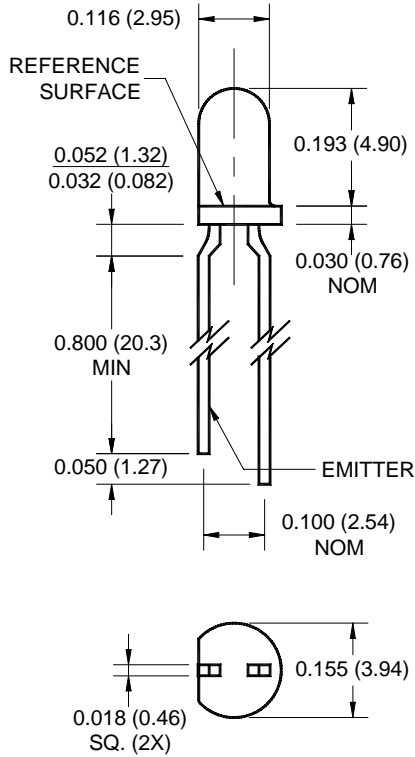


**QSC112**

**QSC113**

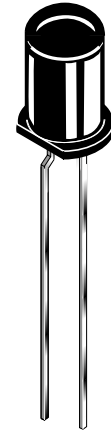
**QSC114**

**PACKAGE DIMENSIONS**

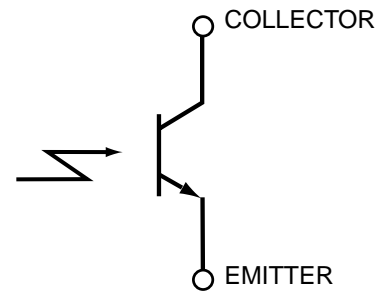


**NOTES:**

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



**SCHEMATIC**



**DESCRIPTION**

The QSC112/113/114 is a silicon phototransistor encapsulated in an infrared transparent, black T-1 package.

**FEATURES**

- Tight production distribution.
- Steel lead frames for improved reliability in solder mounting.
- Good optical-to-mechanical alignment.
- Plastic package is infrared transparent black to attenuate visible light.
- Mechanically and spectrally matched to the QECXXX LED.
- Black plastic body allows easy recognition from LED.

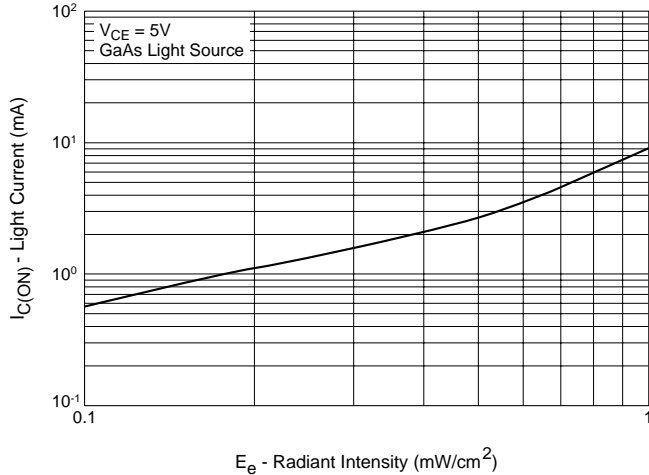
**QSC112      QSC113      QSC114**

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3,4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2,3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Collector-Emitter Voltage	$V_{CE}$	30	V
Emitter-Collector Voltage	$V_{EC}$	5	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW

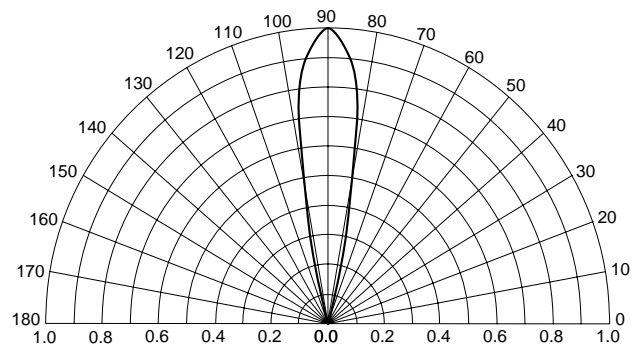
1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$ .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6mm) minimum from housing.
5.  $\lambda = 880 \text{ nm}$ , AlGaAs.

