FAIRCHILD SEMICONDUCTOR®

September 2005

QSB363C
Subminiature Plastic Silicon Infrared Phototransistor

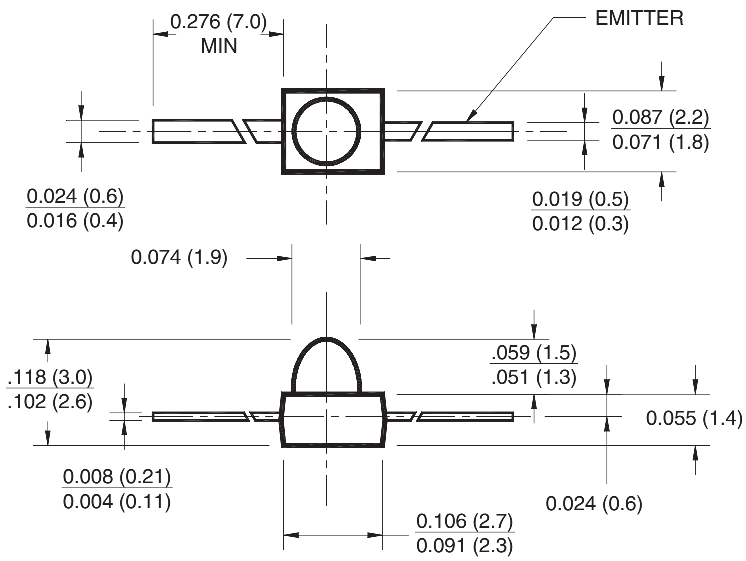
Features

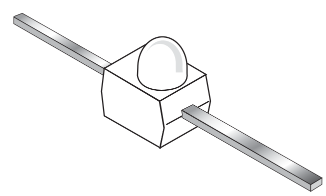
- NPN Silicon Phototransistor
- T-3/4 (2mm) Surface Mount Package
- Medium Wide Beam Angle, 24°
- Clear Plastic Package
- Matched Emitters: QEB363 or QEB373
- Tape & Reel Option (See Tape & Reel Specifications)
- Lead Form Options: Gullwing, Yoke, Z-Bend

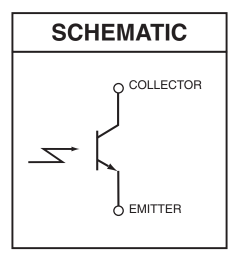
Description

The QSB363C is a silicon phototransistor encapsulated in a clear infrared T-3/4 package.

Package Dimensions







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)

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

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. Pulse conditions: tp = 100 µs, T = 10 ms.
5. D = 940 nm, GaAs.

Electrical/Optical Characteristics (T_A =25°C)

