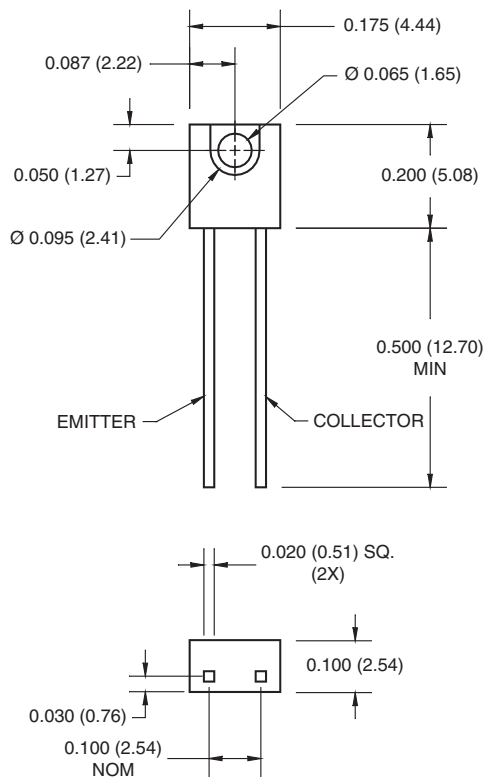
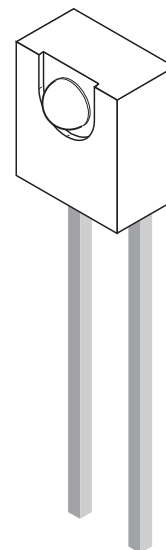


PACKAGE DIMENSIONS

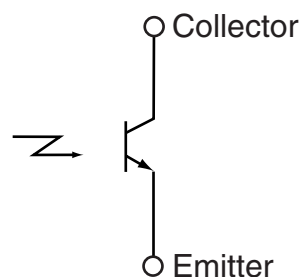


NOTES:

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 QSE113/114 is a silicon phototransistor encapsulated in a wide angle, infrared transparent, black plastic sidelooker package.

FEATURES

- NPN silicon phototransistor
- Package type: Sidelooker
- Medium wide reception angle, 50°
- Package material and color: black epoxy
- Matched emitter: QEE113
- Daylight filter
- High sensitivity

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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) ^(2,3,4)	$T_{\text{SOL-I}}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	$T_{\text{SOL-F}}$	260 for 10 sec	$^\circ\text{C}$
Collector Emitter Voltage	V_{CE}	30	V
Emitter Collector Voltage	V_{EC}	5	V
Power Dissipation ⁽¹⁾	P_D	100	mW

NOTES:

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

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Sensitivity		λ_{PS}	—	880	—	nM
Reception Angle		Θ	—	± 25	—	Deg.
Collector Emitter Dark Current	$V_{\text{CE}} = 10 \text{ V}, E_e = 0$	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 Collector Current ⁽⁵⁾ QSE113	$E_e = 0.5 \text{ mW/cm}^2, V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C(ON)}}$	0.25	—	1.50	mA
On-State Collector Current ⁽⁵⁾ QSE114	$E_e = 0.5 \text{ mW/cm}^2, V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C(ON)}}$	1.00	—	—	mA
Saturation Voltage ⁽⁵⁾	$E_e = 0.5 \text{ mW/cm}^2, I_C = 0.1 \text{ mA}$	$V_{\text{CE(SAT)}}$	—	—	0.4	V
Rise Time	$I_C = 1 \text{ mA}, V_{\text{CC}} = 5 \text{ V}, R_L = 100\Omega$	t_r	—	8	—	μs
Fall Time		t_f	—	8	—	μs

