

QSB363

Subminiature Plastic Silicon Infrared Phototransistor

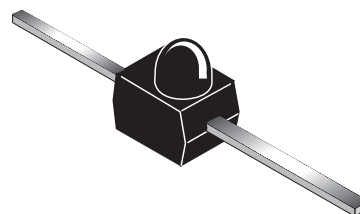
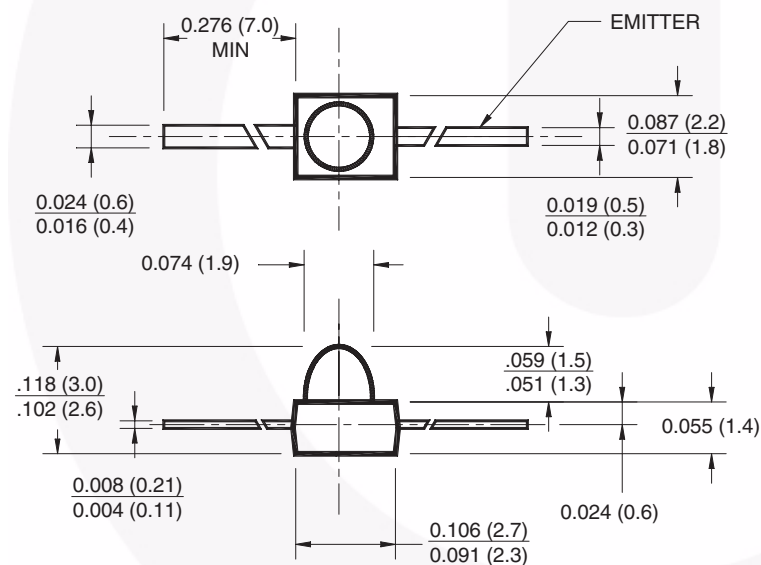
Features

- 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

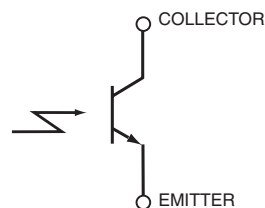
Description

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

Package Dimensions



SCHEMATIC



NOTES:

1. Dimensions are in inches (mm).
2. Tolerance of $\pm .010$ (.25) on all non nominal dimensions unless otherwise specified.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +85	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 to +85	$^\circ\text{C}$
Soldering Temperature (Iron) ^(2, 3)	T_{SOL}	260	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	T_{SOL}	260	$^\circ\text{C}$
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 1.08 mW/ $^\circ\text{C}$ above 25°C .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.

Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$)

