

QSE213C/QSE214C

Plastic Silicon Infrared Phototransistor

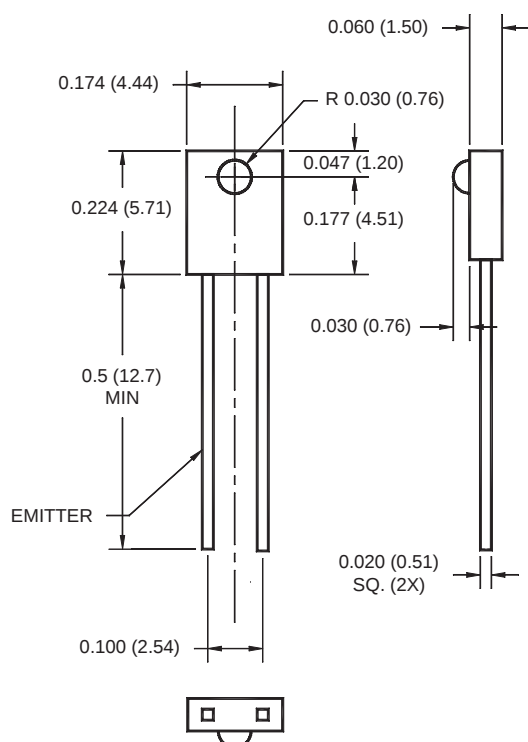
Features

- NPN Silicon Phototransistor
- Package Type: Sidelooker
- Medium Reception Angle, 50°
- Daylight Filter
- Clean Epoxy Package
- Matching Emitter: QEE213

Description

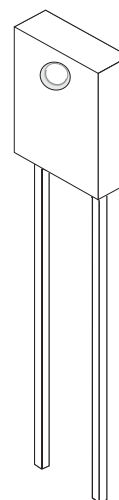
The QSE213C/QSE214C is a silicon phototransistor encapsulated in a medium angle, infrared transparent, clear thin plastic sidelooker package.

Package Dimensions

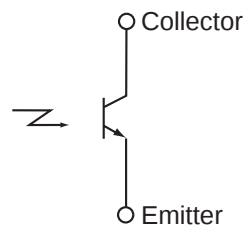


Notes:

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



Schematic



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Rating	Unit
T_{OPR}	Operating Temperature	-40 to +100	$^\circ\text{C}$
T_{STG}	Storage Temperature	-40 to +100	$^\circ\text{C}$
T_{SOL-I}	Soldering Temperature (Iron) ^(2,3,4)	240 for 5 sec	$^\circ\text{C}$
T_{SOL-F}	Soldering Temperature (Flow) ^(2,3)	260 for 10 sec	$^\circ\text{C}$
V_{CE}	Collector-Emitter Voltage	30	V
V_{EC}	Emitter-Collector Voltage	5	V
P_D	Power Dissipation ⁽¹⁾	100	mW

Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
λ_{PS}	Peak Sensitivity		—	880	—	nM
Q	Reception Angle		—	± 25	—	$^\circ$
I_D	Collector Emitter Dark Current	$V_{CE} = 10\text{ V}, E_e = 0$	—	—	100	nA
BV_{CEO}	Collector Emitter Breakdown	$I_C = 1\text{ mA}$	30	—	—	V
BV_{ECO}	Emitter Collector Breakdown	$I_E = 100\mu\text{A}$	5	—	—	V
$I_{C(ON)}$	On-State Collector Current	$E_e = 0.5\text{ mW/cm}^2$, (QSE213C) $V_{CE} = 5\text{ V}$ (QSE214C)	0.2 1.00	—	1.50 —	mA
$V_{CE(SAT)}$	Saturation Voltage	$V_{CE} = 5\text{ V}^{(5)}$, $E_e = 0.5\text{ mW/cm}^2$, $I_C = 0.1\text{ mA}^{(5)}$	—	—	0.4	V
t_r	Rise Time	$V_{CC} = 5\text{ V}, R_L = 100\Omega, I_C = 1\text{ mA}$	—	8	—	μs
t_f	Fall Time		—	8	—	

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. $\lambda = 950\text{ nm}$ GaAs.

