

QSB363

Subminiature Plastic Silicon Infrared Phototransistor

Features

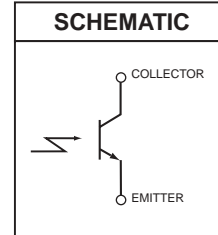
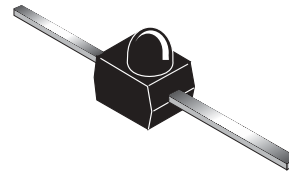
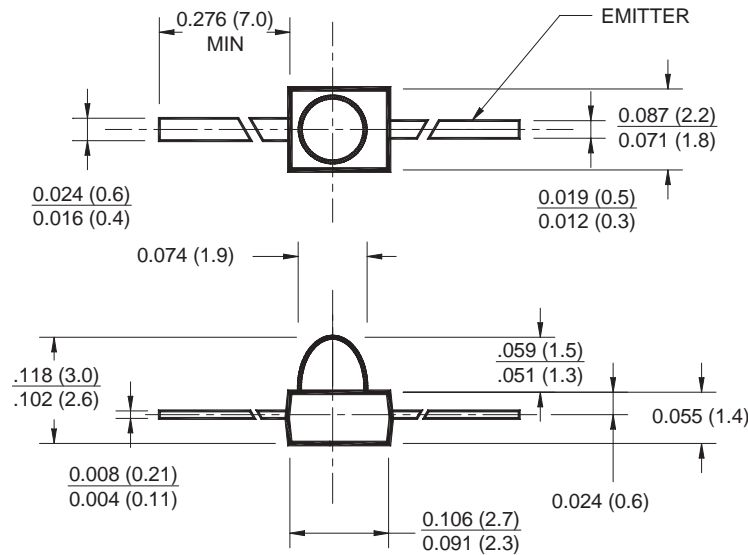
- NPN Silicon Phototransistor
- T-3/4 (2mm) Surface Mount Package
- Medium Wide Beam Angle, 24°
- Black Plastic Package
- Matched Emitters: QEB363 or QEB373

- 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) ^(2,3,4)	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

- 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: $t_p = 100 \mu\text{s}$, $T = 10 \text{ ms}$.
- $D = 940 \text{ nm}$, GaAs.

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	$V_{CE} = 20\text{V}$, $E_e = 0\text{mW/cm}^2$	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	—	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

