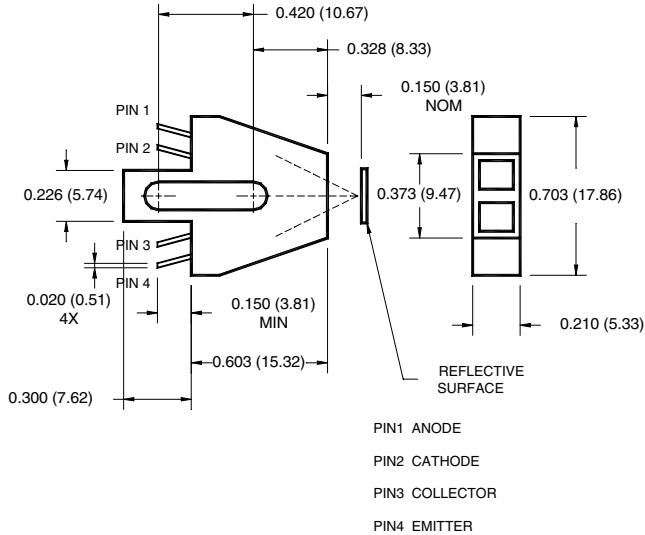


PACKAGE DIMENSIONS

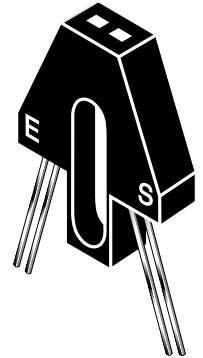


NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of $\pm .010$ (.25) on all non-nominal dimensions unless otherwise specified.

FEATURES

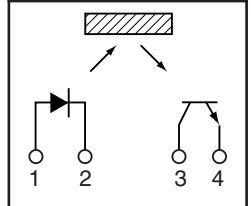
- No contact surface sensing
- Phototransistor output
- Focused for sensing specular reflection
- Daylight filter on photosensor
- Dust cover



NOTES

1. Derate power dissipation linearly 1.67 mW/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6mm) minimum from housing.
5. D is the distance from the assembly face to the reflective surface.
6. Measured using an Eastman Kodak neutral test card with 90% diffused reflecting surface.
7. Cross talk is the photo current measured with current to the input diode and no reflecting surface.

SCHEMATIC



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Units
Operating Temperature	T _{OPR}	-40 to +85	°C
Storage Temperature	T _{STG}	-40 to +85	°C
Soldering Temperature (Iron) ^(2,3,4)	T _{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow) ^(2,3)	T _{SOL-F}	260 for 10 sec	°C
EMITTER			
Continuous Forward Current	I _F	50	mA
Reverse Voltage	V _R	5	V
Power Dissipation ⁽¹⁾	P _D	100	mW
SENSOR			
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector Voltage	V _{ECO}	4.5	V
Power Dissipation ⁽¹⁾	P _D	100	mW

ELECTRICAL / OPTICAL CHARACTERISTICS (T _A = 25°C)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
EMITTER						
Forward Voltage	I _F = 40 mA	V _F	—	—	1.7	V
Reverse Current	V _R = 5.0 V	I _R	—	—	100	μA
Peak Emission Wavelength	I _F = 20 mA	λ _{PE}	—	940	—	nm
SENSOR						
Collector-Emitter Breakdown Voltage	I _C = 1 mA	BV _{CEO}	30	—	—	V
Emitter-Collector Breakdown Voltage	I _E = 0.1 mA	BV _{ECO}	5	—	—	V
Collector-Emitter Dark Current	V _{CE} = 10 V, I _F = 0 mA	I _D	—	—	100	nA
COUPLED						
On-state Collector Current	I _F = 40 mA, V _{CE} = 5 V D = .150 ^(5,6)	I _{C(ON)}	0.20	—	—	mA
QRB1113						
QRB1114						
Collector-Emitter Saturation Voltage	I _F = 20 mA, I _C = 0.5 mA	V _{CE(SAT)}	—	—	0.4	V
Rise Time	V _{CE} = 5 V, R _L = 100 Ω I _{C(ON)} = 5 mA	t _r	—	8	—	μs
Fall Time		t _f	—	8	—	
Cross Talk	I _F = 40 mA, V _{CE} = 5 V ⁽⁷⁾	I _{CX}	—	—	1.00	μA

TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Voltage vs. Forward Current

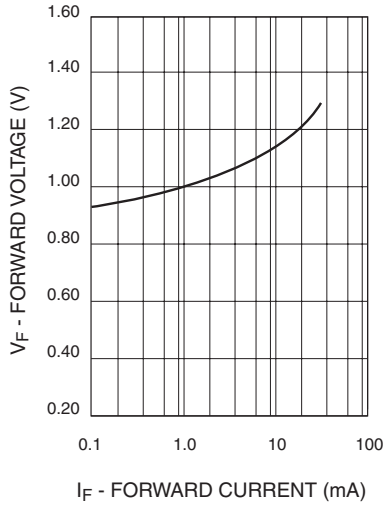


Fig. 2 Normalized Collector Current vs. Forward Current

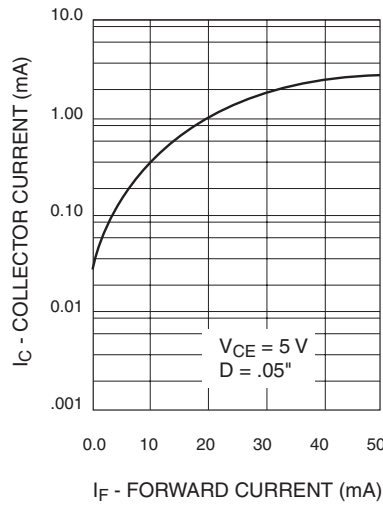


Fig. 3 Normalized Collector Current vs. Temperature

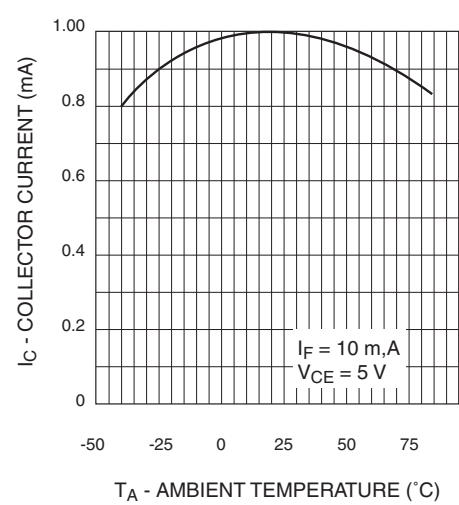


Fig. 4 Normalized Collector Dark Current vs. Temperature

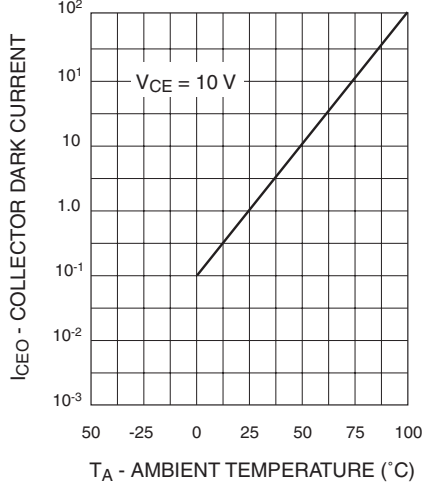
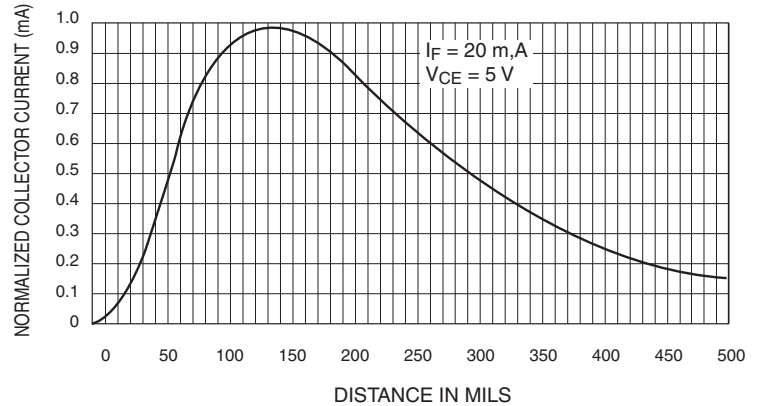


Fig. 5 Normalized Collector Current vs. Distance



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