FAIRCHILD SEMICONDUCTOR®

March 2011

QSB363C
Subminiature Plastic Silicon Infrared Phototransistor

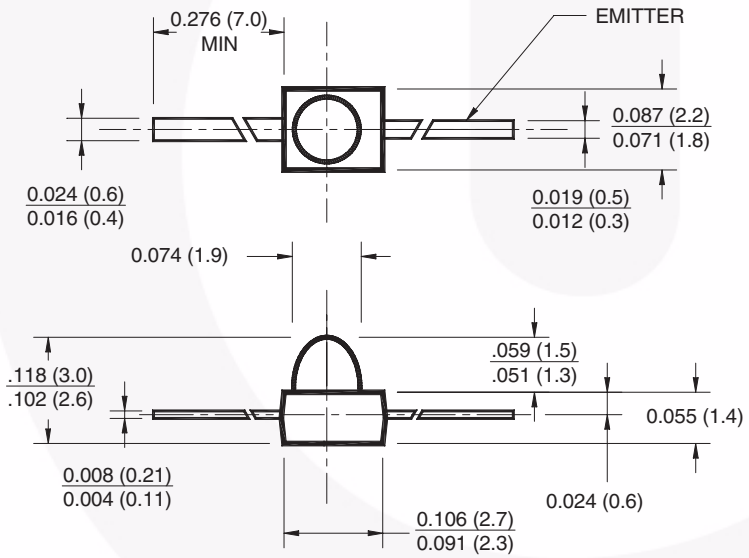
Features

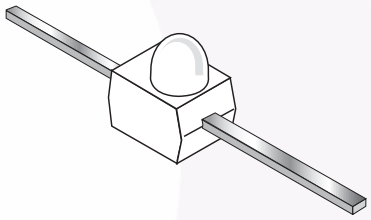
- NPN Silicon Phototransistor
- T-3/4 (2mm) Surface Mount Package
- Medium Wide Beam Angle, 24°
- Clear Plastic Package
- Matched Emitters: QEB363 or QEB373
- Tape & Reel Option (See Tape & Reel Specifications)
- Lead Form Options: Gullwing, Yoke, Z-Bend

Description

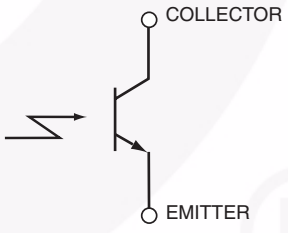
The QSB363 is a silicon phototransistor encapsulated in a clear infrared T-3/4 package.

Package Dimensions





Schematic



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

Absolute Maximum Ratings (T_A = 25°C unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.)

Symbol	Parameter	Rating	Unit
T_{OPR}	Operating Temperature	-25 to +85	°C
T_{STG}	Storage Temperature	-40 to +85	°C
T_{SOL}	Soldering Temperature (Iron)[2,3,4]	260	°C
T_{SOL}	Soldering Temperature (Flow)[2,3]	260	°C
V_{CEO}	Collector Emitter Voltage	30	V
V_{ECO}	Emitter Collector Voltage	5	V
P_C	Power Dissipation[1]	75	mW

Notes

1. Derate power dissipation linearly 1.33mW/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Pulse conditions: tp = 100μs, T = 10ms.
5. D = 940nm, GaAs.

Electrical/Optical Characteristics (T_A = 25°C)

Symbol	Parameters	Test Conditions	Min.	Typ.	Max.	Units
λ_P	Peak Sensitivity Wavelength			940		nm
Θ	Reception Angle			±12		
I_{CEO}	Collector Dark Current	V_{CE} = 20V, Ee = 0mW/cm^2			100	nA
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 100μA, Ee = 0mW/cm^2	30			V
BV_{ECO}	Emitter-Collector Breakdown Voltage	I_E = 100μA, Ee = 0mW/cm^2	5			V
$I_{C(on)}$	On-State Collector Current	V_{CE} = 5V, Ee = 0.5mW/cm^2	1.0	1.5		mA
$V_{CE\ (SAT)}$	Collector-Emitter Saturation Voltage	I_C = 2mA, Ee = 1mW/cm^2			0.4	V
t_r	Rise Time	V_{CE} = 5 V, I_C = 1mA, R_L = 1000Ω		15		μs
t_f	Fall Time			15		μs

