

# QSB363

## Subminiature Plastic Silicon Infrared Phototransistor

### Features

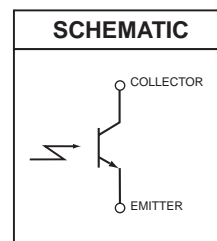
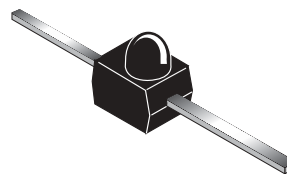
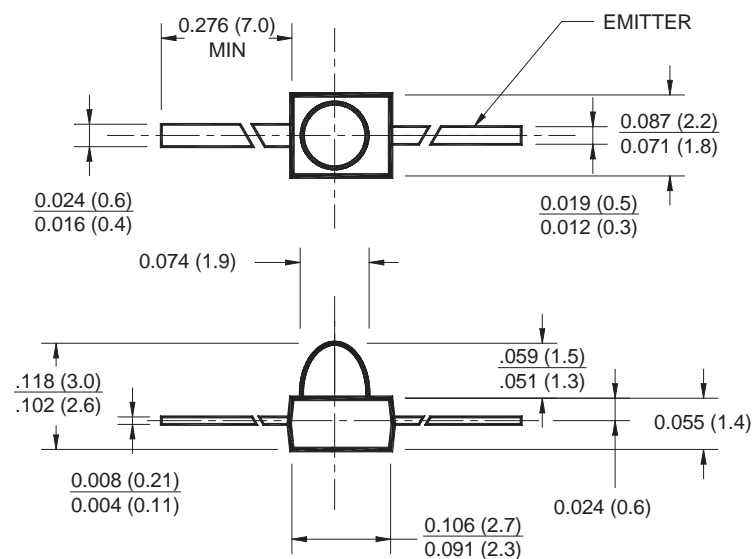
- NPN Silicon Phototransistor
- T-3/4 (2mm) Surface Mount Package
- Medium Wide Beam Angle, 24°
- Black Plastic Package
- Matched Emitters: QEB363 or QEB373

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

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

#### Notes

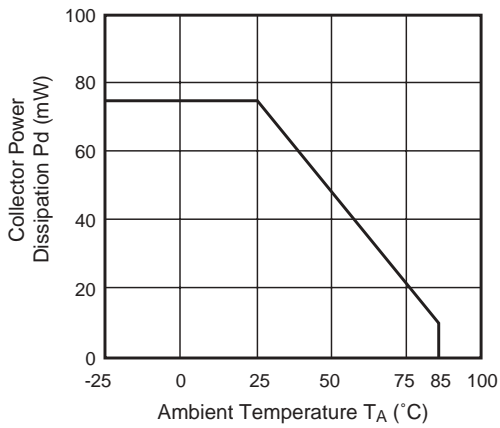
- Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$ .
- RMA flux is recommended.
- Methanol or isopropyl alcohols are recommended as cleaning agents.
- Pulse conditions:  $t_p = 100 \mu\text{s}$ ,  $T = 10 \text{ ms}$ .
- D = 940 nm, GaAs.

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

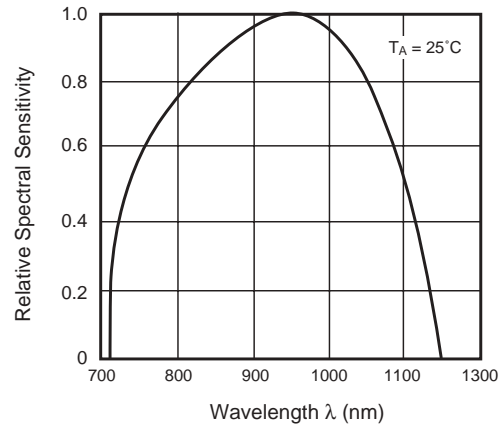
Parameters	Test Conditions	Symbol	Min.	Typ.	Max	Units
Peak Sensitivity Wavelength		$\lambda_P$	—	940	—	nm
Reception Angle		$\Theta$	—	$\pm 12$	—	
Collector Dark Current	$V_{CE} = 20\text{V}$ , $E_e = 0\text{mW/cm}^2$	$I_{CEO}$	—	—	100	nA
Collector-Emitter Breakdown Voltage	$I_C = 100 \mu\text{A}$ , $E_e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

