

August 2011

# **QSB363**

# **Subminiature Plastic Silicon Infrared Phototransistor**

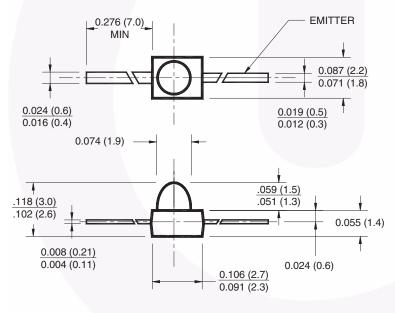
### **Features**

- 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

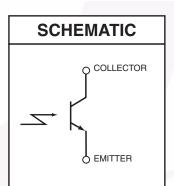
## **Description**

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

## **Package Dimensions**







### 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<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T <sub>OPR</sub>	-40 to +85	°C
Storage Temperature	T <sub>STG</sub>	-40 to +85	°C
Soldering Temperature (Iron) <sup>(2, 3)</sup>	T <sub>SOL</sub>	260	°C
Soldering Temperature (Flow) <sup>(2,3)</sup>	T <sub>SOL</sub>	260	°C
Collector Emitter Voltage	V <sub>CEO</sub>	30	V
Emitter Collector Voltage	V <sub>ECO</sub>	5	V
Power Dissipation <sup>(1)</sup>	P <sub>C</sub>	75	mW

### Notes:

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

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

Parameters	Test Conditions	Symbol	Min.	Тур.	Max	Units
Peak Sensitivity Wavelength		$\lambda_{P}$	-	940	_	nm
Reception Angle		Θ	- \	±12	_	
Collector Dark Current	$V_{CE} = 20V$ , Ee = $0$ mW/cm <sup>2</sup>	I <sub>CEO</sub>	_	_	100	nA
Collector-Emitter Breakdown Voltage	$I_C = 100  \mu A,  Ee = 0  mW/cm^2$	BV <sub>CEO</sub>	30	_	_	V
Emitter-Collector Breakdown Voltage	$I_E = 100 \ \mu A, Ee = 0 mW/cm^2$	BV <sub>ECO</sub>	5	-	-	V
On-State Collector Current	$V_{CE} = 5V$ $Ee = 1 \text{ mW/cm}^2$ $\lambda = 940 \text{nm GaAs}$	I <sub>C(on)</sub>	1.0	1.5	_	mA
Collector-Emitter Saturation Voltage	$I_C = 2 \text{ mA}$ $Ee = 1 \text{ mW/cm}^2$ $\lambda = 940 \text{nm GaAs}$	V <sub>CE (SAT)</sub>	_	-	0.4	V
Rise Time Fall Time	$V_{CE} = 5 \text{ V},$ $I_{C} = 1 \text{ mA}$ $R_{L} = 1000\Omega$	t <sub>r</sub> t <sub>f</sub>	_	15 15	-	μs μs

## **Typical Performance Curves**

Fig. 1 Collector Power Dissipation vs.

Ambient Temperature

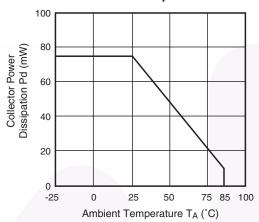


Fig. 3 Relative Collector Current vs.
Ambient Temperature

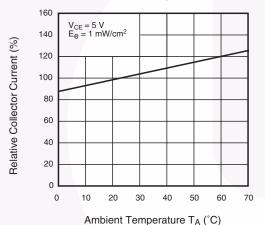


Fig. 5 Collector Dark Current vs.
Ambient Temperature

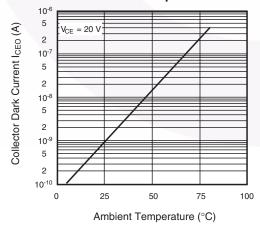


Fig. 2 Spectral Sensitivity

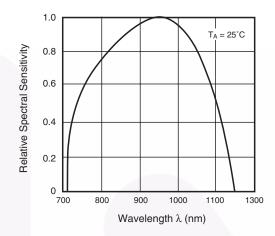


Fig. 4 Collector Current vs. Irradiance

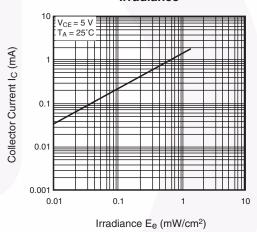
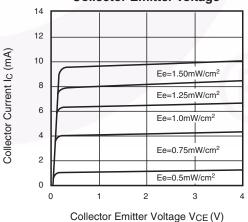


Fig. 6 Collector Current vs. Collector Emitter Voltage

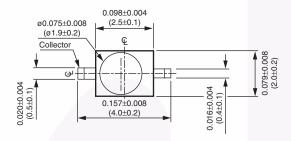


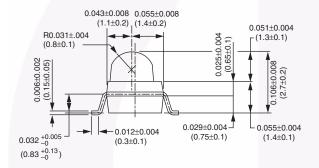
### **Package Dimensions**

### **Features**

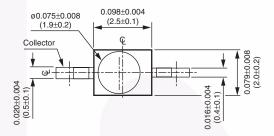
- Three lead forming options: Gull Wing, Yoke and Z-Bend
- Compatible with automatic placement equipment
- Supplied on tape and reel or in bulk packaging
- Compatible with vapor phase reflow solder processes

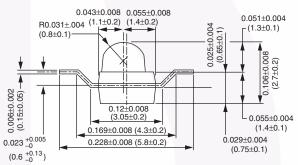
### **Gull Wing Lead Configuration**



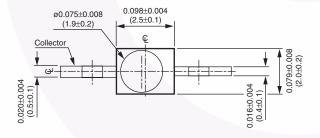


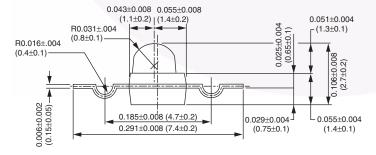
## **Z-Bend Lead Configuration**





## **Yoke Lead Configuration**









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