Typical Performance Curves

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

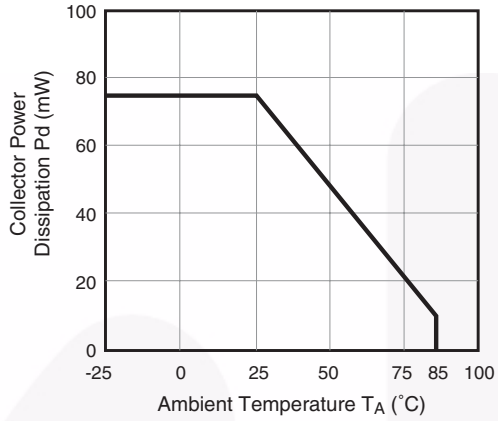


Fig. 2 Spectral Sensitivity

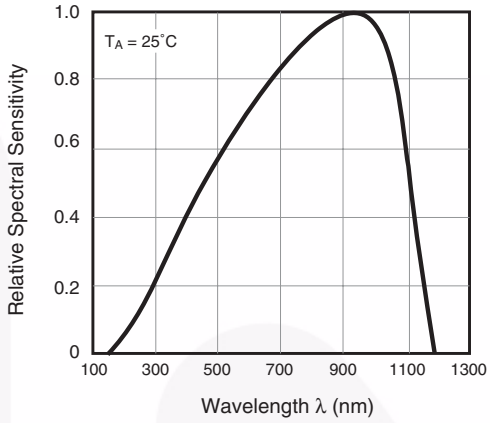


Fig. 3 Relative Collector Current vs. Ambient Temperature

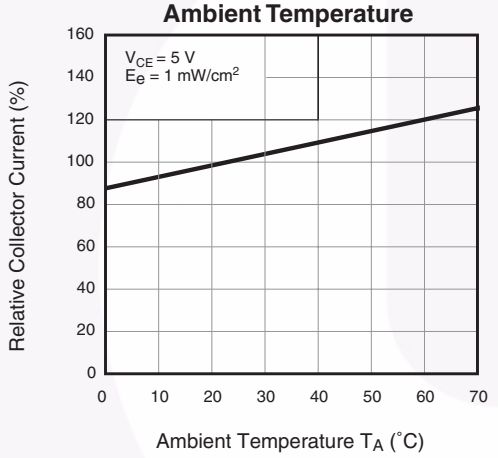


Fig. 4 Collector Current vs. Irradiance

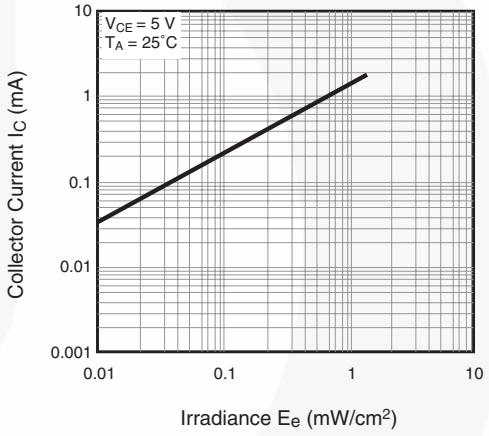


Fig. 5 Collector Dark Current vs. Ambient Temperature

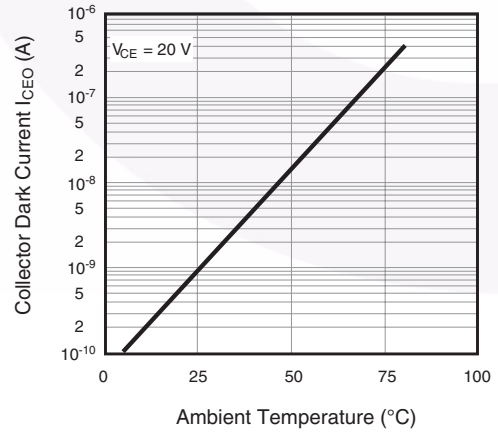
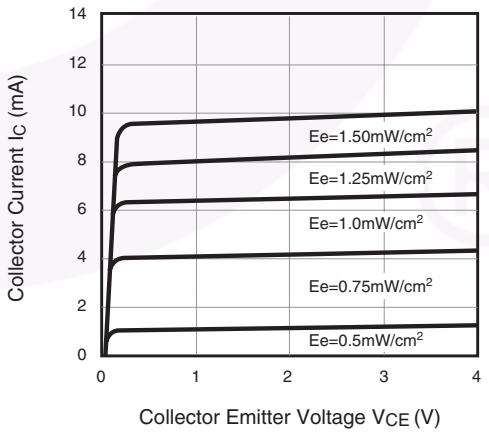


