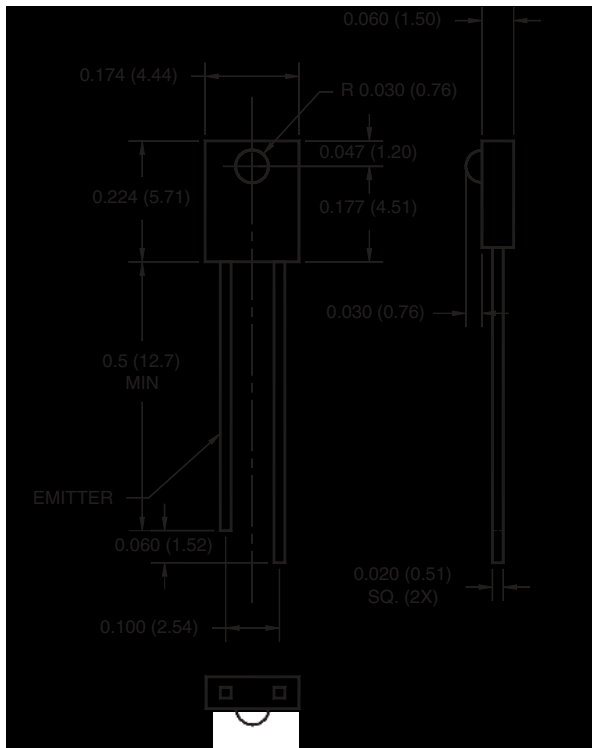


# PLASTIC SILICON INFRARED PHOTOTRANSISTOR

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

# PLASTIC SILICON INFRARED PHOTOTRANSISTOR

**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) <sup>(2,3,4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2,3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Collector-Emitter Voltage	$V_{CE}$	30	V
Emitter-Collector Voltage	$V_{EC}$	5	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW

**ELECTRICAL / OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units	
Peak Sensitivity		$\lambda_{PS}$	—	880	—	nM	
Reception Angle		$\theta$	—	$\pm 25$	—	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	$I_E = 100\ \mu\text{A}$	$BV_{ECO}$	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	—	$\mu\text{s}$	
Fall Time		$t_f$	—	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.

# PLASTIC SILICON INFRARED PHOTOTRANSISTOR

QSE213

QSE214

## TYPICAL PERFORMANCE CURVES

Fig.1 Dark Current vs. Collector Emitter Voltage

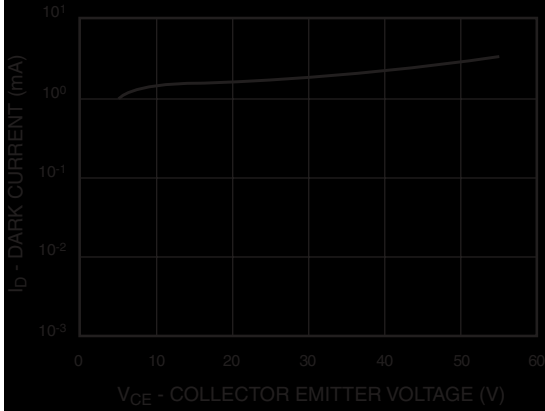


Fig.2 Radiation Diagram

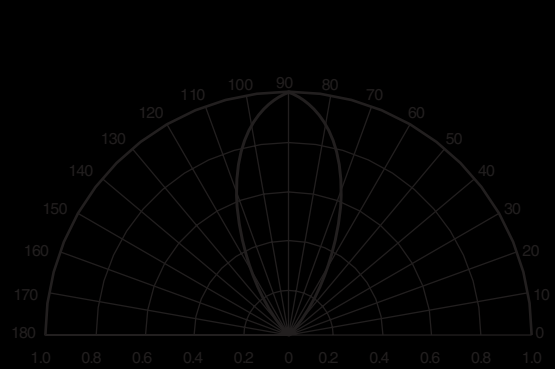


Fig.3 Light Current vs. Ambient Temperature

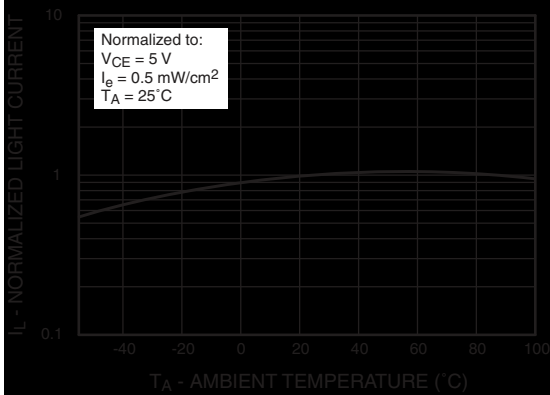


Fig.4 Light Current vs. Collector to Emitter Voltage

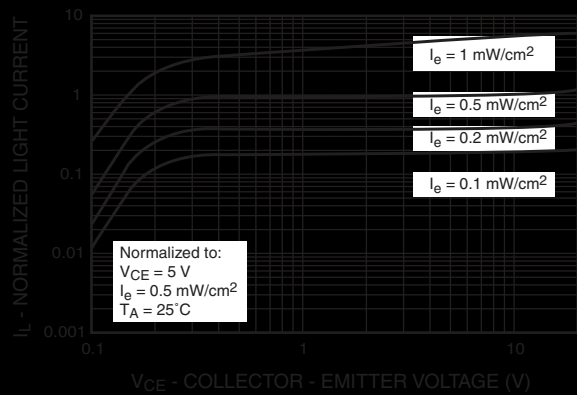
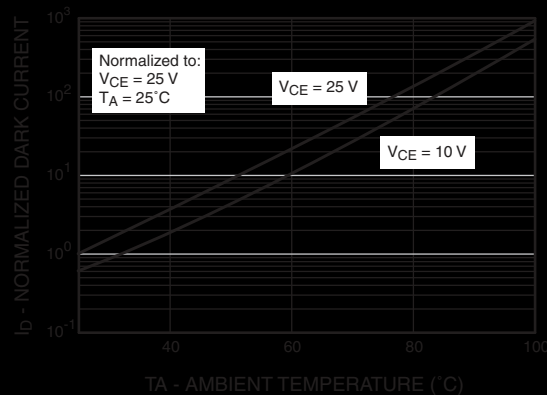


Fig.5 Dark Current vs. Ambient Temperature





# PLASTIC SILICON INFRARED PHOTOTRANSISTOR

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**QSE213**

**QSE214**

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