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

Typical Performance Curves

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

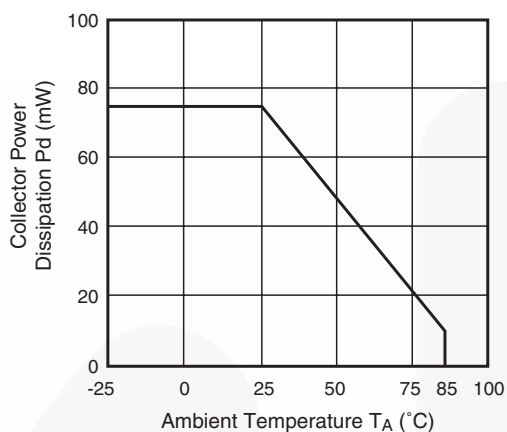


Fig. 2 Spectral Sensitivity

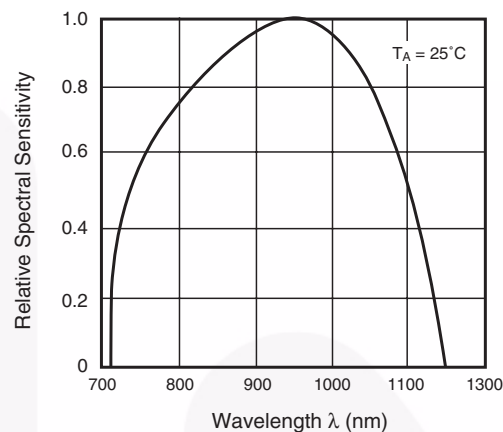


Fig. 3 Relative Collector Current vs. Ambient Temperature

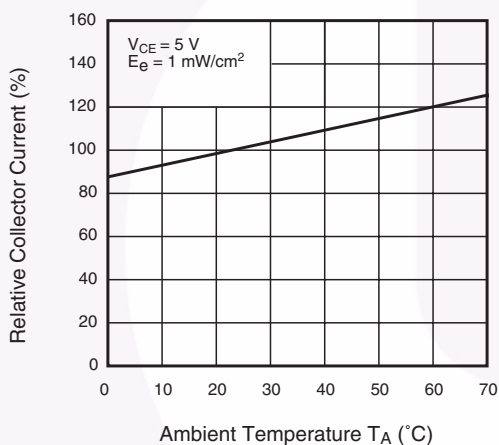


Fig. 4 Collector Current vs. Irradiance

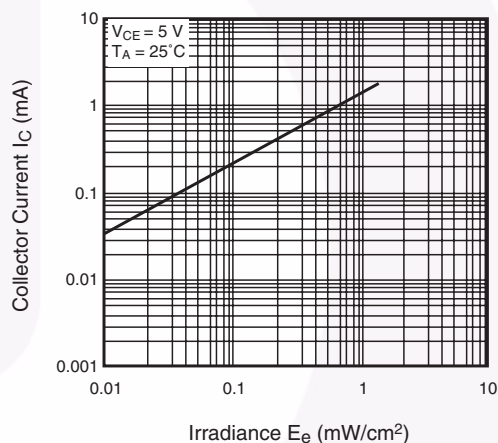


Fig. 5 Collector Dark Current vs. Ambient Temperature

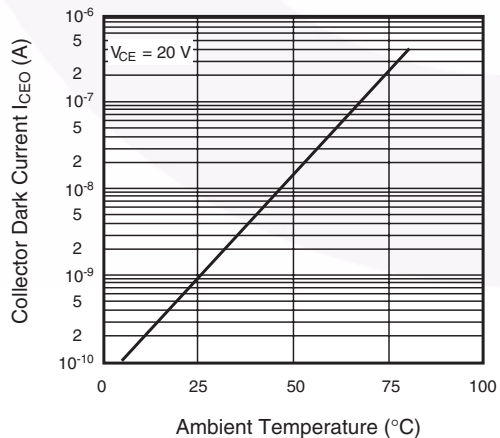
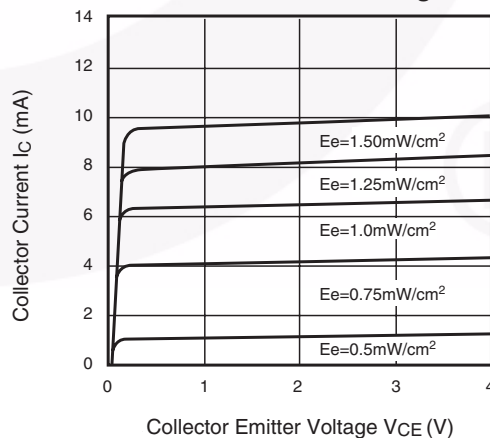


Fig. 6 Collector Current vs. Collector Emitter Voltage

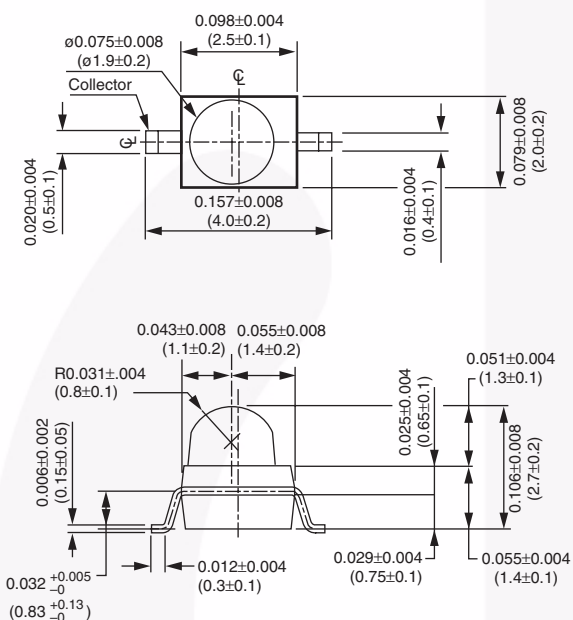


Package Dimensions

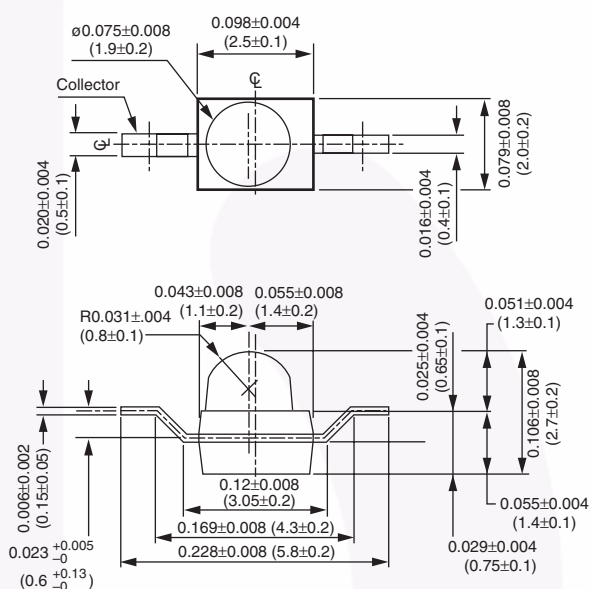
Features

- 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

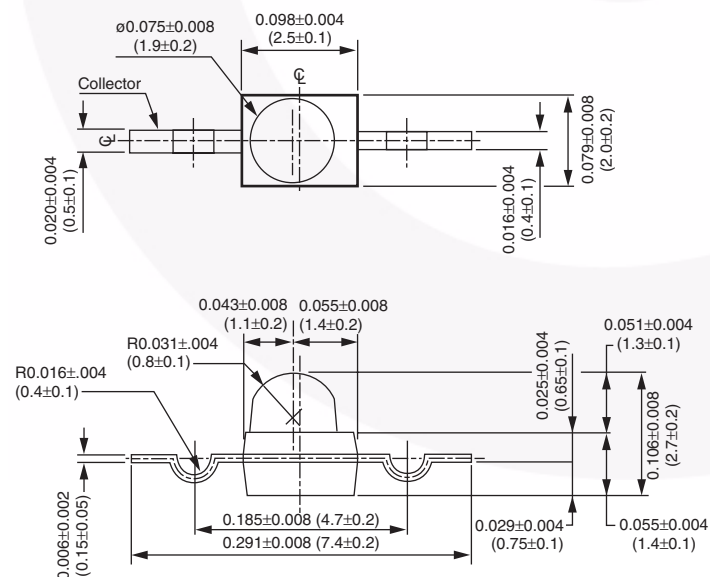
Gull Wing Lead Configuration



Z-Bend Lead Configuration

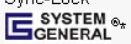


Yoke Lead Configuration



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Rev. 154



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