FAIRCHILD SEMICONDUCTOR®

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QSE213/QSE214
Plastic Silicon Infrared Phototransistor

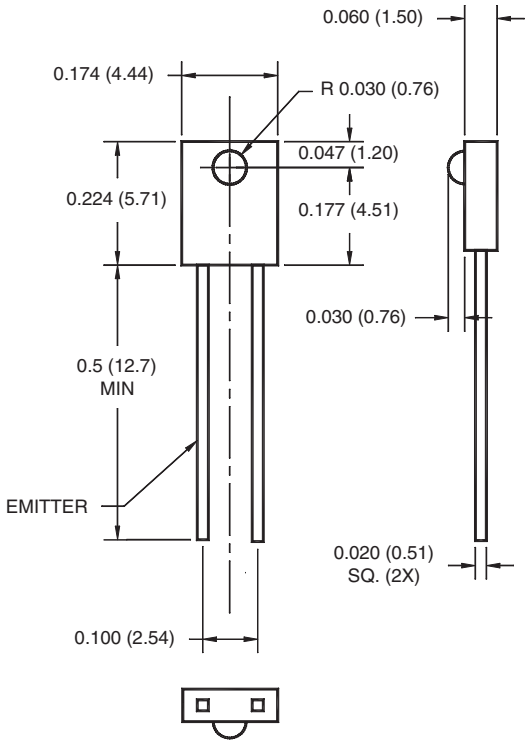
Features

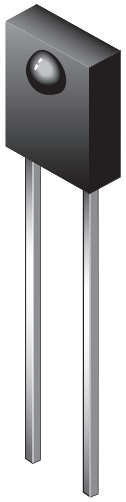
- NPN Silicon Phototransistor
- Package Type: Sidelooker
- Medium Reception Angle, 50°
- Daylight Filter
- Black Epoxy Package
- Matching Emitter: QEE213

Description

The QSE213/QSE214 is a silicon phototransistor encapsulated in a medium angle, infrared transparent, black thin plastic sidelooker package.

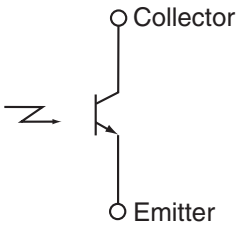
Package Dimensions





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

Schematic



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Absolute Maximum Ratings (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +100	°C
Storage Temperature	T_{STG}	-40 to +100	°C
Soldering Temperature (Iron)[2,3,4]	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)[2,3]	T_{SOL-F}	260 for 10 sec	°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°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_{CE} = 10 V, E_e = 0		I_D	—	—	100	nA
Collector Emitter Breakdown	I_C = 1 mA		BV_{CEO}	30	—	—	V
Emitter Collector Breakdown	I_E = 100 µA		BV_{ECO}	5	—	—	V
On-State Collector Current	E_e = 0.5 mW/cm^2, V_{CE} = 5 V	(QSE213)	$I_{C(ON)}$	0.2	—	1.50	mA
		(QSE214)		1.00	—	—	
Saturation Voltage	V_{CE} = 5 V[5], E_e = 0.5 mW/cm^2, I_C = 0.1 mA[5]		$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	V_{CC} = 5V, R_L = 100Ω, I_C = 1mA		t_r	—	8	—	µs
Fall Time			t_f	—	8	—	

Notes:

1. Derate power dissipation linearly 1.33 mW/°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. λ = 950 nm GaAs.

Typical Performance Curves

Fig. 1 Dark Current vs. Collector Emitter Voltage

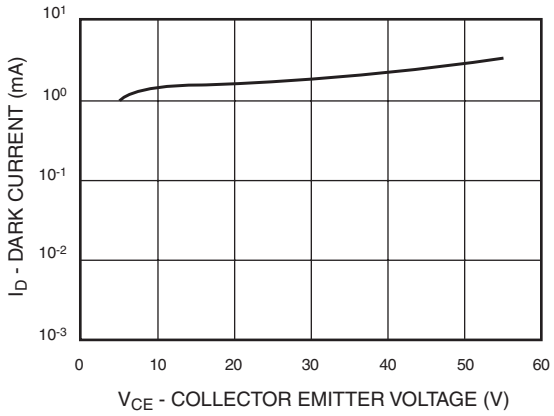


Fig. 2 Radiation Diagram

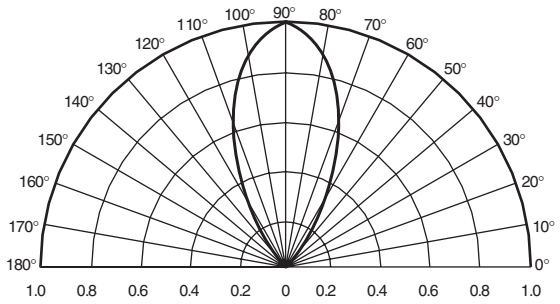


Fig. 3 Light Current vs. Ambient Temperature

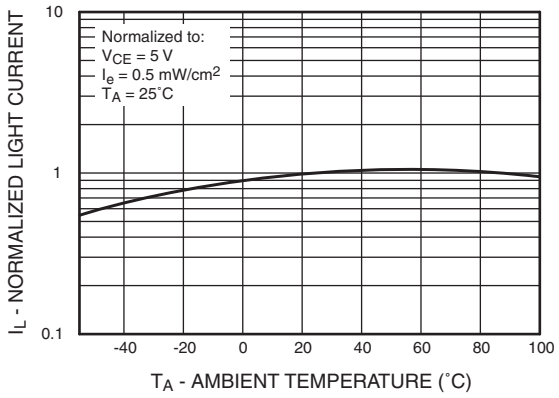


Fig. 4 Light Current vs. Collector to Emitter Voltage

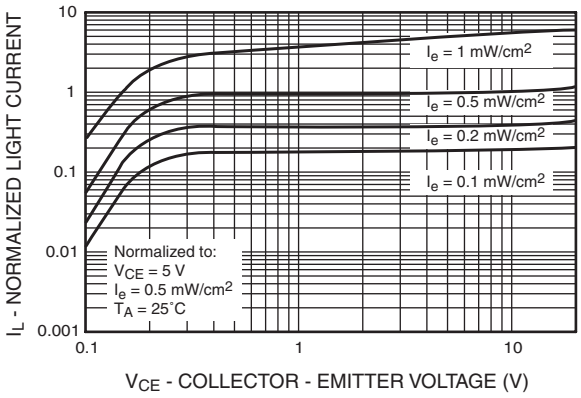
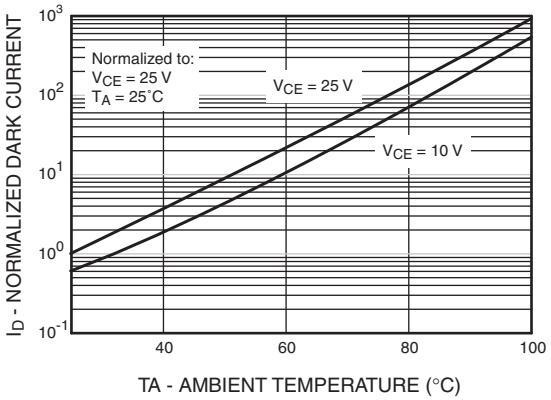


Fig. 5 Dark Current vs. Ambient Temperature



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