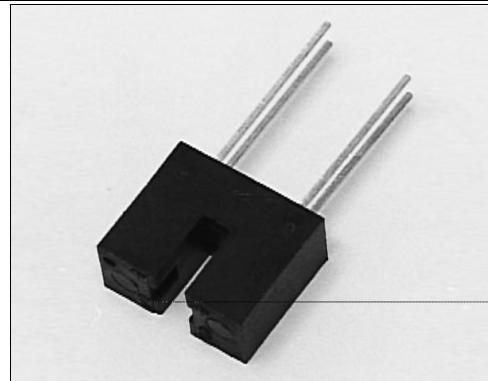


HOA1872

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-14.TIF

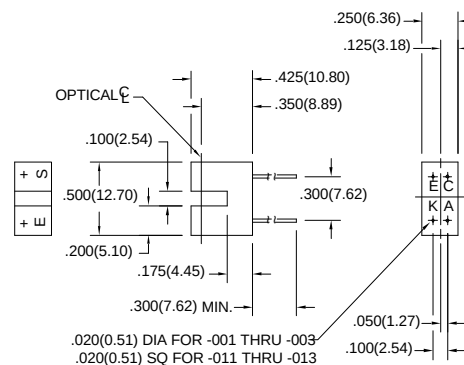
DESCRIPTION

The HOA1872 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1872- 001, - 002, - 011, - 012) or photodarlington (HOA1872- 003, - 013) encased in a black thermoplastic housing. Detector switching takes place wherever an opaque object passes through the slot between emitter and detector. The HOA1872- 001, - 002 and - 003 have a 0.050 in.(1.27 mm)dia. detector aperture and employ metal can packaged components, while the HOA1872- 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.

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 $\pm 0.020(0.51)$



DIM_044.ds4

HOA1872

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 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
HOA1872-001, -002, -011, -012		30				
HOA1872-003, -013		15				
Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	5.0			V	I _E =100 μA
Collector Dark Current	I _{CEO}			100	nA	V _{CE} =10 V
HOA1872-001, -002, -011, -012				250		I _F =0
HOA1872-003, -013						
COUPLED CHARACTERISTICS						
On-State Collector Current	I _{C(ON)}				mA	V _{CE} =5 V
HOA1872-001, -011		0.3				I _F =20 mA
HOA1872-002, -012		1.8				
HOA1872-003, -013		4.0				
Collector-Emitter Saturation Voltage	V _{CE(SAT)}			0.4	V	I _F =20 mA
HOA1872-001, -011				0.4		I _C =40 μA
HOA1872-002, -012				0.4		I _C =230 μA
HOA1872-003, -013				1.1		I _C =500 μA
Rise And Fall Time	t _r , t _f			15	μs	V _{CC} =5 V, I _C =1 mA
HOA1872-001, -002, -011, -012				75		R _L =1000 Ω
HOA1872-003, -013						R _L =100 Ω

ABSOLUTE MAXIMUM RATINGS		
(25°C Free-Air Temperature unless otherwise noted)		
Operating Temperature Range		
HOA1872-001, -002, -003	-55°C to 100°C	
HOA1872-011, -012, -013	-40°C to 85°C	
Storage Temperature Range		
HOA1872-001, -002, -003	-55°C to 125°C	
HOA1872-011, -012, -013	-40°C to 85°C	
Soldering Temperature		
HOA1872-001, -002, -003	260°C (10 sec.)	
HOA1872-011, -012, -013	240°C (5 sec.)	
IR EMITTER		
Power Dissipation		
HOA1872-001, -002, -003	75 mW	
HOA1872-011, -012, -013	100 mW	
Reverse Voltage	3 V	

ABSOLUTE MAXIMUM RATINGS (continued)			
Continuous Forward Current	50 mA		
DETECTOR	TRANS.	DARLINGTON	
Collector-Emitter Voltage	30 V	15 V	
Emitter-Collector Voltage	5 V	5 V	
Power Dissipation			
HOA1872-001, -002, -003	75 mW ⁽¹⁾	75 mW ⁽¹⁾	
HOA1872-011, -012, -013	100 mW ⁽²⁾	100 mW ⁽²⁾	
Collector DC Current	30 mA	30 mA	
Notes			
1. Derate linearly at 0.71 mW/°C above 25°C.			
2. 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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HOA1872

Transmissive Sensor

SCHEMATIC

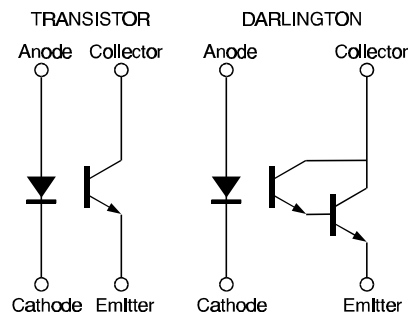


Fig. 1 IRED Forward Bias Characteristics

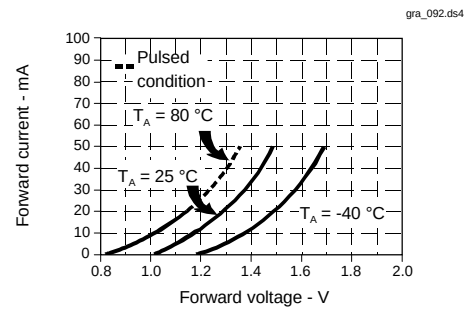


Fig. 2 Non-Saturated Switching Time vs Load Resistance

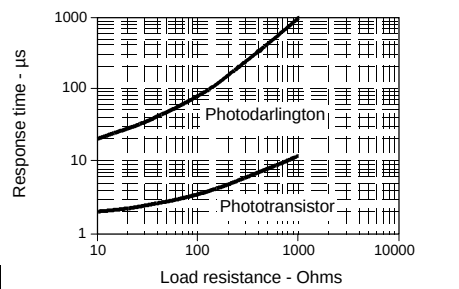


Fig. 3 Dark Current vs Temperature

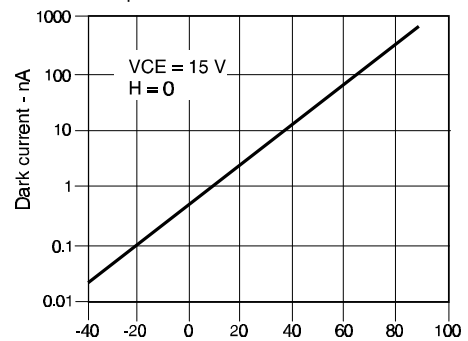
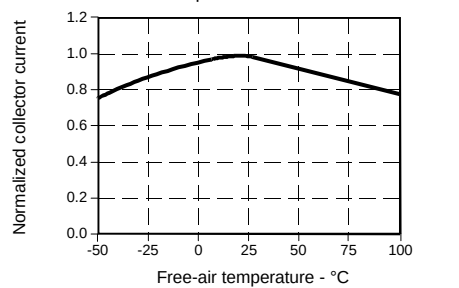


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

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