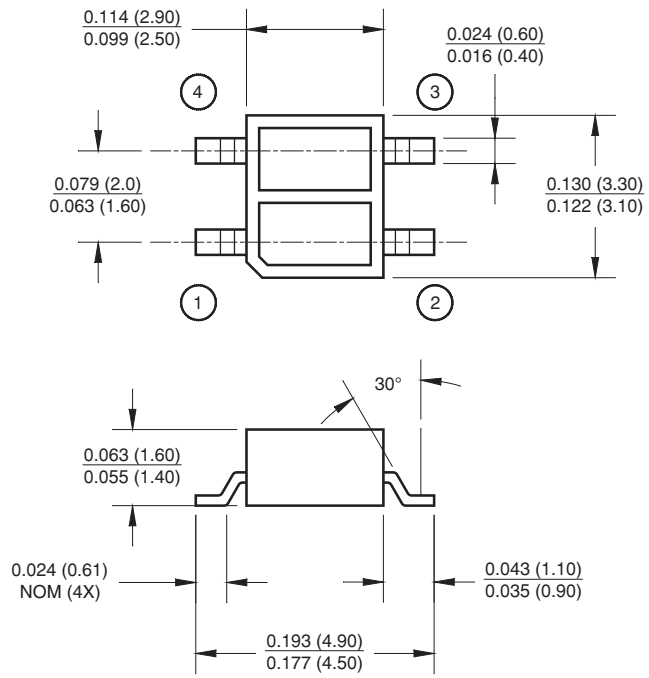
REFLECTIVE OBJECT SENSOR

QRE1113.GR

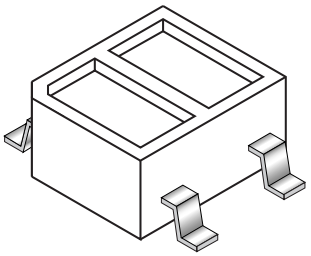
PACKAGE DIMENSIONS



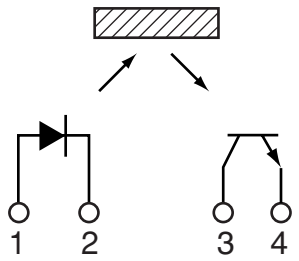
PIN 1 ANODE PIN 3 COLLECTOR

PIN 2 CATHODE PIN 4 EMITTER

NOTES:
1. Dimensions for all drawings are in inches (millimeters).
2. Tolerance of ± .010 (.25) on all non-nominal dimensions



SCHEMATIC



FEATURES

- Phototransistor output
- Tape and reel packaging
- No contact surface sensing
- Miniature package
- Lead form style: Gull Wing

REFLECTIVE OBJECT SENSOR

QRE1113.GR

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

Parameter	Symbol	Rating	Units
Operating Temperature	T_{OPR}	-25 to +85	°C
Storage Temperature	T_{STG}	-30 to +100	°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
Peak Forward Current(5)	I_{FP}	1	mA
Power Dissipation(1)	P_D	75	mW
SENSOR			
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Power Dissipation(1)	P_D	50	mW

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNITS
INPUT DIODE						
Forward Voltage	I_F = 20 mA	V_F	—	1.2	1.6	V
Reverse Leakage Current	V_R = 5 V	I_R	—	—	10	µA
Peak Emission Wavelength	I_F = 20 mA	λ_{PE}	—	940	—	nm
OUTPUT TRANSISTOR						
Collector-Emitter Dark Current	V_{CE} = 20 V, I_F = 0 mA	I_D	—	—	100	nA
COUPLED						
On-State Collector Current	I_F = 20 mA, V_{CE} = 5 V	$I_{C(ON)}$	0.15	0.40	—	mA
Saturation Voltage		$V_{CE\ (SAT)}$	—	—	0.3	V
Rise Time	V_{CC} = 5 V, $I_{C(ON)}$ = 100 µA, R_L = 1KΩ	t_r	—	20	—	µs
Fall Time		t_f	—	20	—	

NOTES:
1. Derate power dissipation linearly 1.33 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) from housing.
5. Pulse conditions: tp = 100 µs; T = 10 ms.