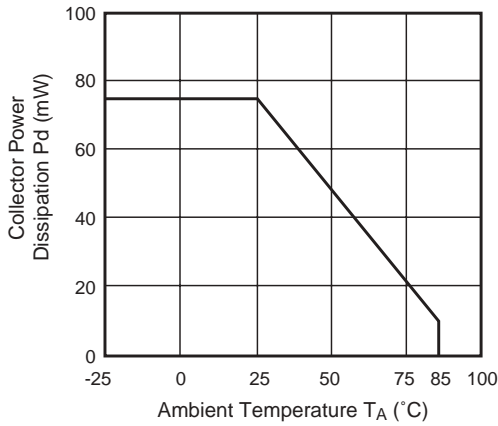


Fig. 2 Spectral Sensitivity

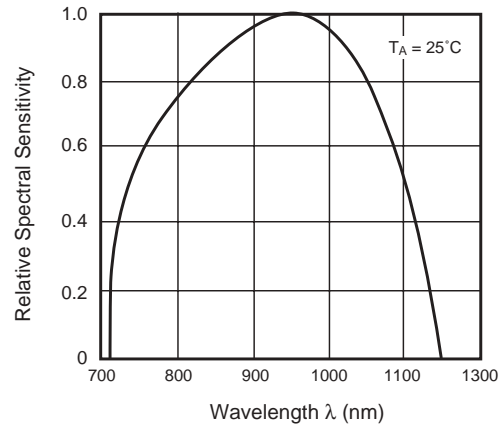


Fig. 3 Relative Collector Current vs. Ambient Temperature

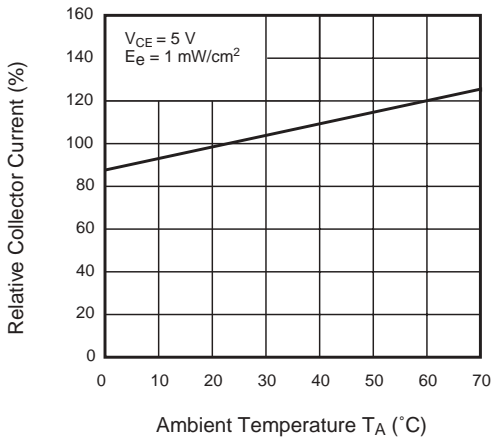


Fig. 4 Collector Current vs. Irradiance

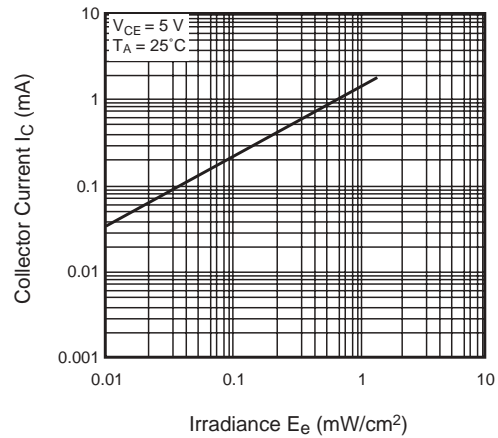


Fig. 5 Collector Dark Current vs. Ambient Temperature

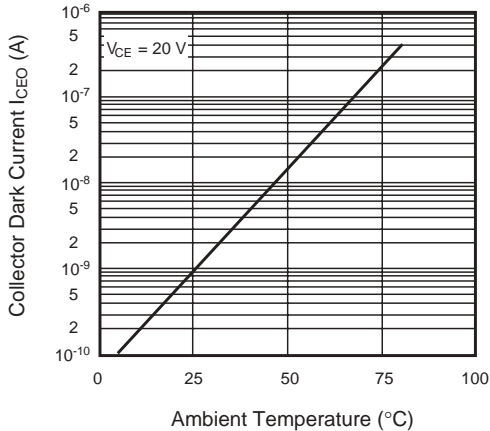
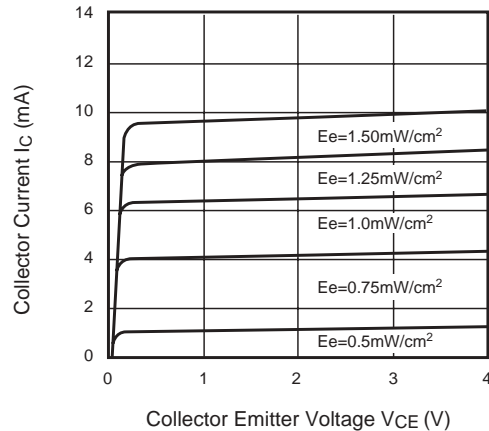


