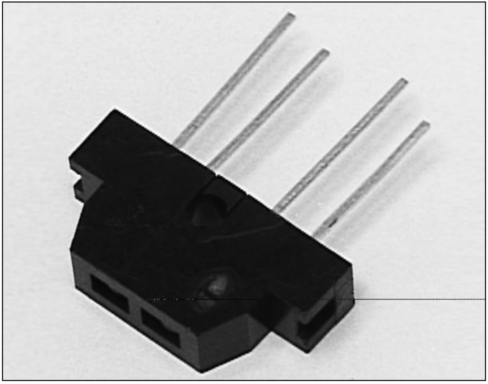
HOA0149

Reflective Sensor

FEATURES

- Phototransistor output
- Focused for maximum response
- Low profile housing



INFRA-59.TIF

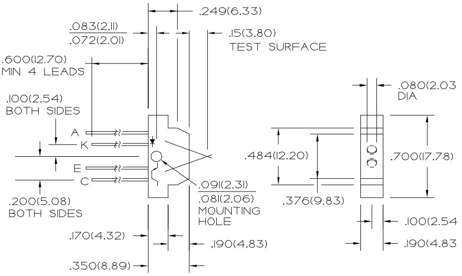
DESCRIPTION

The HOA0149 consists of an infrared emitting diode and an NPN silicon phototransistor encased side-by-side on converging optical axes in a black thermoplastic housing. The phototransistor responds to radiation from the IRED only when a reflective object passes within its field of view. The HOA0149 employs plastic molded components. For additional component information see SEP8505 and SDP8405.

Housing material is ABS. 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	$V_{(BR)CEO}$	30			V	I_C=100 µA
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	I_E=100 µA
Collector Dark Current	I_{CEO}			100	nA	V_{CE}=15 V, I_F=0
COUPLED CHARACTERISTICS						
On-State Collector Current HOA0149-001	$I_{C(ON)}$	1.0			mA	V_{CE}=5 V, I_F=40 mA (1)
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	I_C=125 µA, I_F=40 mA (1)
Rise And Fall Time	t_r, t_f		15		µs	V_{CC}=5 V, I_C=1 mA

Notes

1. Test surface is a front surface mirror (polished aluminum, 85% reflectance) located 0.15 in.(3.80 mm) from the front surface of the device.

ABSOLUTE MAXIMUM RATINGS

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

Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-40°C to 85°C
Soldering Temperature (5 sec)	240°C
IR EMITTER	
Power Dissipation	70 mW (1)
Reverse Voltage	3 V
Continuous Forward Current	50 mA
DETECTOR	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	70 mW (1)
Collector DC Current	30 mA

SCHEMATIC

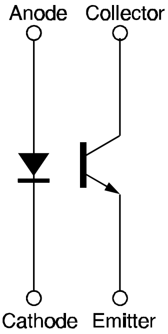

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Fig. 1 IRED Forward Bias Characteristics

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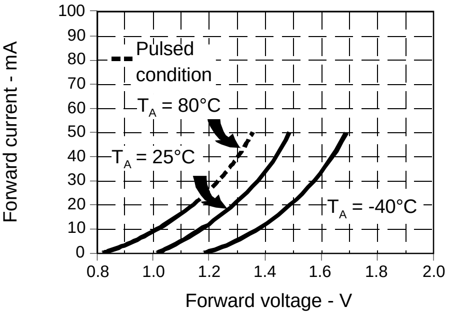

Fig. 2 Non-Saturated Switching Time vs Load Resistance

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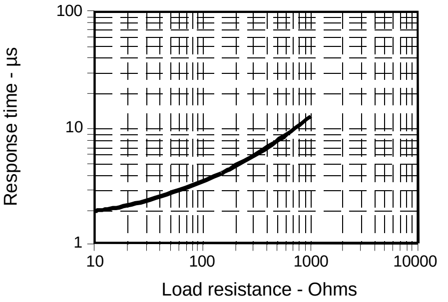

Fig. 3 Dark Current vs Temperature

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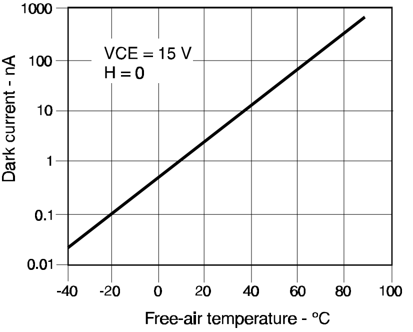

Fig. 4 Collector Current vs Ambient Temperature

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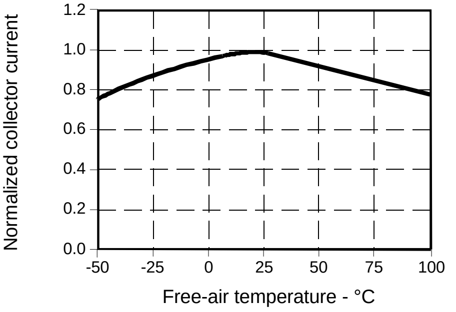

Fig. 5 Collector Current vs Distance to Reflective Surface

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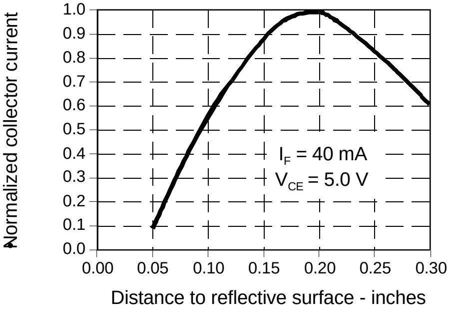

Fig. 6 Collector Current vs IRED Forward Current

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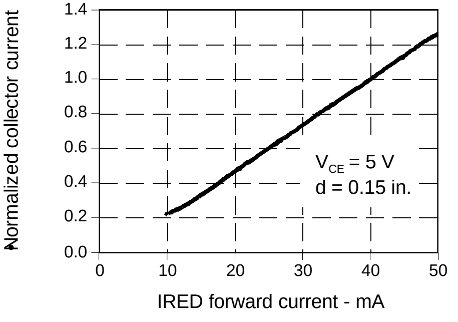

All Performance Curves Show Typical Values