FAIRCHILD
SEMICONDUCTOR®

May 2005

QSE243
Low Light Rejection Plastic Silicon Infrared PhotoTransistor

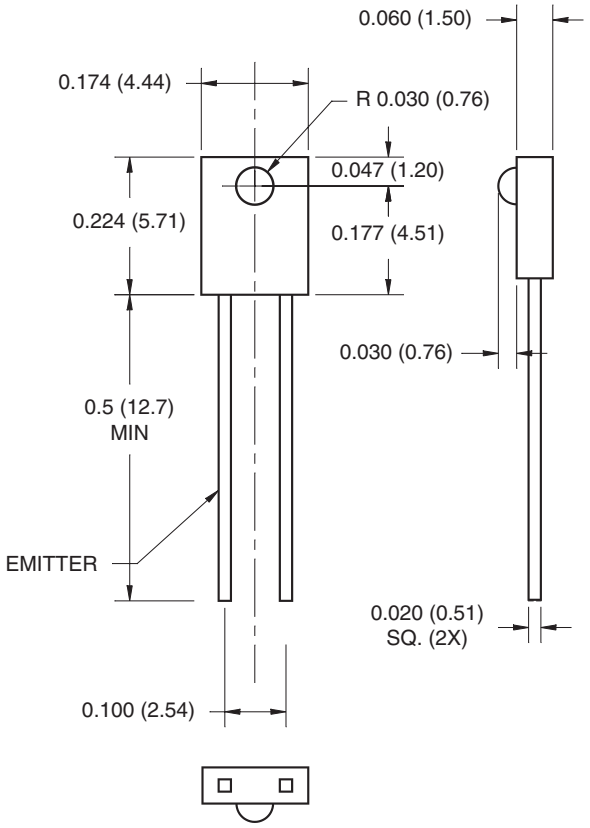
Features

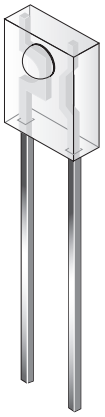
- NPN Silicon Phototransistor with internal base-emitter resistance
- Package Type: Sidelooker
- Medium Reception Angle, 50°
- Clear Plastic Package
- Matching Emitter: QEE213

Description

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

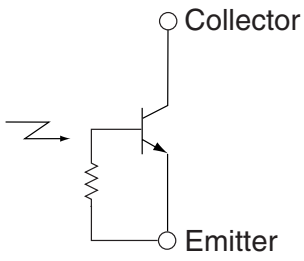
Package Dimensions





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

Schematic



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} = 15 V, E_e = 0	I_D	—	—	100	nA
Collector Emitter Breakdown	I_C = 100 µA	BV_{CEO}	30	—	—	V
Saturation Voltage	E_e = 1 mW/cm^2, I_C = 0.1 mA(5)	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	V_{CC} = 5V, R_L = 1000 V	t_r	—	15	—	µs
Fall Time	I_C = 1mA	t_f	—	15	—	µs
Light Current Slope(6)	V_{CE} = 5 V, E_e1 = 1 mW/cm^2(5) E_e2 = 0.5 mW/cm^2(5)	I_{LS}	1.0			mA/mW/cm^2
Knee Point(5,7)	V_{CE} = 5 V	E_{ek}		0.125		mW/cm^2

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.
6. 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}.
7. Knee point is defined as being required to increase I_C to 50 µA.

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Rev. I15