<b>ELECTRICAL / OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ )						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Sensitivity Wavelength		$\lambda_{PS}$	—	880	—	nm
Reception Angle		$\Theta$	—	$\pm 8$	—	Deg.
Collector-Emitter Dark Current	$V_{CE} = 10 \text{ V}, E_e = 0$	$I_{CEO}$	—	—	100	nA
Collector-Emitter Breakdown	$I_C = 1 \text{ mA}$	$BV_{CEO}$	30	—	—	V
Emitter-Collector Breakdown	$I_E = 100 \mu\text{A}$	$BV_{ECO}$	5	—	—	V
On-State On-State Collector QSC112	$E_e = 0.5 \text{ mW/cm}^2,$ $V_{CE} = 5 \text{ V}^{(5)}$	$I_{C(ON)}$	1	—	4	mA
On-State On-State Collector QSC113			2.40	—	9.60	
On-State On-State Collector QSC114			4.00	—	—	
Saturation Voltage	$E_e = 0.5 \text{ mW/cm}^2,$ $I_C = 0.5 \text{ mA}^{(5)}$	$V_{CE(sat)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5 \text{ V}, R_L = 100 \Omega$	$t_r$	—	5.0	—	$\mu\text{s}$
Fall Time		$t_f$	—	5.0	—	

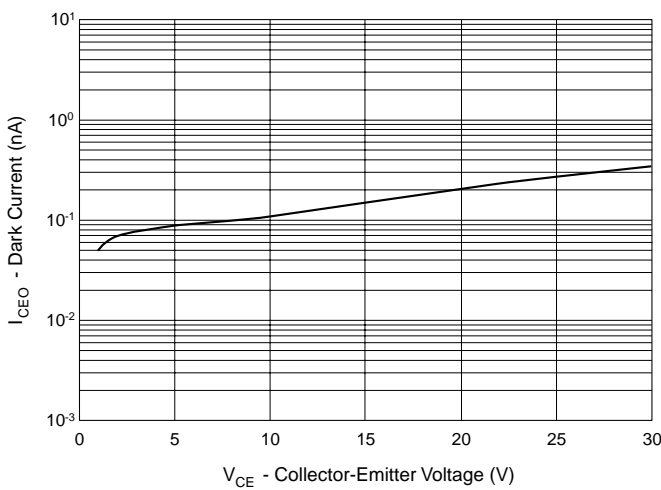
**Figure 1. Light Current vs. Radiant Intensity**



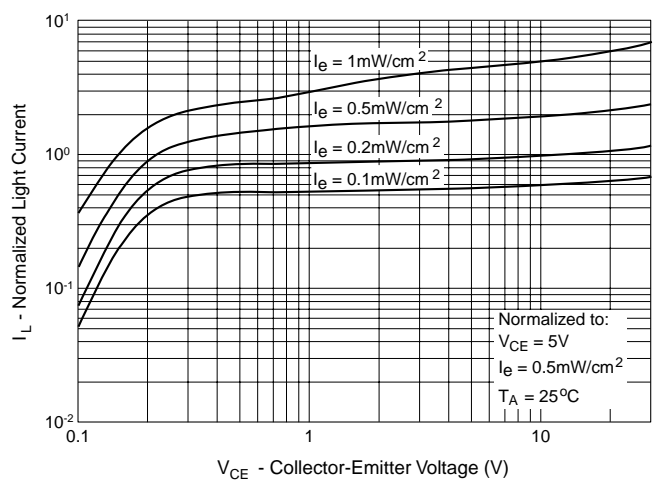
**Figure 2. Angular Response Curve**



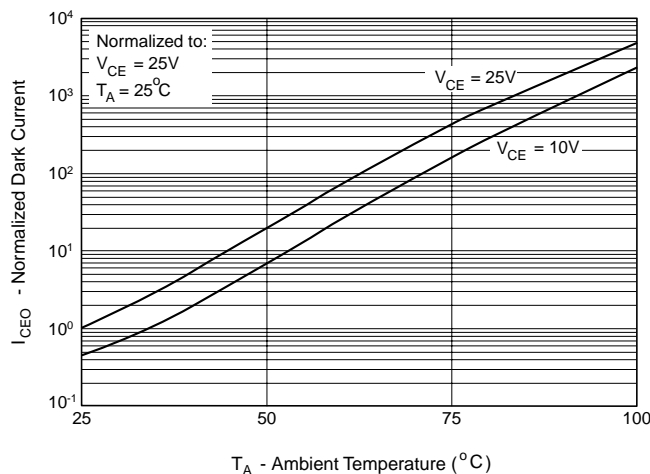
**Figure 3. Dark Current vs. Collector - Emitter Voltage**



**Figure 4. Light Current vs. Collector - Emitter Voltage**



**Figure 5. Dark Current vs. Ambient Temperature**



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