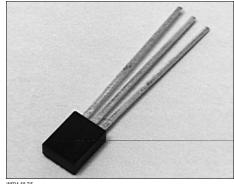
Reflective Sensor

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



INFRA-58.TIF

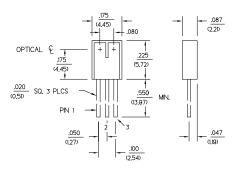
DESCRIPTION

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) ±0.030(0.76) 2 plc decimals



DIM_029.cdr

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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 _F =20 mA
Reverse Current	l _B			10	μΑ	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} =10 V, I _F =0
COUPLED CHARACTERISTICS						
On-State Collector Current	Ic(on)				mA	Vce=5 V
HLC1395-001		0.30				I _F =10 mA
HLC1395-002		0.60				(1)
Collector-Emitter Saturation Voltage	Vce(sat)			0.5	V	I _C =40 μA, I _F =10 mA ⁽¹⁾
Crosstalk (2)	lcx			15	μΑ	V _{CE} =5 V, I _F =10 mA
Rise And Fall Time	t _r , t _f		15		μs	Vcc=5 V, Ic=0.3 mA
						R _L =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 5 V 100 mW (1) Power Dissipation Collector DC Current 30 mA

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Reflective Sensor

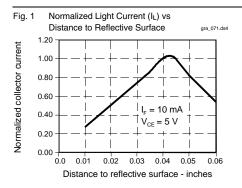


Fig. 3 IRED Forward Bias Characteristics

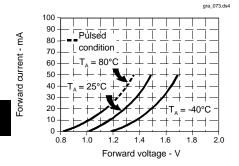
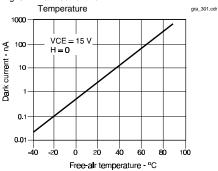


Fig. 5 Dark Current vs



All Performance Curves Show Typical Values

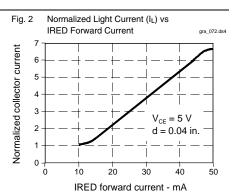


Fig. 4 Non-Saturated Switching Time vs

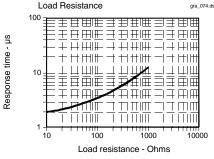
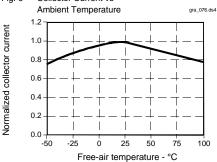


Fig. 6 Collector Current vs



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