## Typical Performance Curves

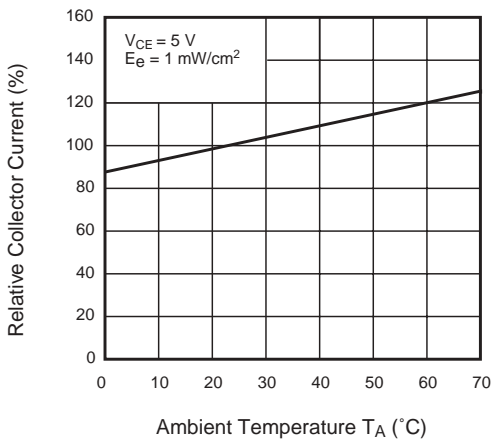
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



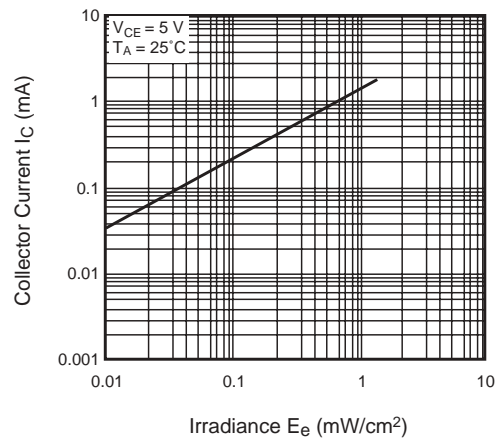
**Fig. 2 Spectral Sensitivity**



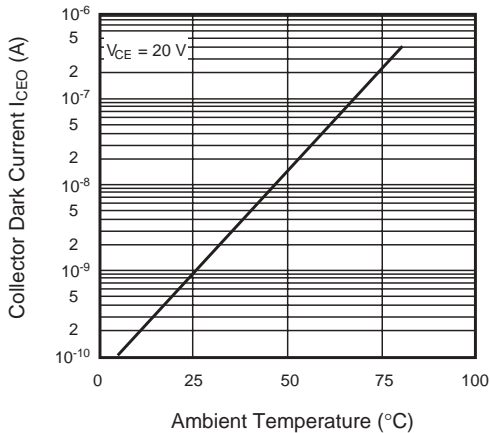
**Fig. 3 Relative Collector Current vs. Ambient Temperature**



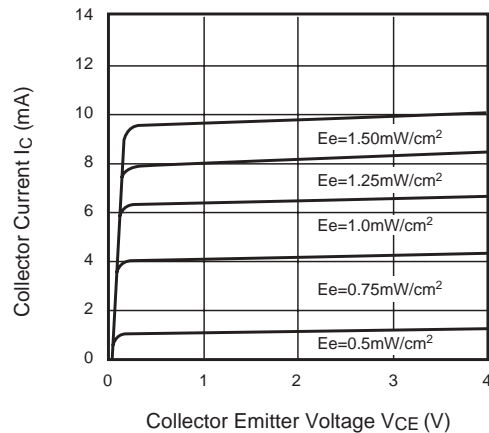
**Fig. 4 Collector Current vs. Irradiance**



