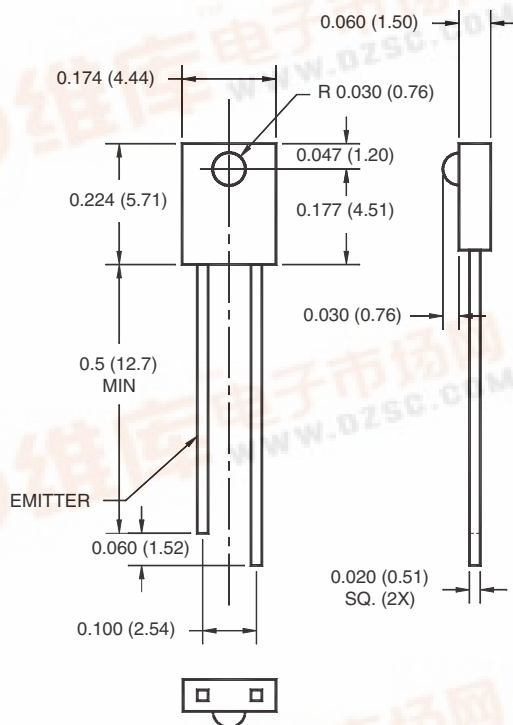


FAIRCHILD
SEMICONDUCTOR®

PLASTIC SILICON INFRARED PHOTOTRANSISTOR

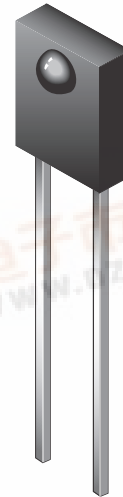
QSE213 QSE214

PACKAGE DIMENSIONS

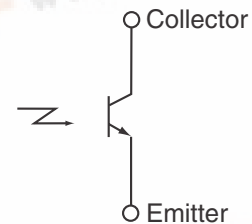


NOTES:

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



SCHEMATIC

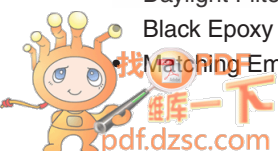


DESCRIPTION

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

FEATURES

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



QSE213

QSE214

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_{SOL-I}	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	T_{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		θ	—	± 25	—	Deg.
Collector Emitter Dark Current	$V_{CE} = 10\text{ V}$, $E_e = 0$	I_D	—	—	100	nA
Collector Emitter Breakdown	$I_C = 1\text{ mA}$	BV_{CEO}	30	—	—	V
Emitter Collector Breakdown	$I_E = 100\text{ }\mu\text{A}$	BV_{ECO}	5	—	—	V
On-State Collector Current	$E_e = 0.5\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$	$I_{C(ON)}$	(QSE213) 0.2	—	1.50	mA
			(QSE214) 1.00	—	—	
Saturation Voltage	$V_{CE} = 5\text{ V}^{(5)}$ $E_e = 0.5\text{ mW/cm}^2$, $I_C = 0.1\text{ mA}^{(5)}$	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5\text{ V}$, $R_L = 100\Omega$, $I_C = 1\text{ mA}$	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

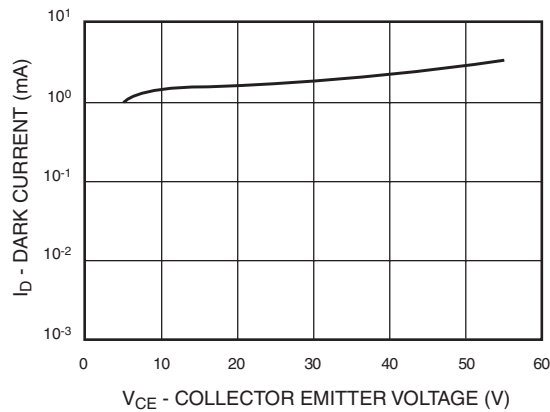


Fig.2 Radiation Diagram

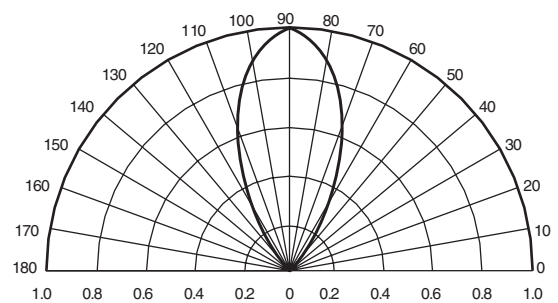


Fig.3 Light Current vs. Ambient Temperature

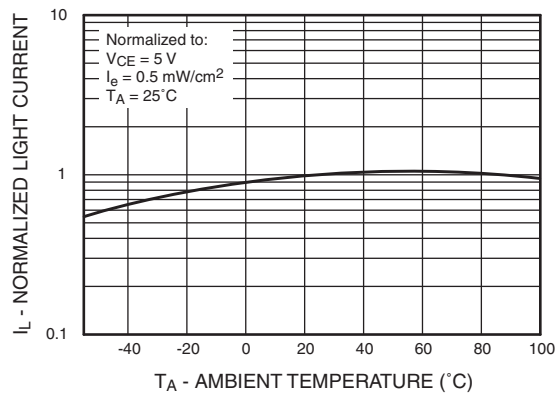


Fig.4 Light Current vs. Collector to Emitter Voltage

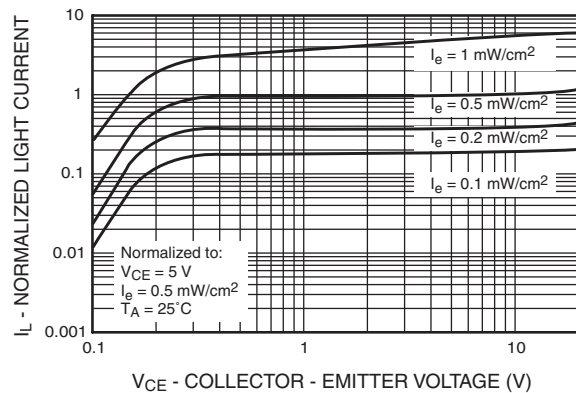
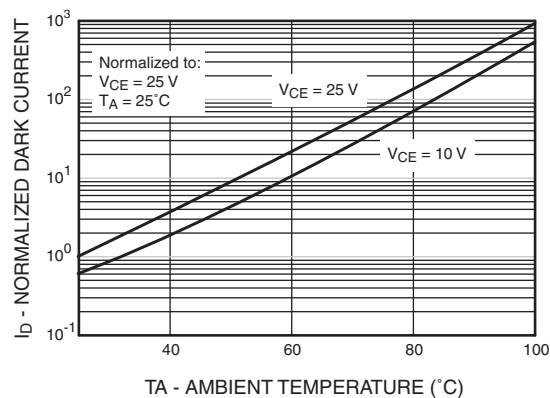


Fig.5 Dark Current vs. Ambient Temperature





PLASTIC SILICON INFRARED PHOTOTRANSISTOR

QSE213**QSE214**

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