



# HLC1395

## Reflective Sensor

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>IR EMITTER</b>						
Forward Voltage	$V_F$		1.6		V	$I_F=20\text{ mA}$
Reverse Current	$I_R$		10		$\mu\text{A}$	$V_R=3\text{ V}$
<b>DETECTOR</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	$I_C=100\ \mu\text{A}$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\ \mu\text{A}$
Collector Dark Current	$I_{CE0}$		100		nA	$V_{CE}=10\text{ V}, I_F=0$
<b>COUPLED CHARACTERISTICS</b>						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5\text{ V}$
HLC1395-001		0.30				$I_F=10\text{ mA}$
HLC1395-002		0.60				(1)
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.5		V	$I_C=40\ \mu\text{A}, I_F=10\text{ mA}$ (1)
Crosstalk (2)	$I_{CX}$		15		$\mu\text{A}$	$V_{CE}=5\text{ V}, I_F=10\text{ mA}$
Rise And Fall Time	$t_r, t_f$		15		$\mu\text{s}$	$V_{CC}=5\text{ V}, I_C=0.3\text{ mA}$ $R_L=1000\ \Omega$

#### Notes

- 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.
- Crosstalk ( $I_{CX}$ ) is the collector current measured with current to emitter and no reflecting surface.

### ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

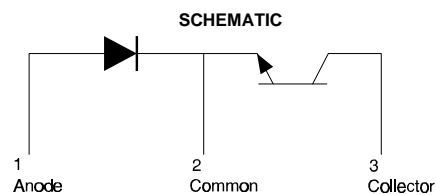
Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-40°C to 85°C
Soldering Temperature (5 sec)	240°C

#### IR EMITTER

Reverse Voltage	3 V
Continuous Forward Current	50 mA
Power Dissipation	100 mW (1)

#### DETECTOR

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	100 mW (1)
Collector DC Current	30 mA



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## Reflective Sensor

Fig. 1 Normalized Light Current ( $I_L$ ) vs Distance to Reflective Surface gra\_071.ds4

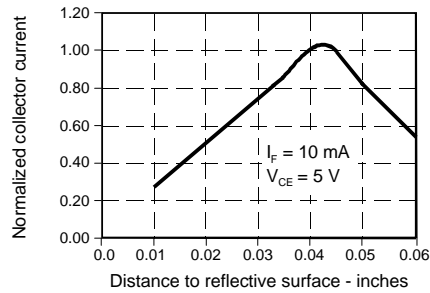


Fig. 2 Normalized Light Current ( $I_L$ ) vs IRED Forward Current gra\_072.ds4

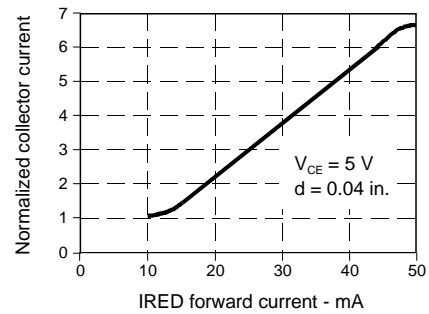


Fig. 3 IRED Forward Bias Characteristics gra\_073.ds4

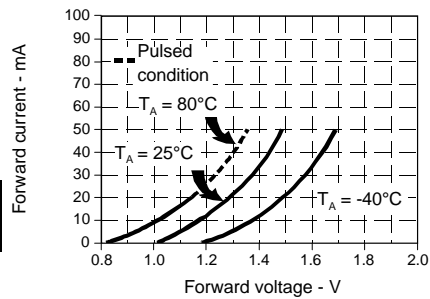


Fig. 4 Non-Saturated Switching Time vs Load Resistance gra\_074.ds4

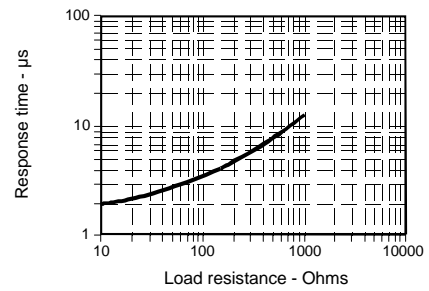


Fig. 5 Dark Current vs Temperature gra\_301.cdr

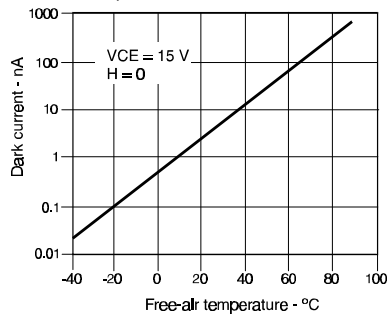
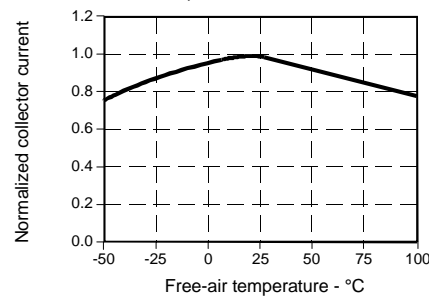


Fig. 6 Collector Current vs Ambient Temperature gra\_076.ds4



All Performance Curves Show Typical Values

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