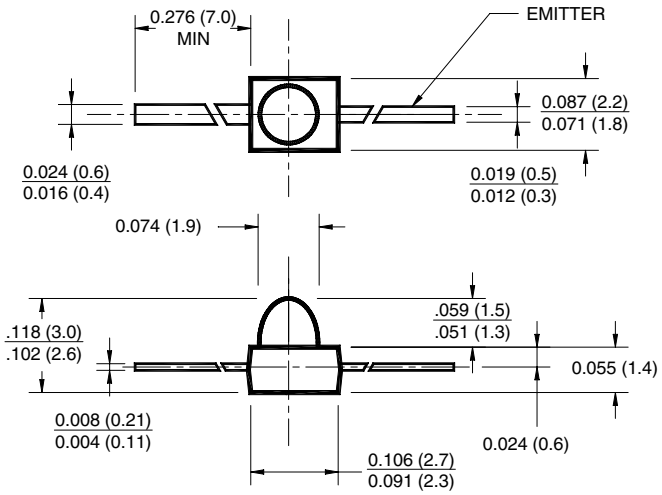
FAIRCHILD
SEMICONDUCTOR®

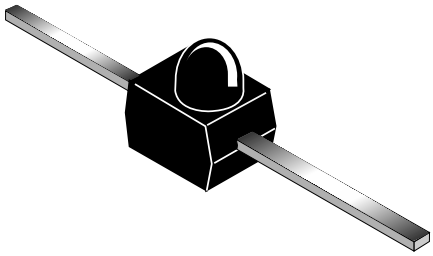
SUBMINIATURE PLASTIC SILICON INFRARED PHOTOTRANSISTOR

QSB363

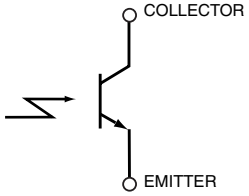
PACKAGE DIMENSIONS



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



SCHEMATIC



DESCRIPTION

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

FEATURES

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

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +85	°C
Storage Temperature	T_{STG}	-40 to +85	°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

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. λ = 940 nm, GaAs.

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Peak Sensitivity Wavelength		λ_{PS}	—	880	—	nm
Reception Angle		Θ	—	±12	—	Deg.
Dark Current	V_{CE} = 10 V, Ee = 0	I_D	—	—	100	nA
Collector-Emitter Breakdown	I_C = 1 mA	BV_{CEO}	30	—	—	V
Emitter-Collector Breakdown	I_E = 100 µA	BV_{ECO}	4	—	—	V
On-State Collector Current	Ee = 0.5 mW/cm2 V_{CE} = 5 V(5)	I_C(on)	0.7	—	—	mA
Saturation Voltage	Ee = 0.5 mW/cm2 I_C = 0.1 mA(5)	$V_{CE\ (SAT)}$	—	—	0.4	V
Rise Time	V_{CC} = 5 V, R_L = 100 Ω	t_r	—	5	—	μs
Fall Time	I_C = 0.2 mA	t_f	—	5	—	μs