**Fig. 5 Collector Dark Current vs. Ambient Temperature**



**Fig. 6 Collector Current vs. Collector Emitter Voltage**

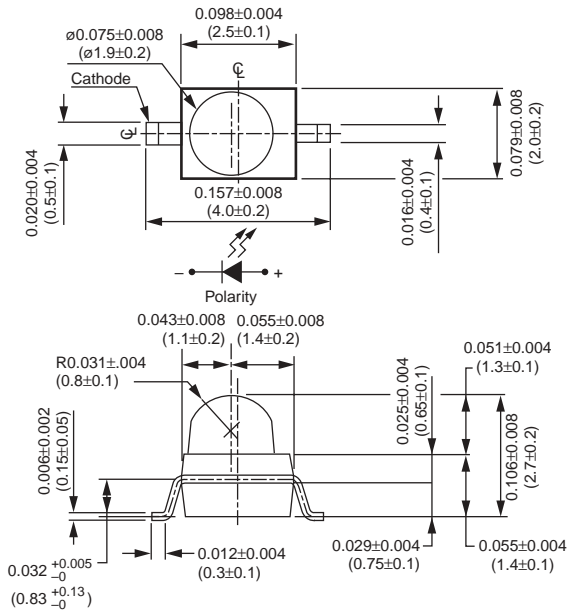


## Package Dimensions

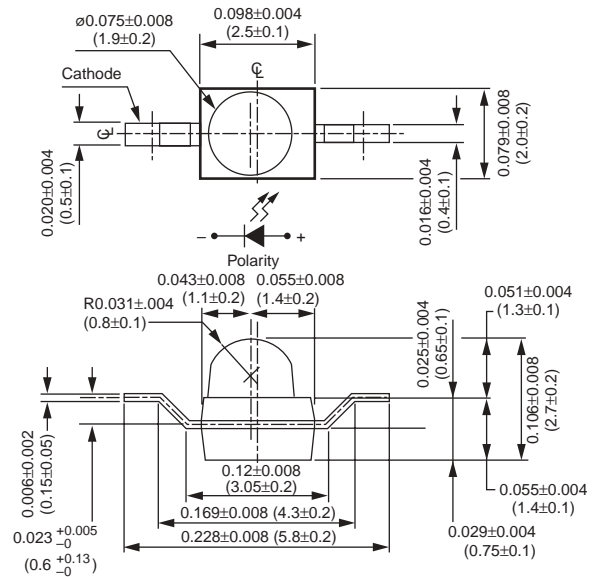
### Features

- 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

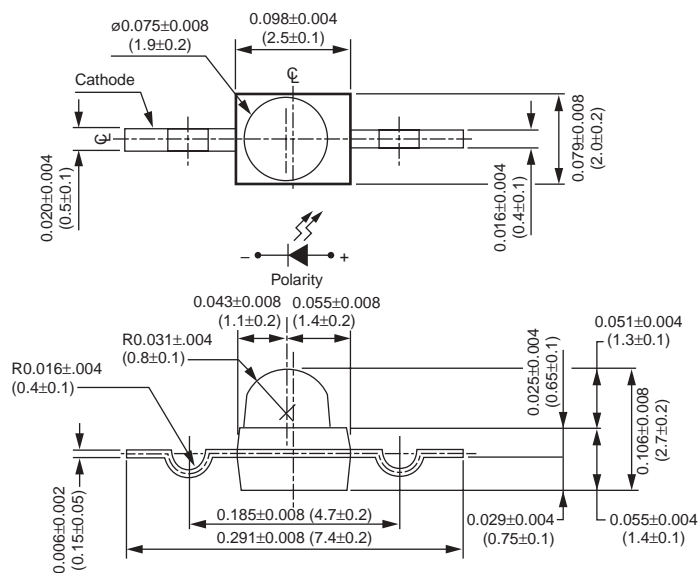
### Gull Wing Lead Configuration



### Z-Bend Lead Configuration



### Yoke Lead Configuration



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CROSSVOLT™	GTO™	MICROWIRE™	Quiet Series™	TruTranslation™
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EcoSPARK™	I <sup>2</sup> C™	MSXPro™	RapidConnect™	UltraFET®
E <sup>2</sup> C MOS™	i-Lo™	OCX™	μSerDes™	UniFET™
EnSigna™	ImpliedDisconnect™	OCXPro™	ScalarPump™	VCX™
FACT™	IntelliMAX™	OPTOLOGIC®	SILENT SWITCHER®	Wire™
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