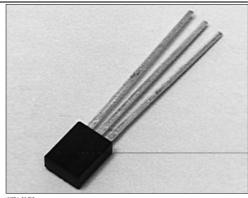
### **Reflective Sensor**

#### **FEATURES**

- Side-looking plastic package
- Phototransistor output
- IR emitter and phototransistor detector in a single package
- · Low profile for design flexibility
- Designed for short distance detection
- · High sensitivity
- · Unfocused for sensing diffused surfaces



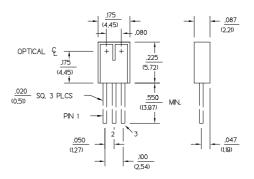
#### DESCRIPTION

The HLC1395 is a miniature infrared sensor designed to sense reflective objects at short distances. Both the GaAs IRED and the NPN phototransistor are mounted side- by- side in a single black plastic package with an integral barrier to minimize crosstalk. The sensor is configured with the IRED cathode and the phototransistor emitter connected to a common lead.

The housing consists of an opaque polysulfone outer shell with transfer-molded, IR-transmissive epoxy encapsulant. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

#### **OUTLINE DIMENSIONS** in inches (mm)

3 plc decimals ±0.010(0.25) 2 plc decimals ±0.030(0.76)



DIM\_029.cdr



### **Reflective Sensor**

#### ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	VF			1.6	V	I <sub>F</sub> =20 mA
Reverse Current	I <sub>R</sub>			10	μΑ	V <sub>R</sub> =3 V
DETECTOR						
Collector-Emitter Breakdown Voltage	V <sub>(BR)</sub> CEO	30			V	Ic=100 μA
Emitter-Collector Breakdown Voltage	V <sub>(BR)ECO</sub>	5.0			V	I <sub>E</sub> =100 μA
Collector Dark Current	Iceo			100	nA	V <sub>CE</sub> =10 V, I <sub>F</sub> =0
COUPLED CHARACTERISTICS						
On-State Collector Current	Ic(on)				mA	V <sub>CE</sub> =5 V
HLC1395-001		0.30				I <sub>F</sub> =10 mA
HLC1395-002		0.60				(1)
Collector-Emitter Saturation Voltage	VCE(SAT)			0.5	V	Ic=40 μA, I <sub>F</sub> =10 mA <sup>(1)</sup>
Crosstalk (2)	lcx			15	μΑ	Vce=5 V, I <sub>F</sub> =10 mA
Rise And Fall Time	t <sub>r</sub> , t <sub>f</sub>		15		μs	Vcc=5 V, Ic=0.3 mA
						R <sub>L</sub> =1000 Ω

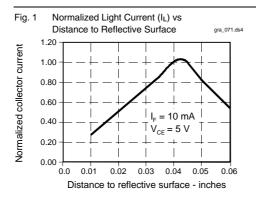
- Notes
  1. Test surface is Eastman Kodak neutral white test card with 90% diffuse reflectance located 0.040 in. (1.0 mm) from the front surface
- of the device.

  2. Crosstalk (Icx) is the collector current measured with current to emitter and no reflecting surface.

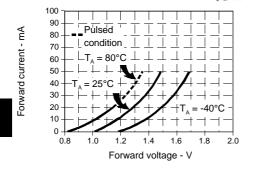
#### **ABSOLUTE MAXIMUM RATINGS SCHEMATIC** (25°C Free-Air Temperature unless otherwise noted) Operating Temperature Range -40°C to 85°C -40°C to 85°C Storage Temperature Range Soldering Temperature (5 sec) 240°C IR EMITTER Reverse Voltage 3 V Anode Collector Continuous Forward Current 50 mA 100 mW (1) Power Dissipation DETECTOR 30 V Collector-Emitter Voltage **Emitter-Collector Voltage** 100 mW (1) Power Dissipation Collector DC Current 30 mA

Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

### **Reflective Sensor**

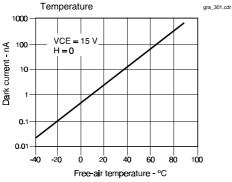


IRED Forward Bias Characteristics Fig. 3

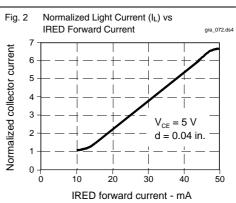


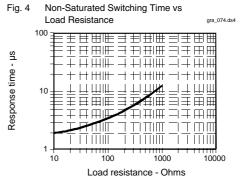
gra 073.ds4

Fig. 5 Dark Current vs

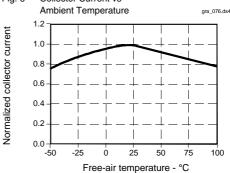


All Performance Curves Show Typical Values





Collector Current vs



Honeywell

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**Reflective Sensor**