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June 2013

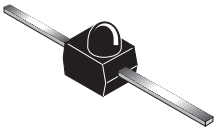
QSB363 / QSB363GR / QSB363YR / QSB363ZR
Subminiature Plastic Silicon Infrared Phototransistor

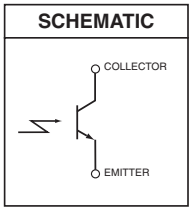
Features

- NPN Silicon Phototransistor
- T-3/4 (2 mm) 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: Gull-wing, Yoke, Z-Bend

Description

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





Ordering Information

Part Number	Operating Temperature	Package	Packing Method
QSB363	-40 to +85°C	T-3/4	Bulk
QSB363GR		T-3/4 Gull-wing	Tape and Reel
QSB363YR		T-3/4 Yoke	Tape and Reel
QSB363ZR		T-3/4 Z-Bend	Tape and Reel

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Absolute Maximum Ratings

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. Values are at T_A = 25°C unless otherwise specified.

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

Notes:

1. RMA flux is recommended.
2. Methanol or isopropyl alcohols are recommended as cleaning agents.
3. Derate power dissipation linearly 1.08 mW/°C above 25°C.

Electrical / Optical Characteristics

Values are at T_A = 25°C unless specified otherwise.

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

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Typical Performance Characteristics