Typical Performance Curves

Fig. 1 Dark Current vs. Collector Emitter Voltage

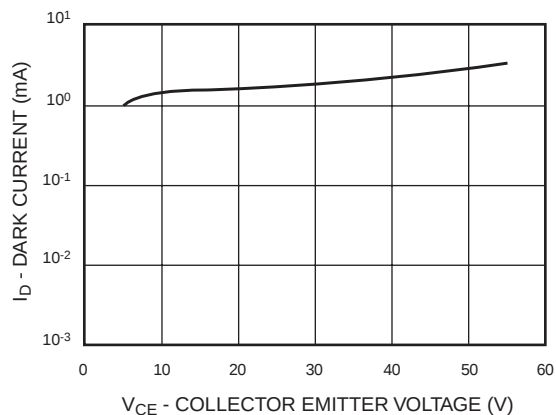


Fig. 2 Radiation Diagram

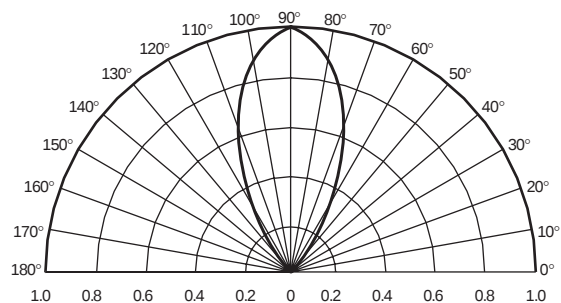


Fig. 3 Light Current vs. Ambient Temperature

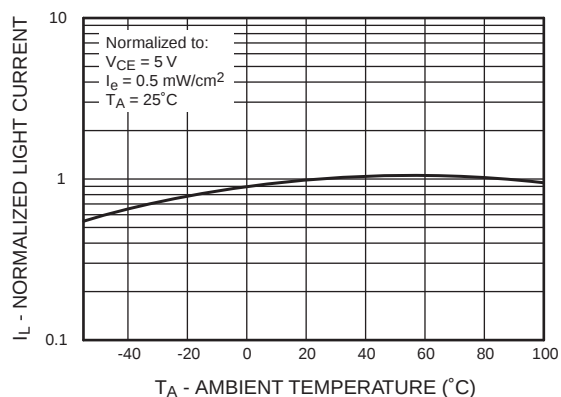


Fig. 4 Light Current vs. Collector to Emitter Voltage

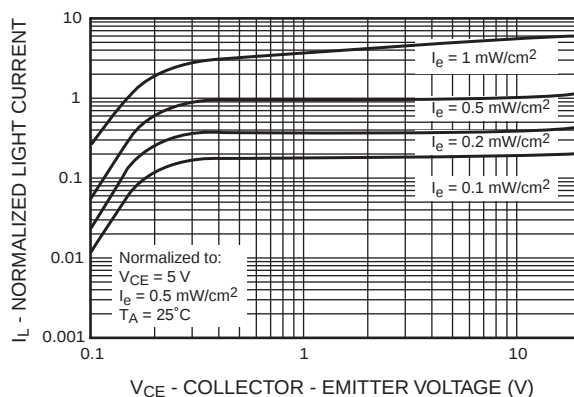
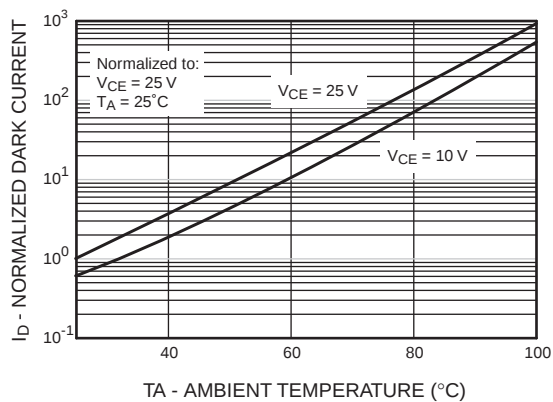


Fig. 5 Dark Current vs. Ambient Temperature



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