

## Dual Channel Transmissive Sensor

Part Number: HOA6425-001



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### Features

- Choice of phototransistor or photodarlington output
- PCB mount package
- Polarized locator pins
- Accurate position sensing
- 0.5mm (0.020 in.) aperture windows
- 1.78mm (0.070 in.) slot width
- Available in shipping tubes

### Product Description

The HOA6425-001 consists of two infrared emitting diodes facing two NPN silicon phototransistors. Detector switching takes place whenever an opaque object passes through the slot between the emitter and the detector. The dual channels allow both the speed and the direction of the interrupter to be sensed. Emitters and detectors have a 0.5mm (0.020 in.) vertical aperture. This feature is ideal for use in applications in which high position resolution is desired. The sensor housing is an opaque thermoplastic with aperture openings for use in applications in which maximum rejection of ambient light is important and maximum position resolution is desired. The HOA6425-001 contains plastic molded components. Housing material is Valoxâ. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

**Absolute Maximum Ratings**

(25°C free-air temperature unless otherwise stated)

**CAUTION****STRESS DAMAGE**

Functional operation of the device at or above "Absolute Maximum Ratings" for extended periods of time may affect reliability.

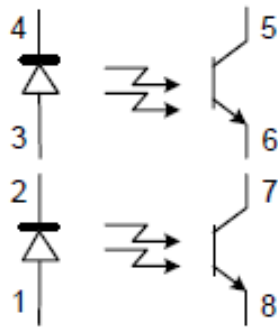
**Failure to comply with these instructions may result in product damage.**

Operating Temperature Range	-40°C to 85°C	
Storage Temperature Range	-40°C to 85°C	
Soldering Temperature (5 sec)		
240°C		
<b>IR EMITTER</b>		
Power Dissipation	100 mW(1)	
Reverse Voltage	3 V	
Continuous Forward Current	50 mA	
<b>DETECTOR</b>	<b>TRANSISTOR</b>	<b>DARLINGTON</b>
Collector-Emitter Voltage	30 V	15 V
Emitter Collector Voltage	5 V	5 V
Emitter Collector Voltage	5 V	100 mW(1)
Collector DC Current	30 mA	30 mA

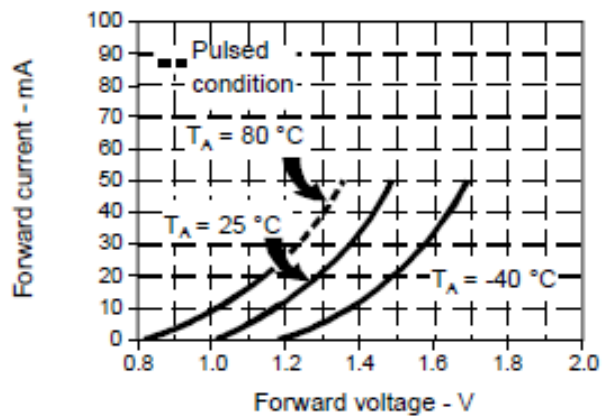
**Electrical Characteristics (25°C unless otherwise stated)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
<b>IR EMITTER</b>						
Forward Voltage	$V_F$			1.6	V	$I_F=20\text{ mA}$
Reverse Leakage Current	$I_R$			10	uA	$V_R=3\text{ V}$
<b>DETECTOR</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	$I_C=100\text{ mA}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5			V	$I_E=100\text{ mA}$
Collector Dark Current	$I_{CEO}$			100	nA	$V_{CE}=10\text{ V}, I_F=0$
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current	$I_{C(ON)}$	0.5			mA	$V_{CE}=5\text{ V}, I_F=20\text{ mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	$I_F=20\text{ mA}, I_C=40\text{ mA}$
Rise And Fall Time	$t_r, t_f$		15		uS	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$

