

QSE213C/QSE214C Plastic Silicon Infrared Phototransistor

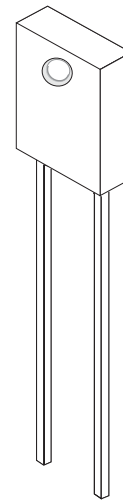
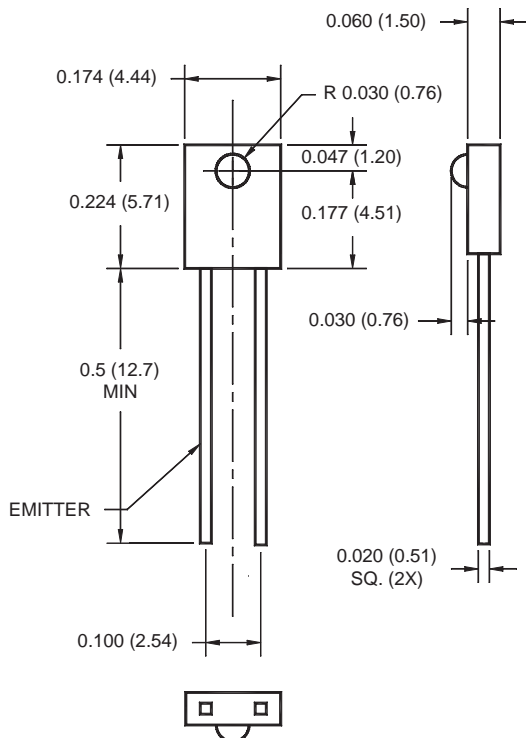
Features

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

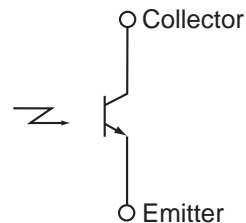
Description

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

Package Dimensions



Schematic



Notes:

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

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	$^\circ\text{C}$
$T_{\text{SOL-I}}$	Soldering Temperature (Iron) ^(2,3,4)	240 for 5 sec	$^\circ\text{C}$
$T_{\text{SOL-F}}$	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	$V_{\text{CE}} = 10\text{ V}, E_e = 0$	—	—	100	nA
BV_{CEO}	Collector Emitter Breakdown	$I_{\text{C}} = 1\text{ mA}$	30	—	—	V
BV_{ECO}	Emitter Collector Breakdown	$I_{\text{E}} = 100\mu\text{A}$	5	—	—	V
$I_{\text{C(ON)}}$	On-State Collector Current	$E_e = 0.5\text{ mW/cm}^2,$ $V_{\text{CE}} = 5\text{ V}$	0.2	—	1.50	mA
		(QSE213C) (QSE214C)	1.00	—	—	
$V_{\text{CE(SAT)}}$	Saturation Voltage	$V_{\text{CE}} = 5\text{ V}^{(5)}, E_e = 0.5\text{ mW/cm}^2,$ $I_{\text{C}} = 0.1\text{ mA}^{(5)}$	—	—	0.4	V
t_{r}	Rise Time	$V_{\text{CC}} = 5\text{ V}, R_{\text{L}} = 100\Omega, I_{\text{C}} = 1\text{ mA}$	—	8	—	μs
t_{f}	Fall Time		—	8	—	

Notes:

- Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$.
- RMA flux is recommended.
- Methanol or isopropyl alcohols are recommended as cleaning agents.
- Soldering iron 1/16" (1.6 mm) minimum from housing.
- $\lambda = 950\text{ nm}$ GaAs.

Typical Performance Curves

Fig. 1 Dark Current vs. Collector Emitter Voltage

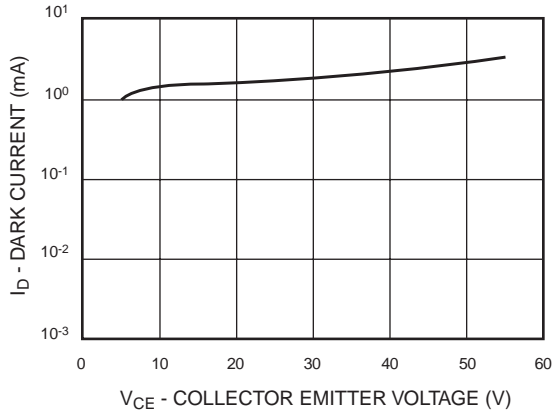


Fig. 2 Radiation Diagram

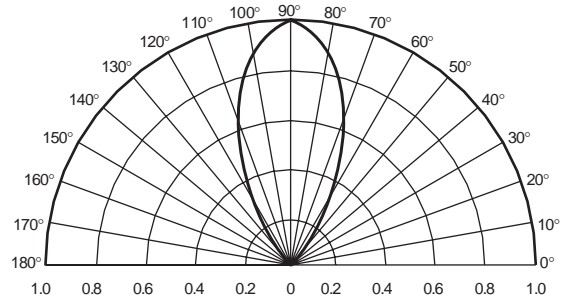


Fig. 3 Light Current vs. Ambient Temperature

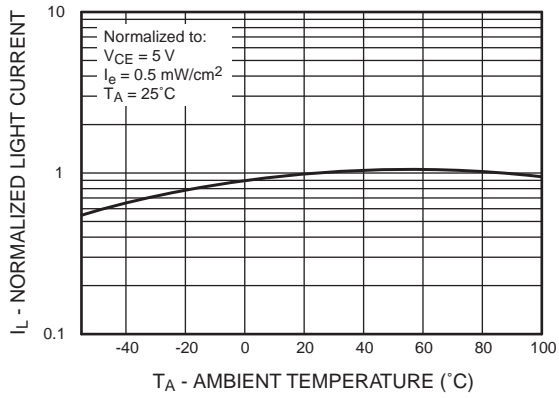


Fig. 4 Light Current vs. Collector to Emitter Voltage

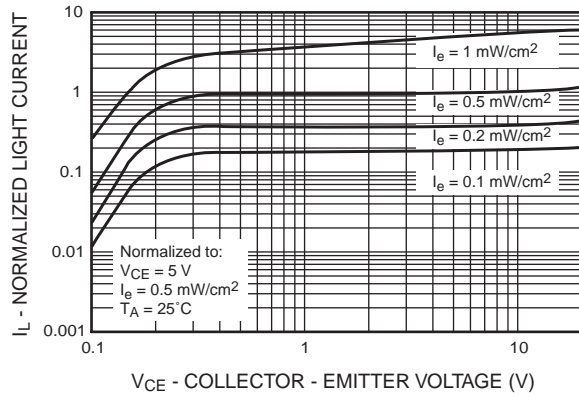
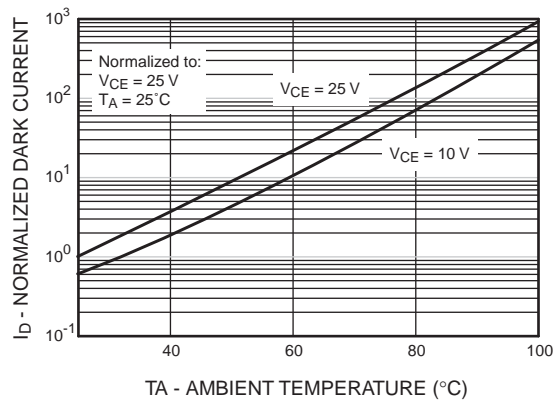


Fig. 5 Dark Current vs. Ambient Temperature



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