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[QSE243](#)

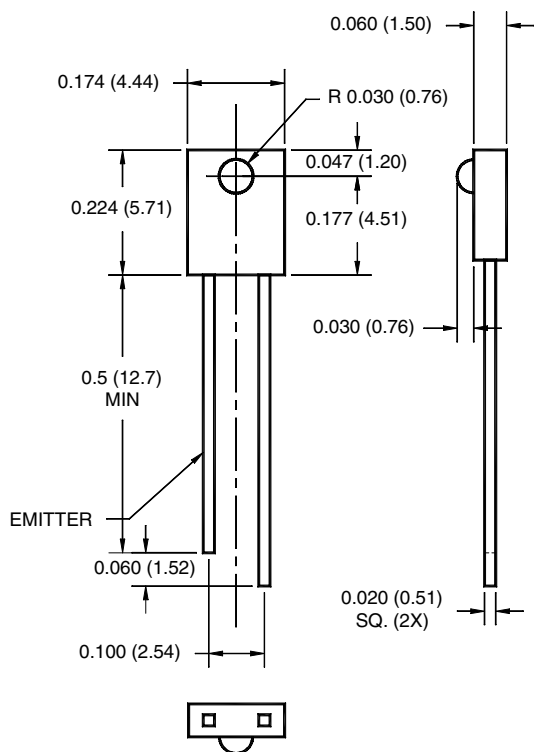
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## LOW LIGHT REJECTION PLASTIC SILICON INFRARED PHOTOTRANSISTOR

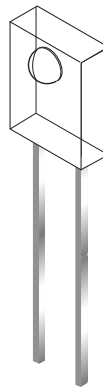
**QSE243**

### PACKAGE DIMENSIONS

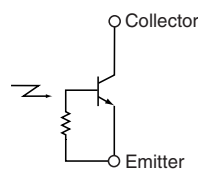


#### NOTES:

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



### SCHEMATIC



### DESCRIPTION

The QSE243 is a silicon phototransistor with low light level rejection, encapsulated in a medium angle, thin clear plastic sidelooker package.

### FEATURES

- NPN Silicon Phototransistor with internal base-emitter resistance
- Package Type: Sidelooker
- Medium Reception Angle, 50°
- Clear Plastic Package
- Matching Emitter: QEE213

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**QSE243**

### 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 ( $T_A = 25^\circ\text{C}$ )

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Sensitivity		$\lambda_{PS}$	—	880	—	nm
Reception Angle		$\theta$	—	$\pm 25$	—	Deg.
Collector Emitter Dark Current	$V_{CE} = 15\text{ V}, E_e = 0$	$I_D$	—	—	100	nA
Collector Emitter Breakdown	$I_C = 100\text{ }\mu\text{A}$	$BV_{CEO}$	30	—	—	V
Saturation Voltage	$E_e = 1\text{ mW/cm}^2$ $I_C = 0.1\text{ mA}^{(5)}$	$V_{CE(sat)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5\text{ V}, R_L = 1000\text{ }\Omega$	$t_r$	—	15	—	$\mu\text{s}$
Fall Time	$I_C = 1\text{ mA}$	$t_f$	—	15	—	$\mu\text{s}$
Light Current Slope <sup>(6)</sup>	$V_{CE} = 5\text{ V}, E_{e1} = 1\text{ mW/cm}^2^{(5)}$ $E_{e2} = 0.5\text{ mW/cm}^2^{(5)}$	$I_{LS}$	1.0			$\text{mA/mW/cm}^2$
Knee Point <sup>(5,7)</sup>	$V_{CE} = 5\text{ V}$	$E_{ek}$		0.125		$\text{mW/cm}^2$

### 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 source
- The slope is defined by  $(I_{C1} - I_{C2}) / (E_{e1} - E_{e2})$  where  $I_{C1}$  is the collector current at  $E_{e1}$  and  $I_{C2}$  the collector current at  $E_{e2}$ .
- Knee point is defined as being required to increase  $I_C$  to 50  $\mu\text{A}$ .



## LOW LIGHT REJECTION PLASTIC SILICON INFRARED PHOTOTRANSISTOR

**QSE243****DISCLAIMER**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.