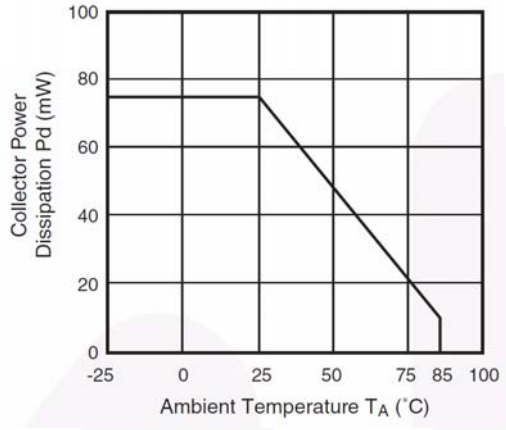


Figure 1. Collector Power Dissipation vs. Ambient Temperature

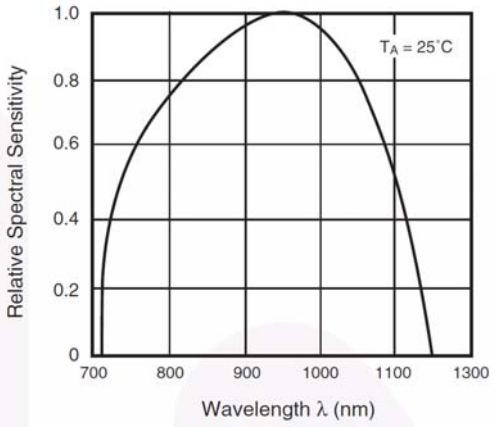


Figure 2. Spectral Sensitivity

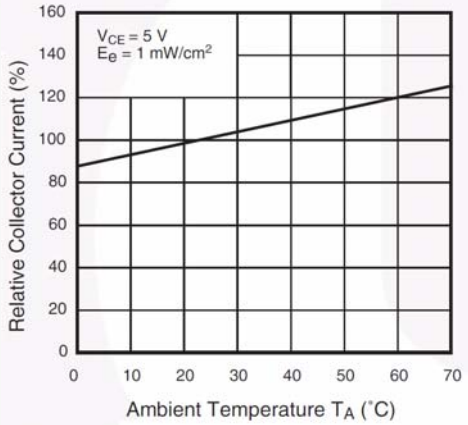


Figure 3. Relative Collector Current vs. Ambient Temperature

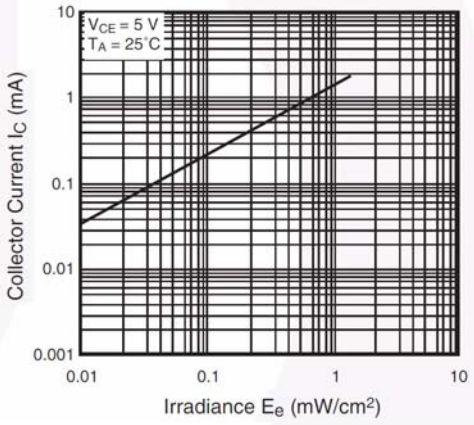


Figure 4. Collector Current vs. Irradiance

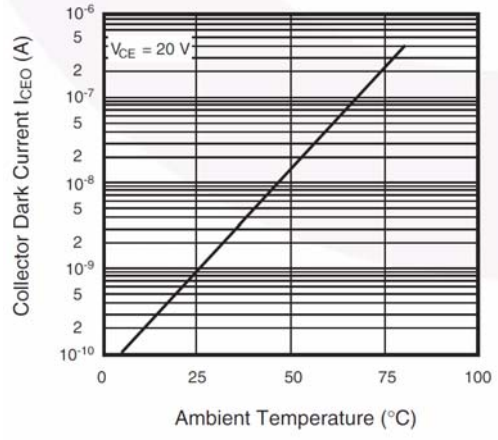


Figure 5. Collector Dark Current vs. Ambient Temperature

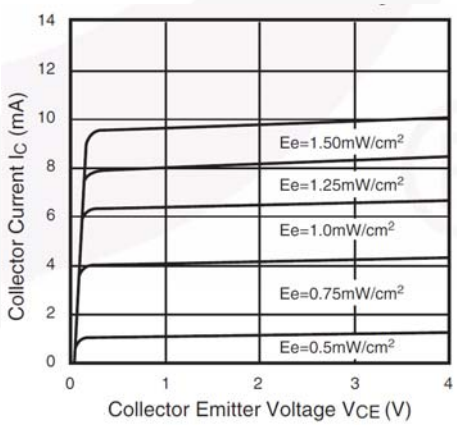
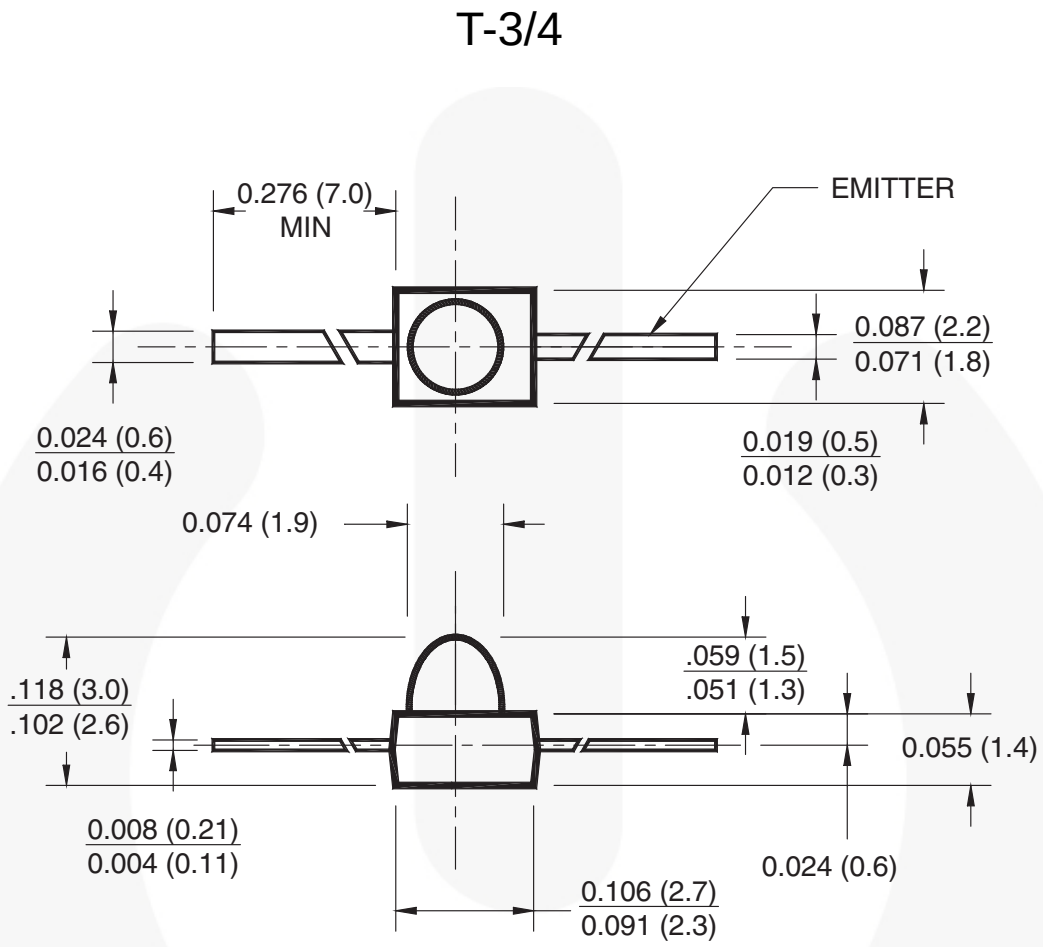