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TYPICAL PERFORMANCE CURVES

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

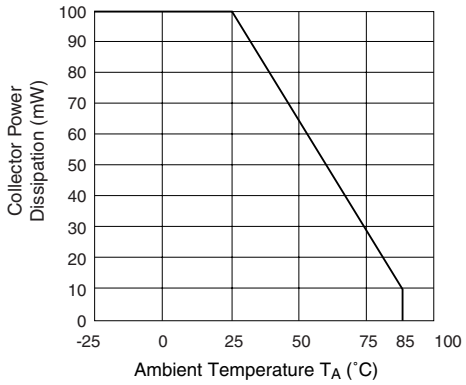


Fig. 2 Collector Dark Current vs. Ambient Temperature

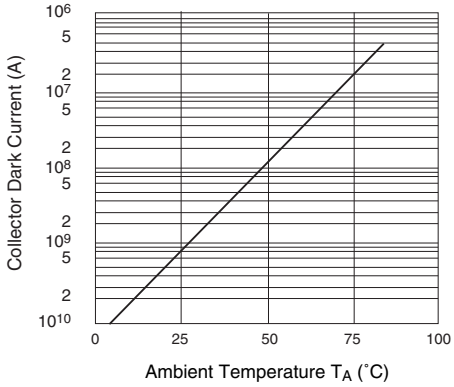


Fig. 3 Relative Collector Current vs. Ambient Temperature

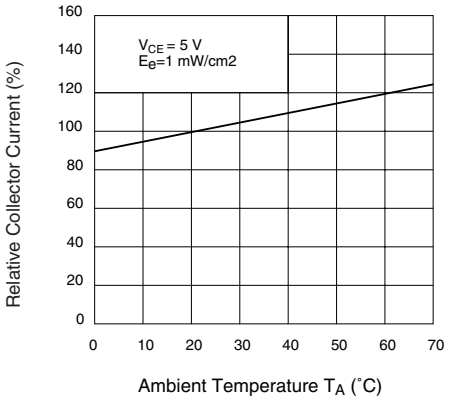


Fig. 4 Collector Current vs. Irradiance

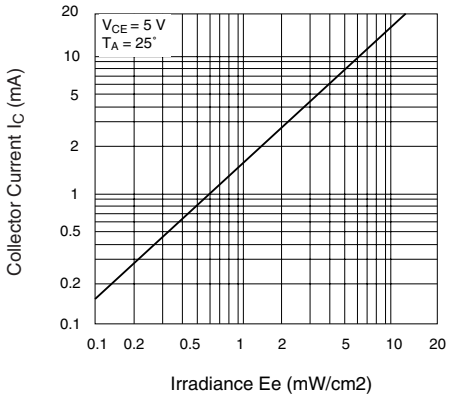


Fig. 5 Spectral Sensitivity

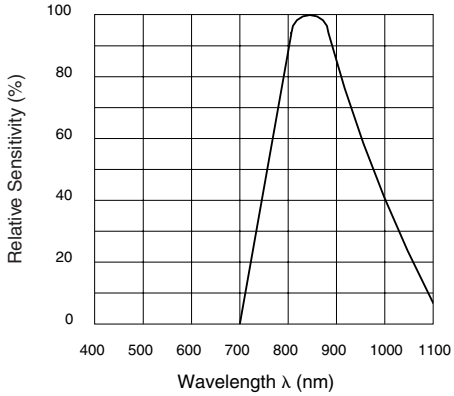
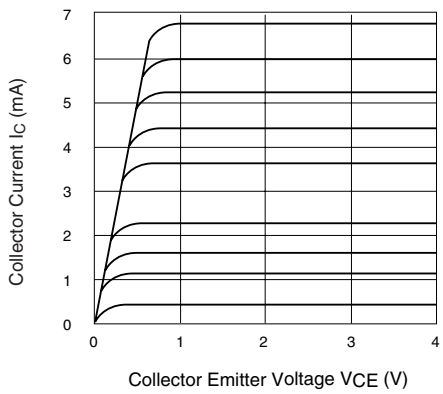


Fig. 6 Collector Current vs. Collector Emitter Voltage



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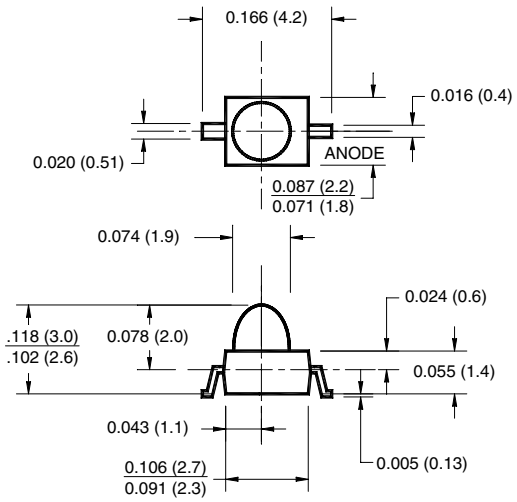
GULL WING LEAD CONFIGURATION

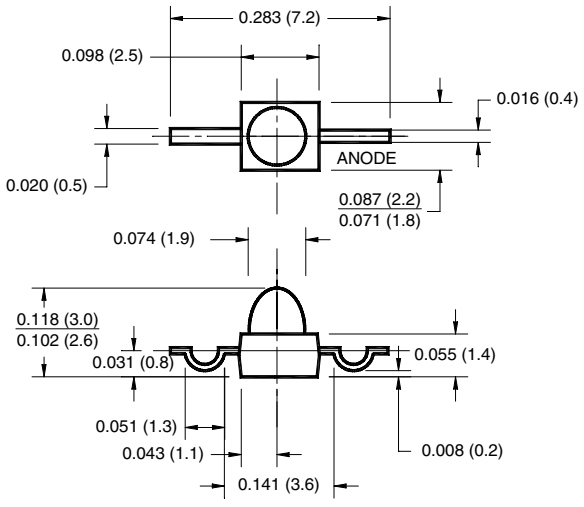


FEATURES

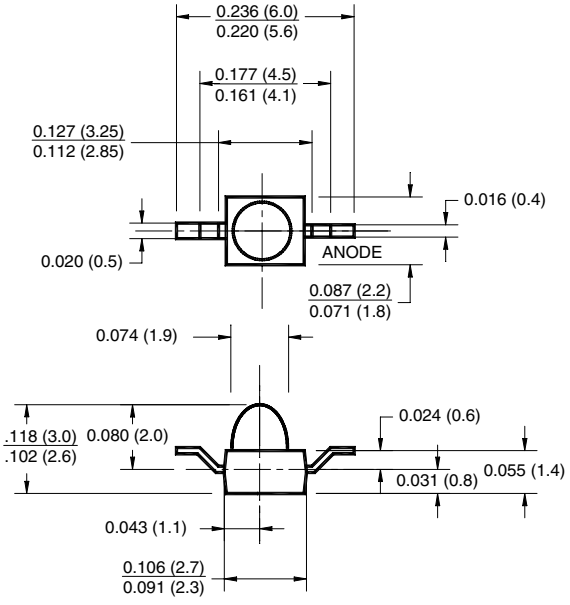
- Three lead forming options: Gull Wing, Yoke and Z-Bend
- Compatible with automatic placement equipment
- Supplied on tape and reel or in bulk packaging
- Compatible with vapor phase reflow solder processes

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

YOKE LEAD CONFIGURATION



Z-BEND LEAD CONFIGURATION



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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.