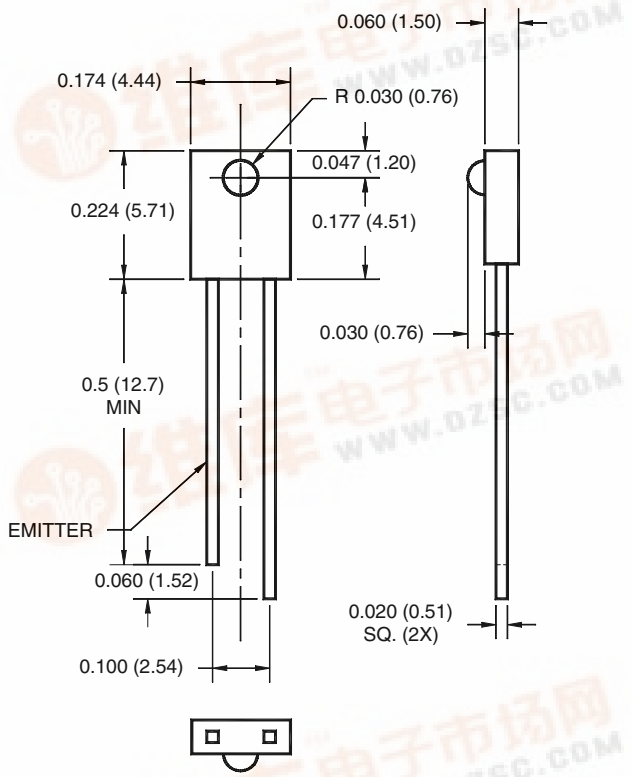
FAIRCHILD
SEMICONDUCTOR®

LOW LIGHT REJECTION PLASTIC SILICON INFRARED PHOTOTRANSISTOR

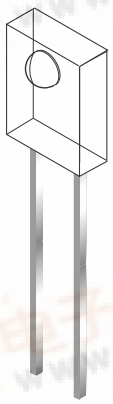
QSE243

PACKAGE DIMENSIONS

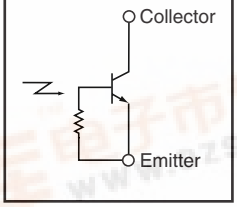


NOTES:

1. Dimensions for all drawings are in inches (millimeters).
2. Tolerance of ± .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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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)

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} = 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/cm2 I_C = 0.1 mA(5)	$V_{CE\ (sat)}$	—	—	0.4	V
Rise Time	V_{CC} = 5 V, R_L = 1000 V	t_r	—	15	—	µs
Fall Time	I_C = 1 mA	t_f	—	15	—	µs
Light Current Slope(6)	V_{CE} = 5 V, E_e1 = 1 mW/cm2(5) E_e2 = 0.5 mW/cm2(5)	I_{LS}	1.0			mA/mW/cm2
Knee Point(5,7)	V_{CE} = 5 V	E_{ek}		0.125		mW/cm2

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 source
6. The slope is defined by (I_{C1}-I_{C2}) / (E_{C1}-E_{C2}) 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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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.