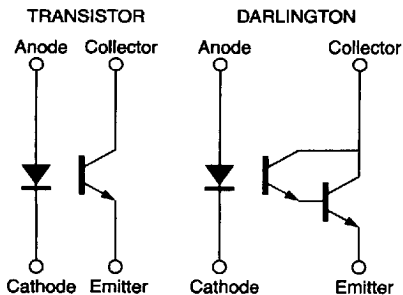


Fig. 2 Non-Saturated Switching Time vs Load Resistance

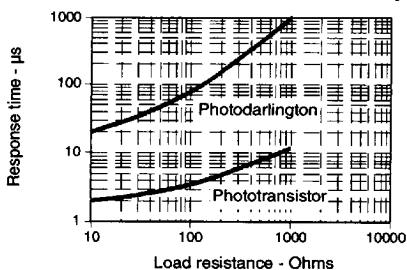


Fig. 4 Collector Current vs Ambient Temperature

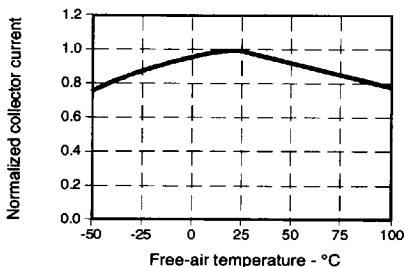


Fig. 1 IRED Forward Bias Characteristics

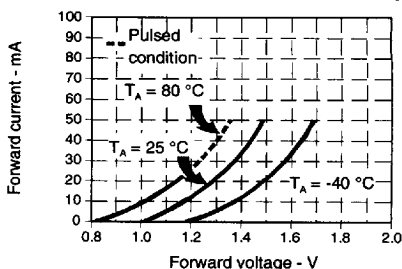
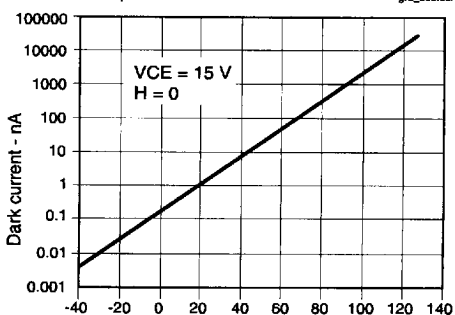


Fig. 3 Dark Current vs Temperature



All Performance Curves Show Typical Values

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