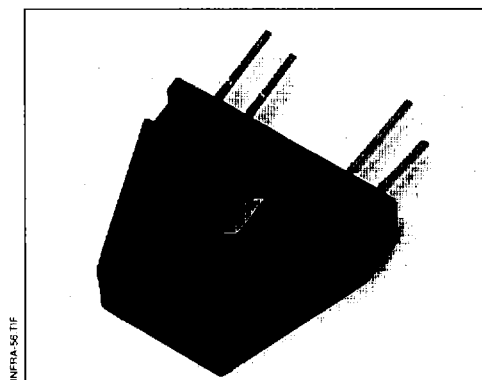


HOA0708/0709

Reflective Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Focused for maximum response
- Ambient light rejection filter option
- Adjustable mounting slot



INFRA-56 T/F

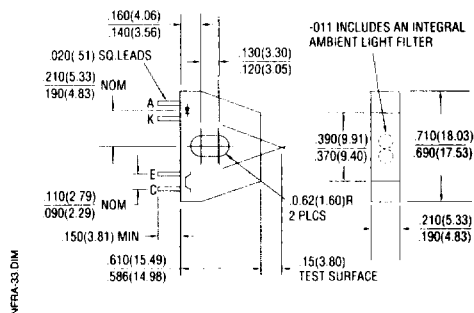
DESCRIPTION

The HOA0708/0709 series consists of an infrared emitting diode and an NPN silicon phototransistor (HOA0708-001, -011) or photodarlington (HOA0709-001, -011) 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 HOA0708-011 and HOA0709-011 contain an integrated IR transparent filter, which minimizes the effect of ambient light and provides dust protection. The HOA0708/0709 series employs plastic molded components. For additional component information see SEP8505, SDP8405, and SDP8105.

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 $\pm 0.020(0.51)$



INFRA-33 DIM

HOA0708/0709

Reflective 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	$V_{(BR)CEO}$				V	$I_C=100\text{ }\mu\text{A}$
HOA0708-001, -011		30				
HOA0709-001, -011		15				
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CEO}				nA	$V_{CE}=10\text{ V}$
HOA0708-001, -011				100		$I_F=0$
HOA0709-001, -011				250		
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5\text{ V}$
HOA0708-001, -011		0.2				$I_F=40\text{ mA}$
HOA0709-001, -011		1.0				(1)
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	$I_F=40\text{ mA}, (1)$
HOA0708-001, -011				1.1		$I_C=30\text{ }\mu\text{A}$
HOA0709-001, -011						$I_C=125\text{ }\mu\text{A}$
Rise And Fall Time	t_r, t_f				μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$
HOA0708-001, -011			15			$R_L=1000\text{ }\Omega$
HOA0709-001, -011			75			$R_L=100\text{ }\Omega$

Notes

- Test surface is an Eastman Kodak neutral white test card with 90% diffuse 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

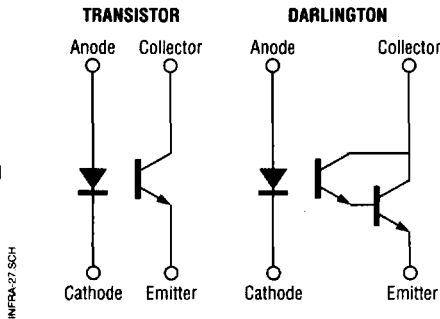
Collector-Emitter Voltage 30 V
Emitter-Collector Voltage 5 V
Power Dissipation 70 mW⁽¹⁾
Collector DC Current 30 mA

TRANS.

DARLINGTON

15 V
5 V
70 mW⁽¹⁾
30 mA

SCHEMATIC



Notes

- Derate linearly at 0.18 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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HOA0708/0709

Reflective Sensor

Fig. 1 IRED Forward Bias Characteristics

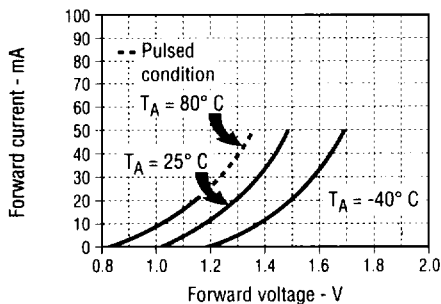


Fig. 2 Non-Saturated Switching Time vs Load Resistance

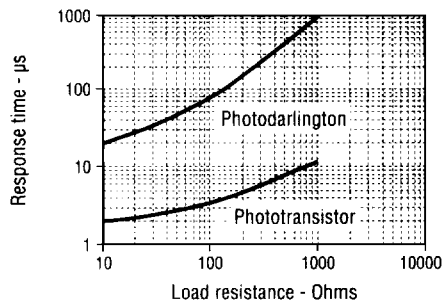


Fig. 3 Detector Dark Current vs Temperature

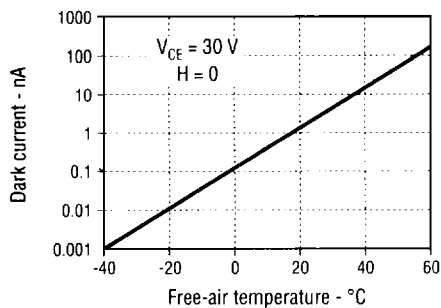


Fig. 4 Collector Current vs Ambient Temperature

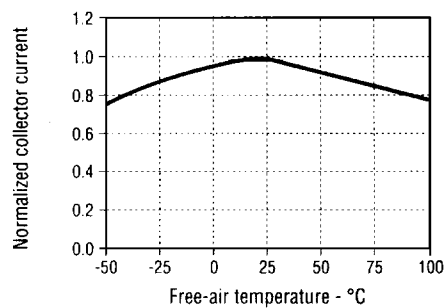


Fig. 5 Collector Current vs Distance to Reflective Surface

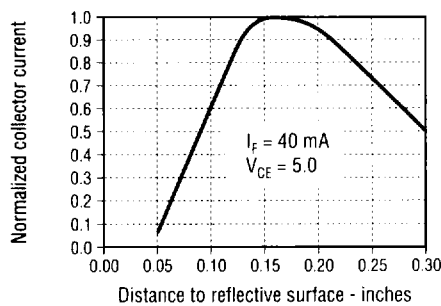
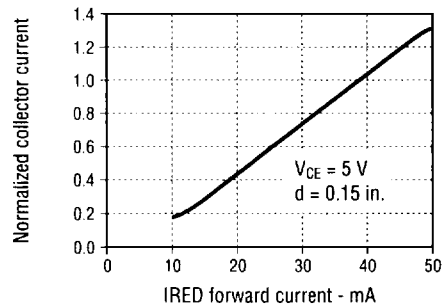


Fig. 6 Collector Current vs IRED Forward Current



All Performance Curves Show Typical Values



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