



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

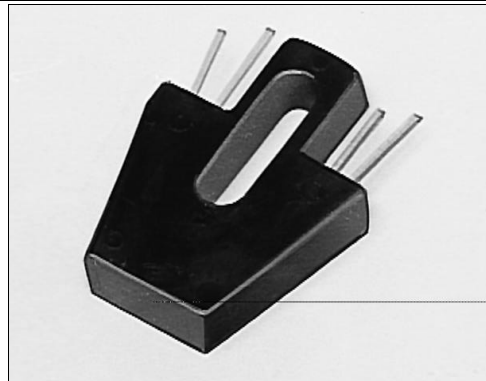


HOA1405

Reflective Sensor

FEATURES

- Phototransistor output
- Focused for maximum response
- Ambient light and dust protective filter



INFRA-68.TIF

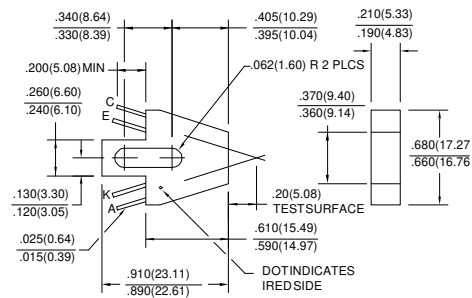
DESCRIPTION

The HOA1405 series 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 HOA1405 series employs an IR transmissive filter to minimize the effects of visible ambient light and to provide a smooth optical face which prevents the accumulation of airborne contaminants in the optical path. The HOA1405 series contains plastic molded components. For additional component information see SEP8505 and SDP8405.

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_032.d54

HOA1405

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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	$I_F=20\text{ mA}$
Reverse Leakage Current	I_R		10		μA	$V_R=3\text{ V}$
DETECTOR						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	$I_C=100\text{ }\mu\text{A}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector Dark Current	I_{CEO}		100		nA	$V_{CE}=10\text{ V}, I_F=0$
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5\text{ V}$
HOA1405-001		0.2				$I_F=30\text{ mA}$
HOA1405-002		0.8				(1)
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	$I_F=30\text{ mA}$ (1)
HOA1405-001	$V_{(BR)CEO}$			0.4		$I_C=30\text{ }\mu\text{A}$
HOA1405-002				0.4		$I_C=100\text{ }\mu\text{A}$
Rise And Fall Time	t_r, t_f		15		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$

Notes

1. Test surface is a Eastman Kodak neutral white card with 90% diffuse reflectance located 0.20 in. (5.0 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

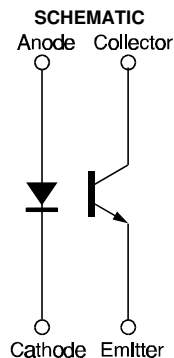
Power Dissipation	70 mW (1)
Reverse Voltage	3 V
Continuous Forward Current	50 mA

DETECTOR

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

Notes

1. 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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HOA1405

Reflective Sensor

Fig. 1 IRED Forward Bias Characteristics

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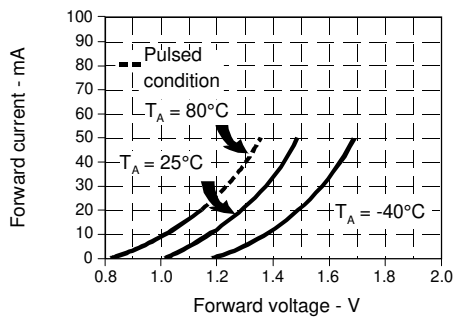


Fig. 2 Non-Saturated Switching Time vs Load Resistance

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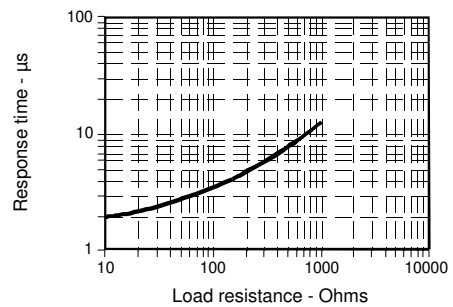


Fig. 3 Dark Current vs Temperature

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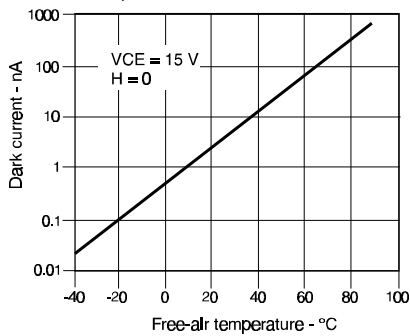


Fig. 4 Collector Current vs Ambient Temperature

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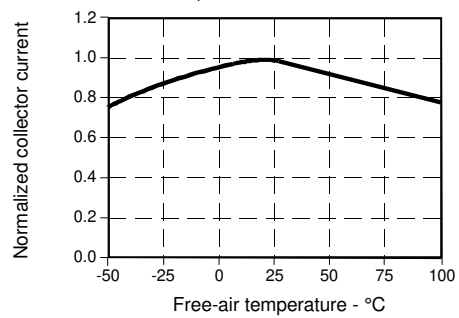


Fig. 5 Collector Current vs Distance to Reflective Surface

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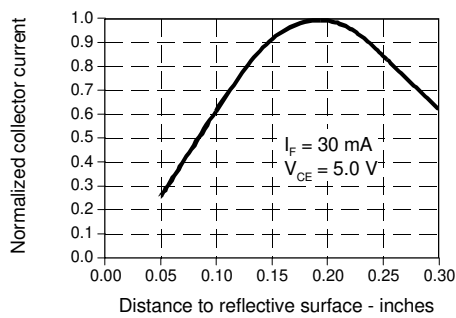
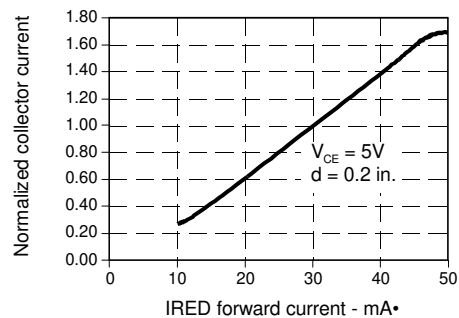


Fig. 6 Collector Current vs IRED Forward Current

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All Performance Curves Show Typical Values

HOA1405
Reflective Sensor



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