Figure 6. Collector Current vs. Collector Emitter Voltage

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Physical Dimensions



Notes:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ±0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

Figure 7. T-3/4, 2 MM DETECTOR (ACTIVE)

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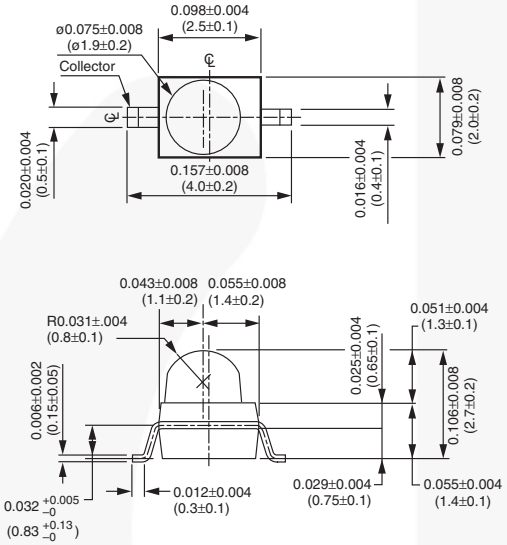
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Physical Dimensions (continued)

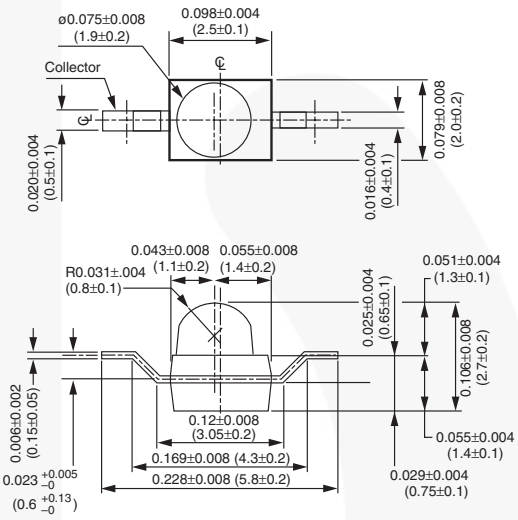
Features

- 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

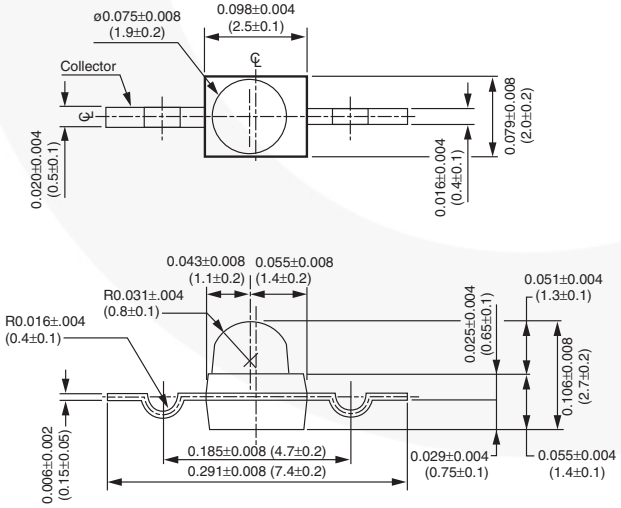
Gull-wing Lead Configuration



Z-Bend Lead Configuration



Yoke Lead Configuration



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