TYPICAL PERFORMANCE CURVES

Fig. 1 Normalized Collector Current vs. Distance between device and reflector

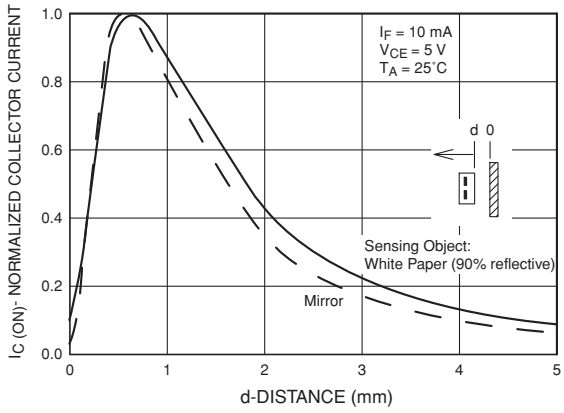


Fig. 2 Collector Current vs. Forward Current

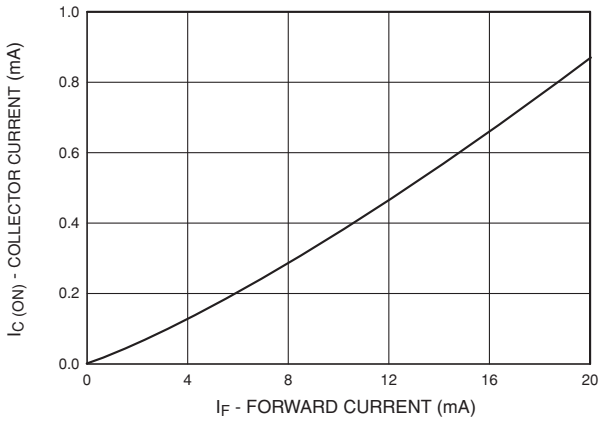


Fig. 3 Collector Current vs. Collector to Emitter Voltage

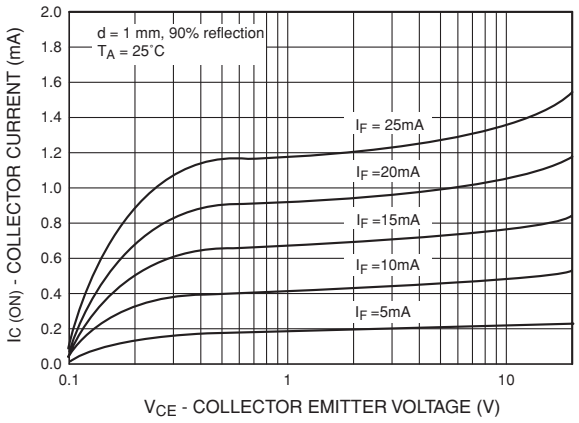


Fig. 4 Collector Emitter Dark Current (Normalized) vs. Ambient Temperature

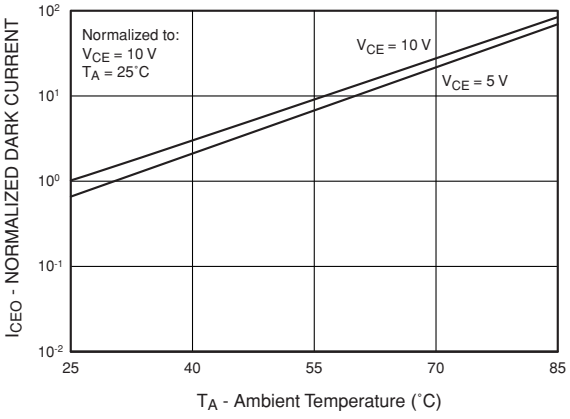


Fig. 5 Forward Current vs. Forward Voltage

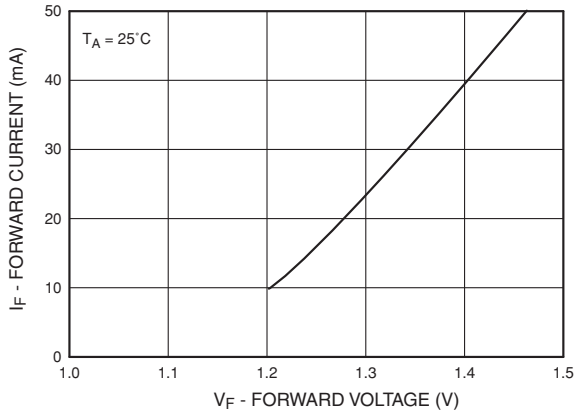


Fig. 6 Rise and Fall Time vs. Load Resistance

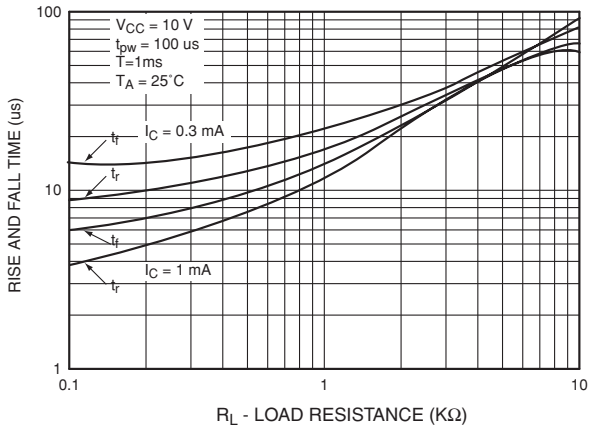
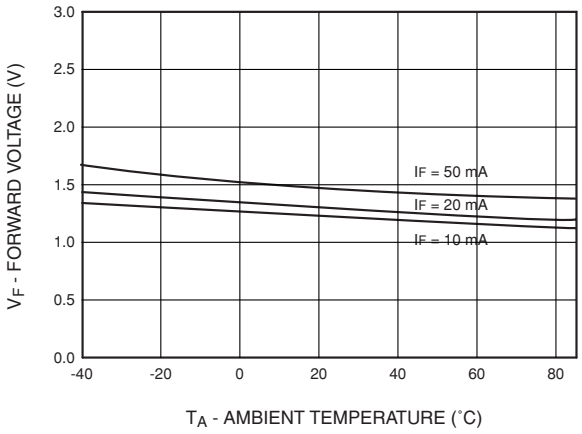


Fig. 7 Forward Voltage vs. Ambient Temperature



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