Fig. 6 Collector Current vs. Collector Emitter Voltage

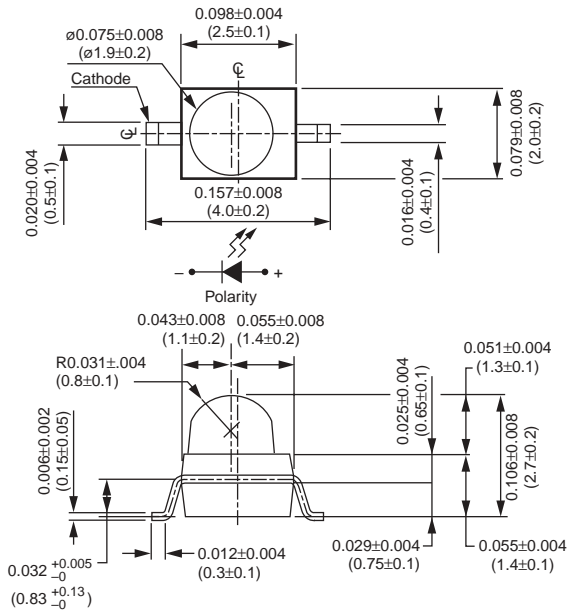


Package Dimensions

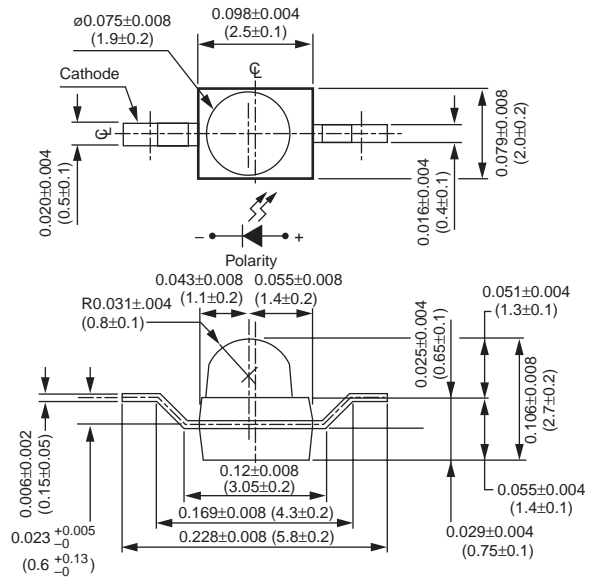
Features

- 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

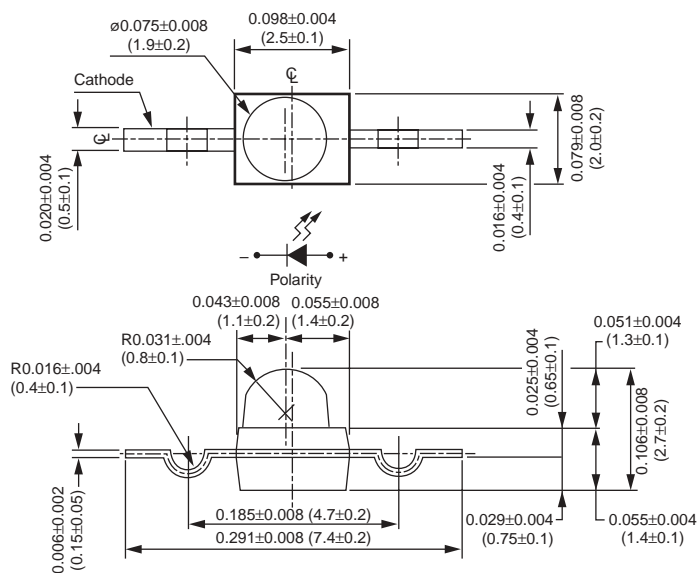
Gull Wing Lead Configuration



Z-Bend Lead Configuration



Yoke Lead Configuration



TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	FAST®	ISOPLANAR™	PowerSaver™	SuperSOT™-6
ActiveArray™	FASTr™	LittleFET™	PowerTrench®	SuperSOT™-8
Bottomless™	FPST™	MICROCOUPLER™	QFET®	SyncFET™
Build it Now™	FRFET™	MicroFET™	QS™	TinyLogic®
CoolFET™	GlobalOptoisolator™	MicroPak™	QT Optoelectronics™	TINYOPTO™
CROSSVOLT™	GTO™	MICROWIRE™	Quiet Series™	TruTranslation™
DOME™	HiSeC™	MSX™	RapidConfigure™	UHC™
EcoSPARK™	I ² C™	MSXPro™	RapidConnect™	UltraFET®
E ² C MOS™	i-Lo™	OCX™	µSerDes™	UniFET™
EnSigna™	ImpliedDisconnect™	OCXPro™	ScalarPump™	VCX™
FACT™	IntelliMAX™	OPTOLOGIC®	SILENT SWITCHER®	Wire™
FACT Quiet Series™		OPTOPLANAR™	SMART START™	
Across the board. Around the world.™		PACMAN™	SPM™	
The Power Franchise®		POP™	Stealth™	
Programmable Active Droop™		Power247™	SuperFET™	
		PowerEdge™	SuperSOT™-3	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is 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.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.