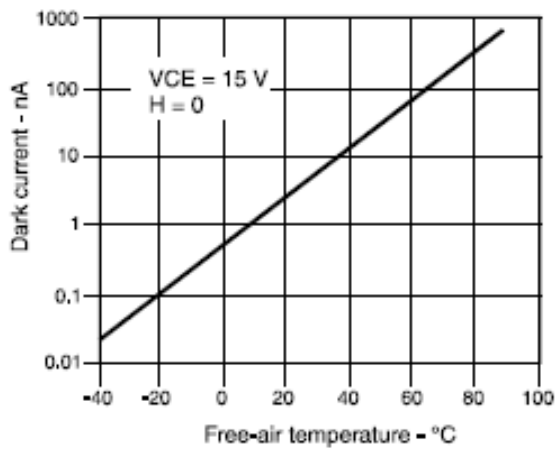
**SCHEMATIC**



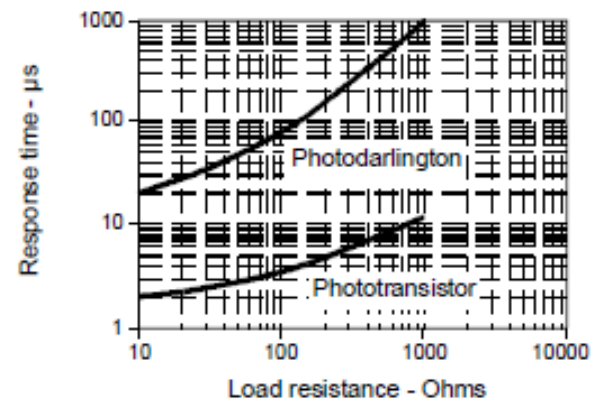
**Figure 1: IRED Forward Bias Characteristics**



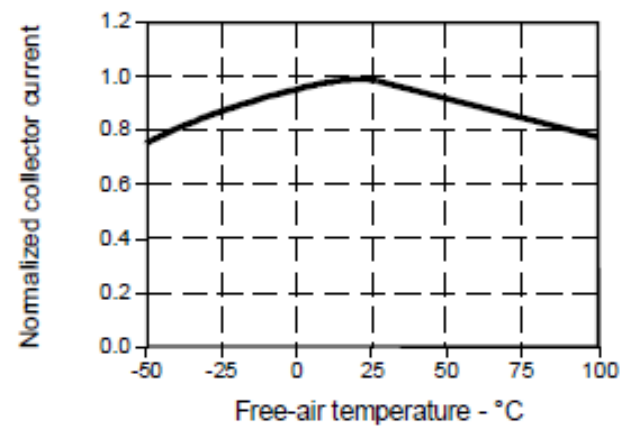
**Figure 3: Detector Dark Current vs Temperature**



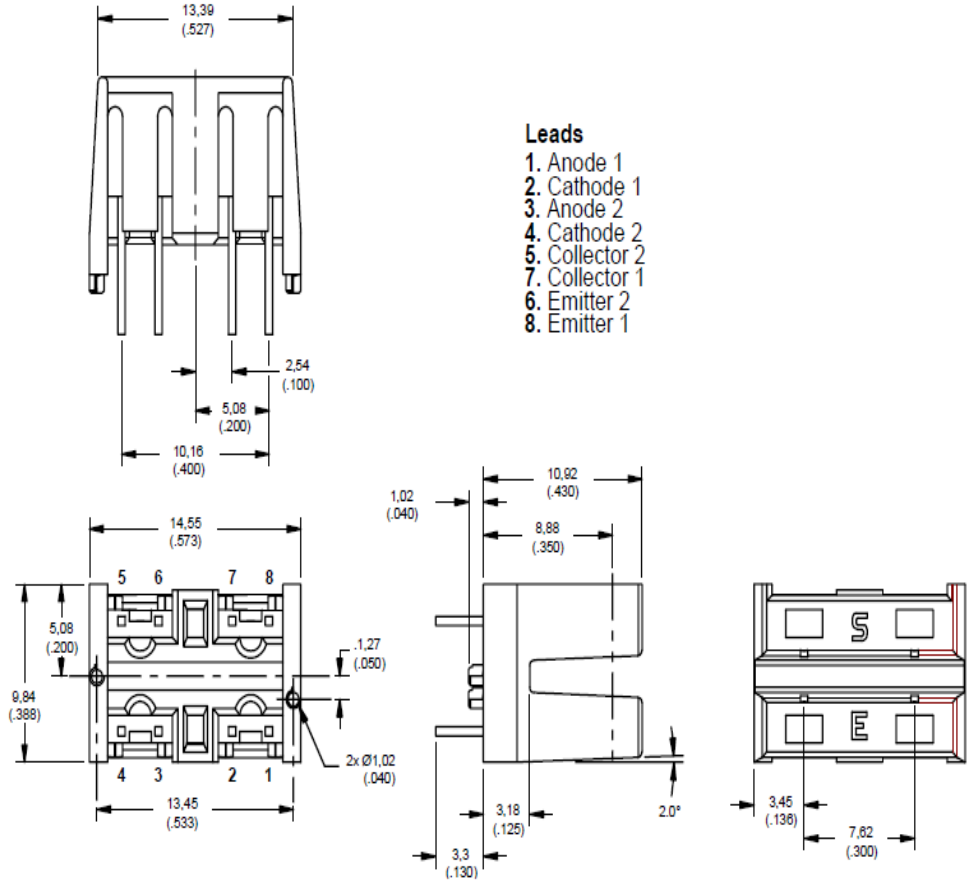
**Figure 2: Non-saturated Switching Time vs Load Resistance**



**Figure 4: Collector Current vs Ambient Temperature**



**OUTLINE DIMENSIONS mm/(in.)**  
(for reference only)



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