

HOA1160

Reflective Sensor

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	$V_{(BR)CEO}$				V	$I_C=100\ \mu\text{A}$
HOA1160-001, -002		30				
HOA1160-003		15				
Collector-Emitter Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	$I_E=100\ \mu\text{A}$
Collector Dark Current	I_{CEO}			100	nA	$V_{CE}=10\text{ V}$ $I_F=0$
HOA1160-001, -002				250		
HOA1160-003						
COUPLED CHARACTERISTICS						
On-State Collector Current	$I_{C(ON)}$				mA	$V_{CE}=5\text{ V}$ $I_F=30\text{ mA}$ (1)
HOA1160-001		0.5				
HOA1160-002		2.0				
HOA1160-003		5.0				
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$				V	$I_F=30\text{ mA}$, (1) $I_C=60\ \mu\text{A}$ $I_C=250\ \mu\text{A}$ $I_C=630\ \mu\text{A}$
HOA1160-001				0.4		
HOA1160-002				0.4		
HOA1160-003				1.1		
Rise And Fall Time	t_r, t_f				μs	$V_{CC}=5\text{ V}$, $I_C=1\text{ mA}$ $R_L=1000\ \Omega$ $R_L=100\ \Omega$
HOA1160-001, -002			15			
HOA1160-003			75			

Notes

- Test surface is a front surface mirror located 0.075 in. (1.90 mm) from the front surface of the device.

ABSOLUTE MAXIMUM RATINGS

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

Operating Temperature Range -55°C to 100°C
 Storage Temperature Range -55°C to 125°C
 Soldering Temperature (10 sec) 260°C

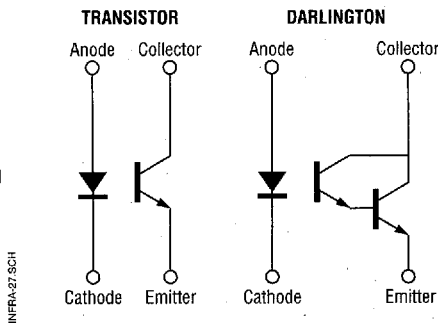
IR EMITTER

Power Dissipation 125 mW⁽¹⁾
 Reverse Voltage 3 V
 Continuous Forward Current 50 mA

DETECTOR

Collector-Emitter Voltage	30 V	DARLINGTON	15 V
Emitter-Collector Voltage	5 V		5 V
Power Dissipation	125 mW ⁽¹⁾		125 mW ⁽¹⁾
Collector DC Current	30 mA		30 mA

SCHEMATIC



Notes

- Derate linearly at 1.19 mW/°C above 25°C.

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

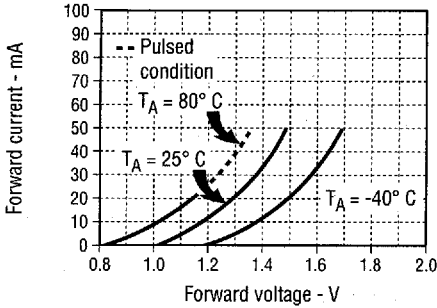
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Fig. 1 IRED Forward Bias Characteristics



INFRA-73.GRA
INFRA-79.GRA

Fig. 2 Non-Saturated Switching Time vs Load Resistance

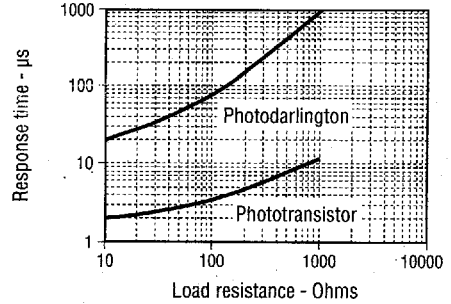
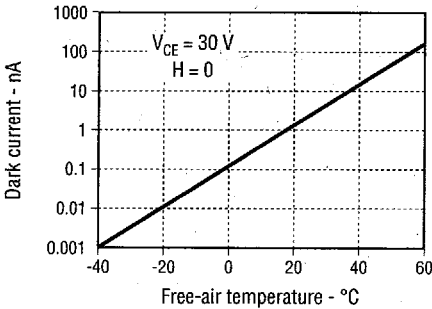


Fig. 3 Detector Dark Current vs Temperature



INFRA-75.GRA
INFRA-76.GRA

Fig. 4 Collector Current vs Ambient Temperature

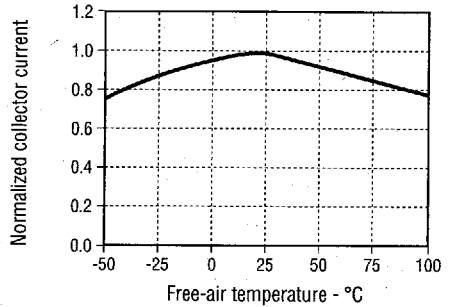
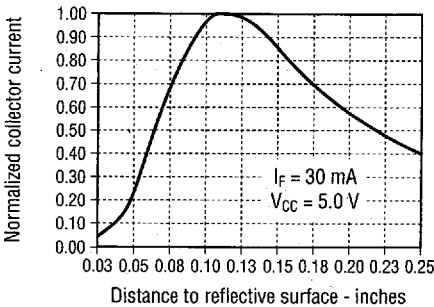
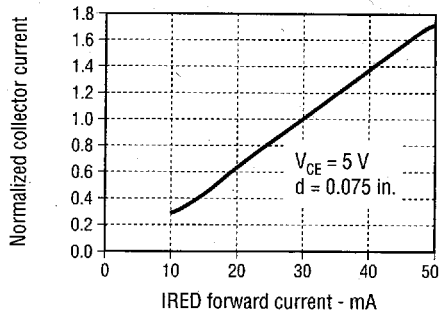


Fig. 5 Collector Current vs Distance to Reflective Surface



INFRA-82.GRA
INFRA-83.GRA

Fig. 6 Collector Current vs IRED Forward Current



All Performance Curves Show Typical Values