Fig. 6 Collector Current vs. Collector Emitter Voltage

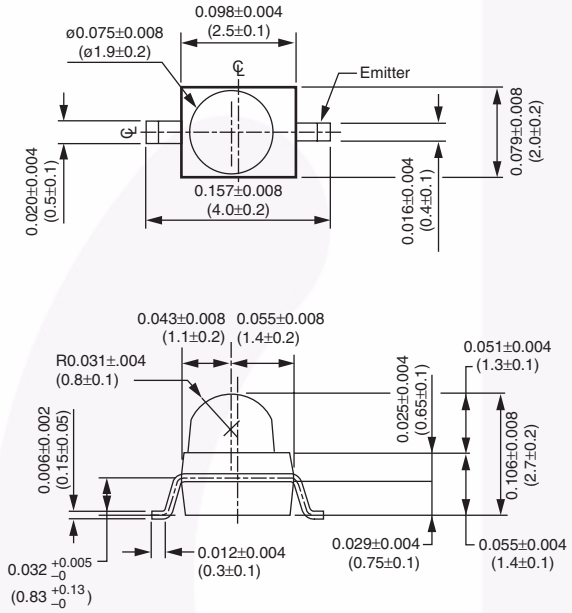


Package Dimensions

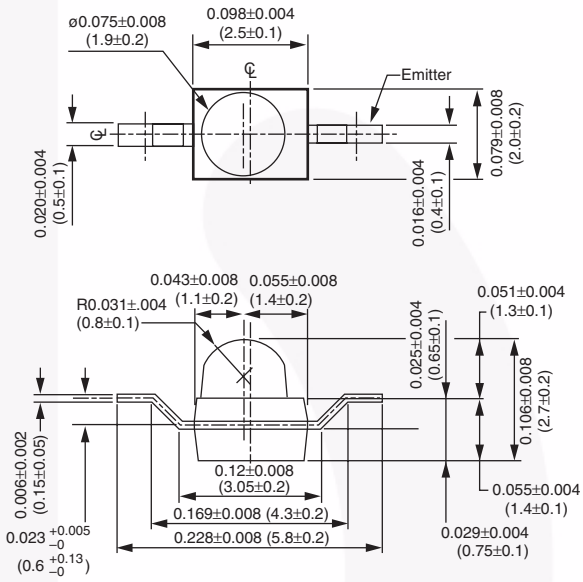
Features

- Three lead forming options: Gull Wing, Yoke and Z-Bend
- Compatible with automatic placement equipment
- Supplied on tape and reel or in bulk packaging
- Compatible with vapor phase reflow solder processes

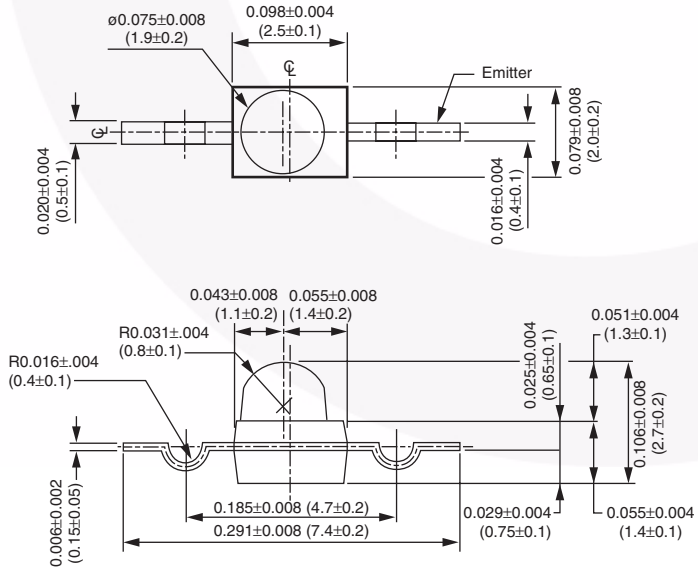
Gull Wing Lead Configuration



Z-Bend Lead Configuration



Yoke Lead Configuration



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