

QSE213/QSE214 Plastic Silicon Infrared Phototransistor

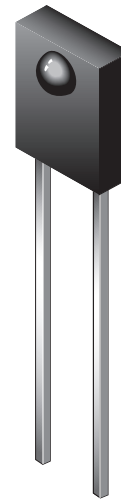
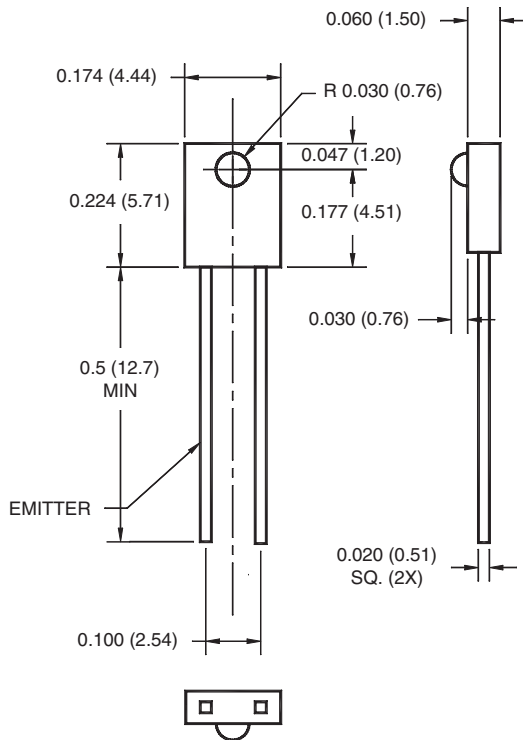
Features

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

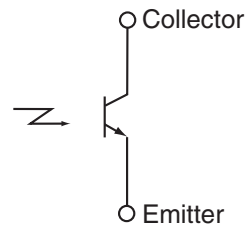
Description

The QSE213/QSE214 is a silicon phototransistor encapsulated in a medium angle, infrared transparent, black thin plastic side-looker 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)

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

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		Q	—	± 25	—	Deg.	
Collector Emitter Dark Current	$V_{\text{CE}} = 10 \text{ V}, E_e = 0$	I_{D}	—	—	100	nA	
Collector Emitter Breakdown	$I_{\text{C}} = 1 \text{ mA}$	BV_{CEO}	30	—	—	V	
Emitter Collector Breakdown	$I_{\text{E}} = 100 \mu\text{A}$	BV_{ECO}	5	—	—	V	
On-State Collector Current	$E_e = 0.5 \text{ mW/cm}^2, V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C(ON)}}$	(QSE213)	0.2	—	1.50	mA
			(QSE214)	1.00	—	—	
Saturation Voltage	$V_{\text{CE}} = 5 \text{ V}^{(5)}, E_e = 0.5 \text{ mW/cm}^2, I_{\text{C}} = 0.1 \text{ mA}^{(5)}$	$V_{\text{CE(SAT)}}$	—	—	0.4	V	
Rise Time	$V_{\text{CC}} = 5\text{V}, R_{\text{L}} = 100\Omega, I_{\text{C}} = 1\text{mA}$	t_{r}	—	8	—	μs	
Fall Time		t_{f}	—	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

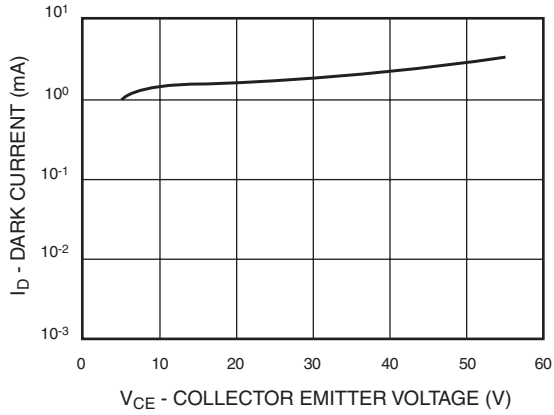


Fig. 2 Radiation Diagram

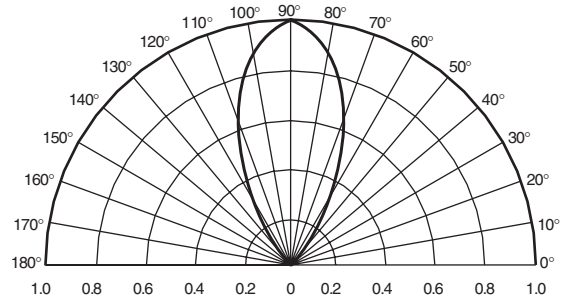


Fig. 3 Light Current vs. Ambient Temperature

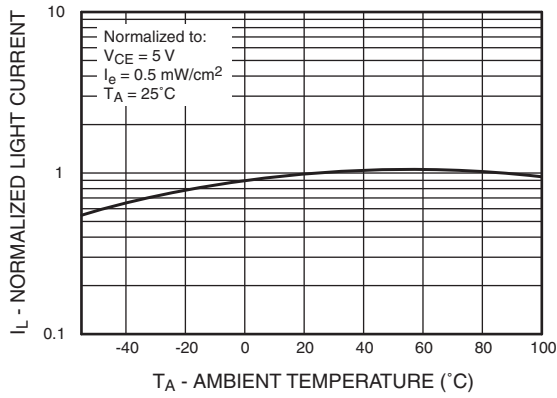


Fig. 4 Light Current vs. Collector to Emitter Voltage

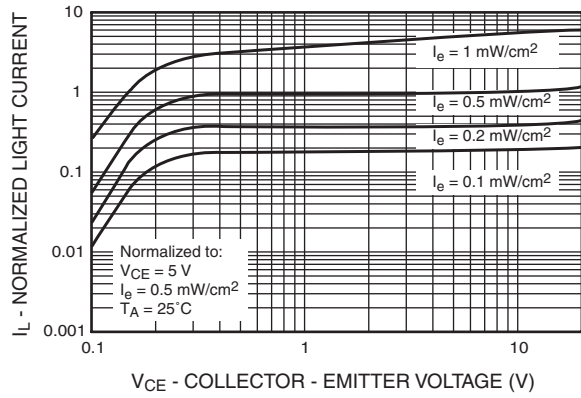
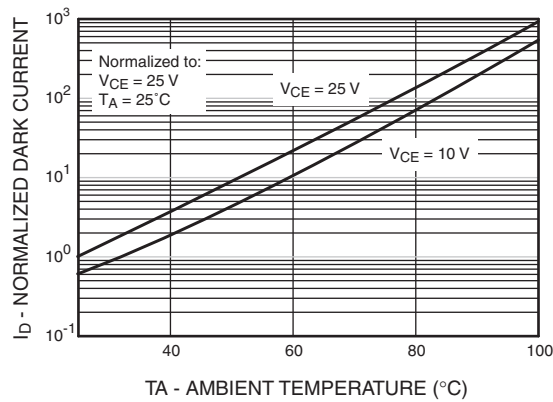


Fig. 5 Dark Current vs. Ambient Temperature



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Rev. 115