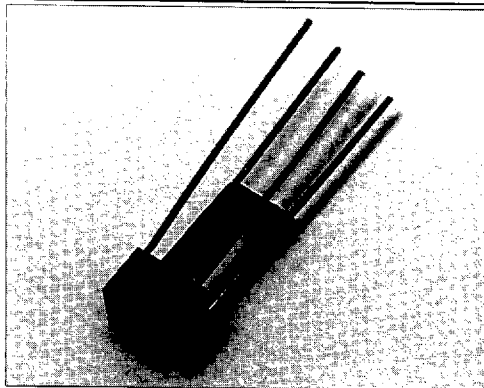


HOA2498

Reflective Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Focused for maximum response
- Wide operating temperature range (-55°C to +100°C)



INFRA-64.TIF

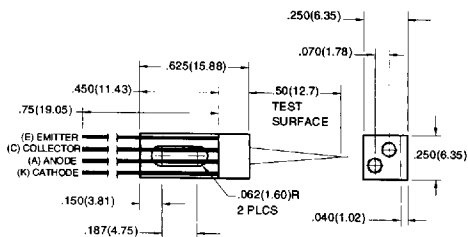
DESCRIPTION

The HOA2498 series consists of an infrared emitting diode and an NPN silicon phototransistor (HOA2498-001, -002) or photodarlington (HOA2498-003), encased side-by-side on converging optical axes in a black thermoplastic housing. The detector responds to radiation from the IRED only when a reflective object passes within its field of view. The HOA2498 series employs metal can packaged components. For additional component information see SE1450, SD1440, and SD1410.

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_039.dwg

HOA2498

Reflective 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	$V_{(BR)CEO}$				V	$I_C=100\text{ }\mu\text{A}$
HOA2498-001, -002		30				
HOA2498-003		15				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CEO}				nA	$V_{CE}=10\text{ V}$
HOA2498-001, -002				100		$I_F=0$
HOA2498-003				250		
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5\text{ V}$
HOA2498-001		0.04				$I_F=30\text{ mA}$
HOA2498-002		0.16				(1)
HOA2498-003		2.0				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	$I_F=30\text{ mA}$ (1)
HOA2498-001				0.4		$I_C=5\text{ }\mu\text{A}$
HOA2498-002				0.4		$I_C=20\text{ }\mu\text{A}$
HOA2498-003				1.1		$I_C=250\text{ }\mu\text{A}$
Rise And Fall Time	t_r, t_f				μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$
HOA2498-001, -002			15			$R_L=1000\text{ }\Omega$
HOA2498-003			75			$R_L=100\text{ }\Omega$

Notes
1. Test surface is a front surface mirror (polished aluminum, 85% reflectance) located 0.50 in. (12.7 mm) from the front surface of the device.

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

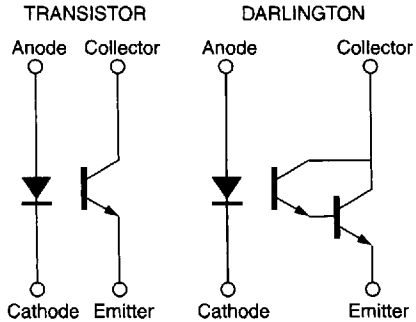
DETECTOR

	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

Notes

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

SCHEMATIC



HOA2498

Reflective Sensor

Fig. 1 IRED Forward Bias Characteristics

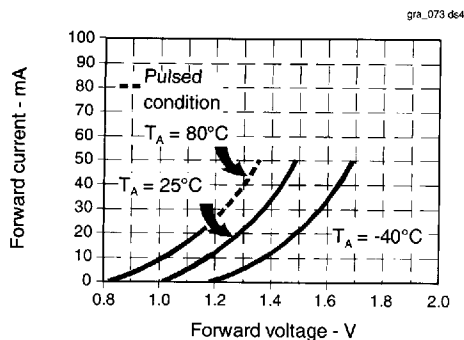


Fig. 2 Non-Saturated Switching Time vs Load Resistance

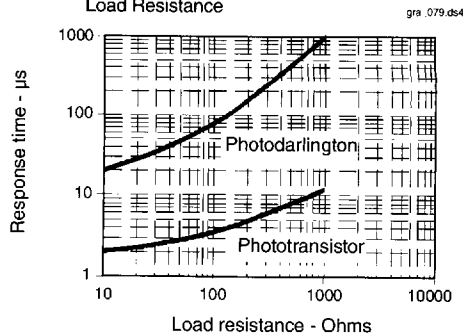


Fig. 3 Dark Current vs Temperature

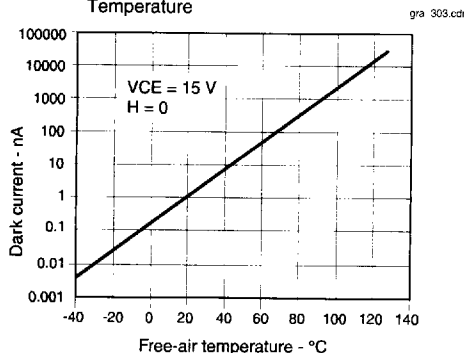


Fig. 4 Collector Current vs Ambient Temperature

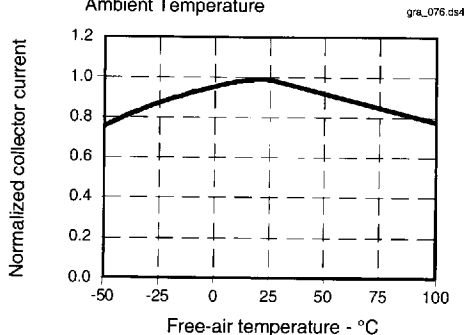


Fig. 5 Collector Current vs Distance to Reflective Surface

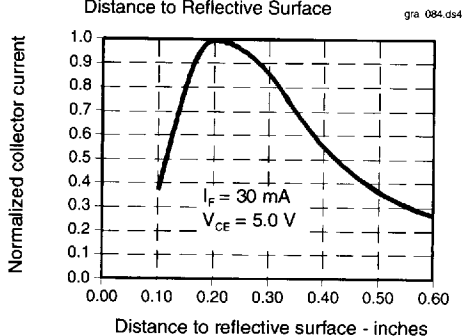
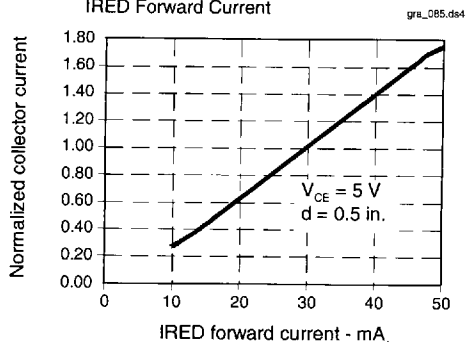


Fig. 6 Collector Current vs IRED Forward Current



All Performance Curves Show Typical Values

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