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

Typical Performance Curves

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

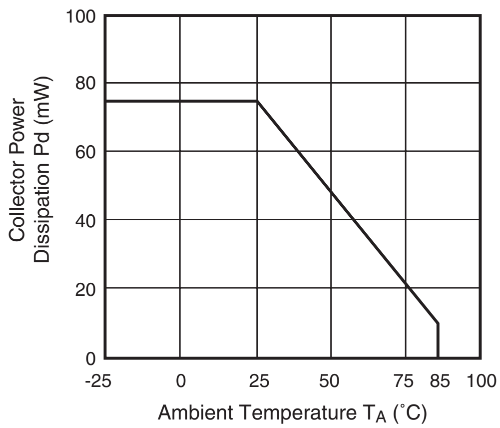


Fig. 2 Spectral Sensitivity

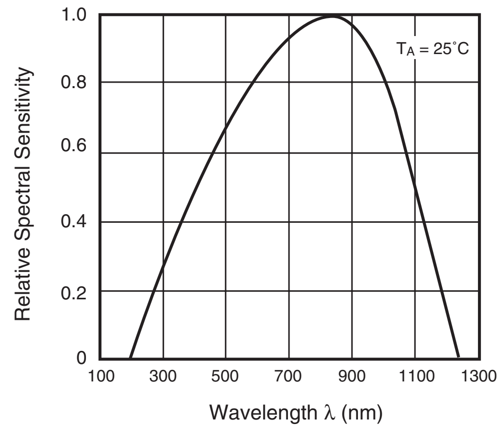


Fig. 3 Relative Collector Current vs. Ambient Temperature

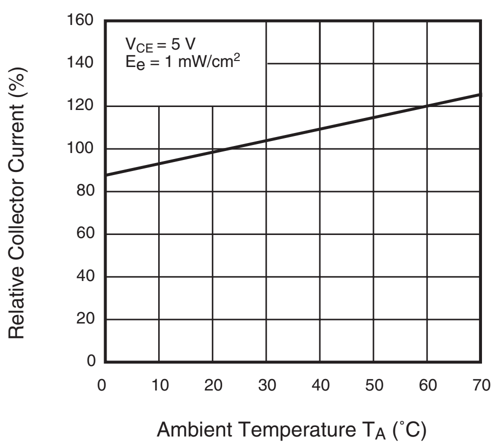


Fig. 4 Collector Current vs. Irradiance

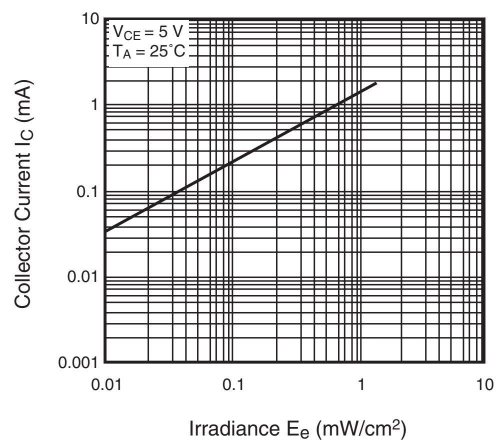


Fig. 5 Collector Dark Current vs. Ambient Temperature

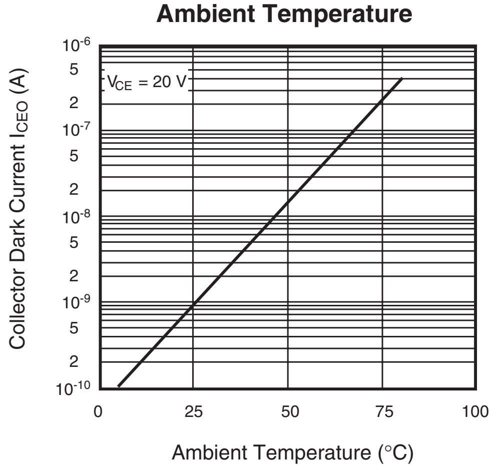
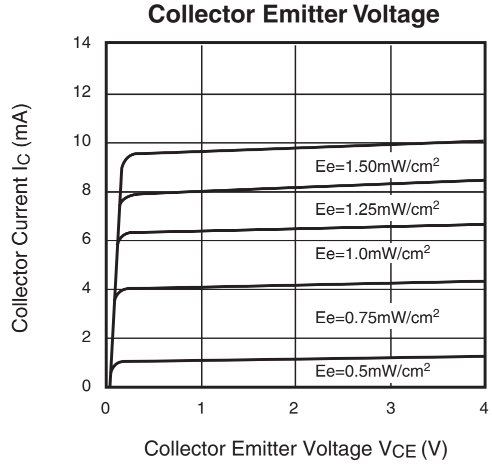


Fig. 6 Collector Current vs. Collector Emitter Voltage

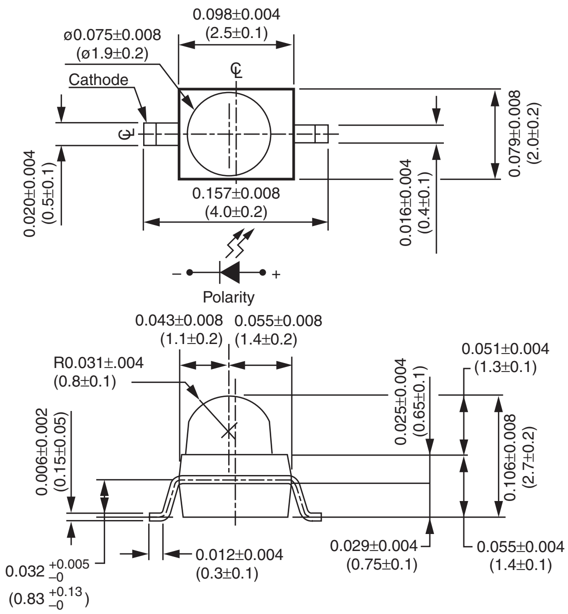


Package Dimensions

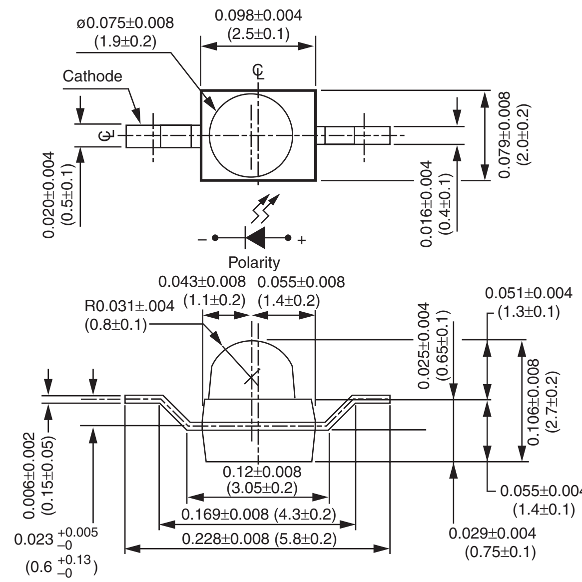
Features

- 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

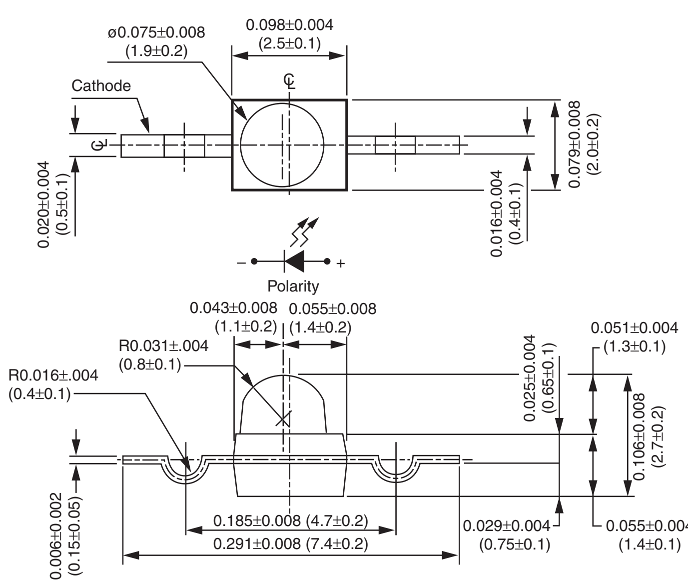
Gull Wing Lead Configuration



Z-Bend Lead Configuration



Yoke Lead Configuration



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