Figure 1. Light Current vs. Radiant Intensity

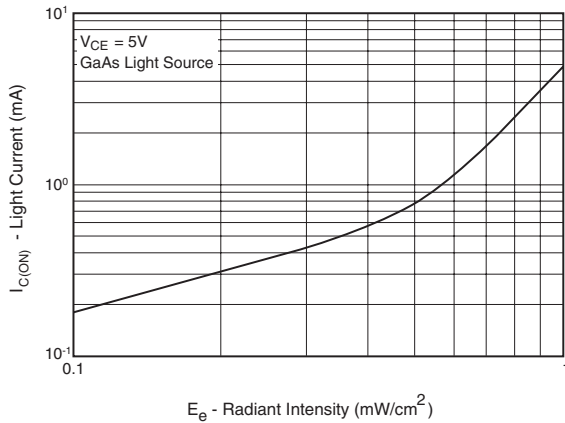


Figure 2. Angular Response Curve

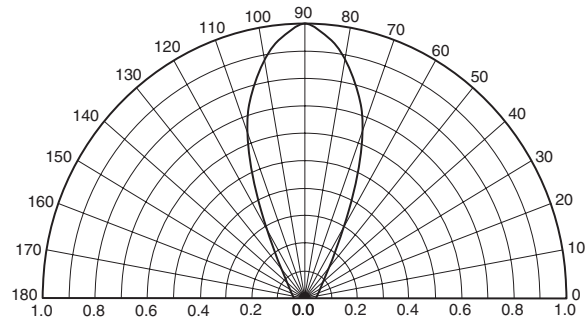


Figure 3. Dark Current vs. Collector - Emitter Voltage

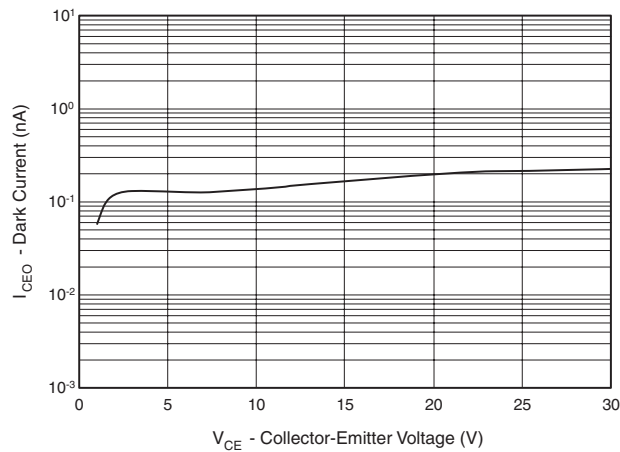


Figure 4. Light Current vs. Collector - Emitter Voltage

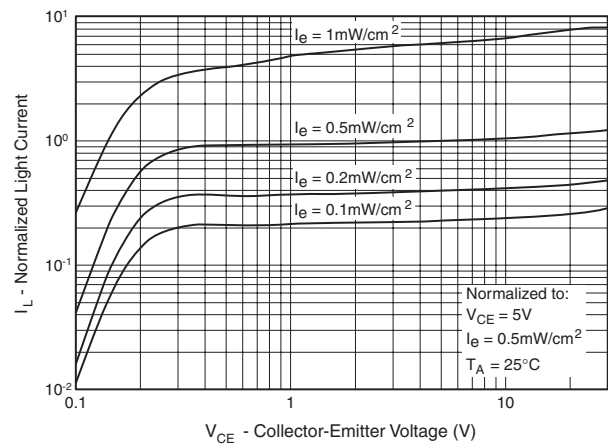
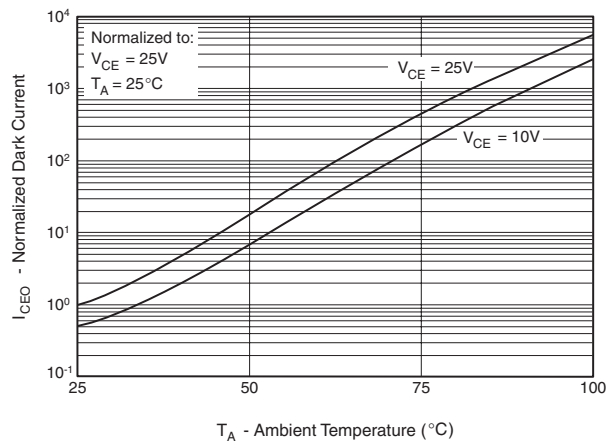


Figure 5. Dark Current vs. Ambient Temperature



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