

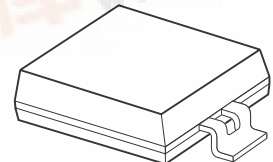
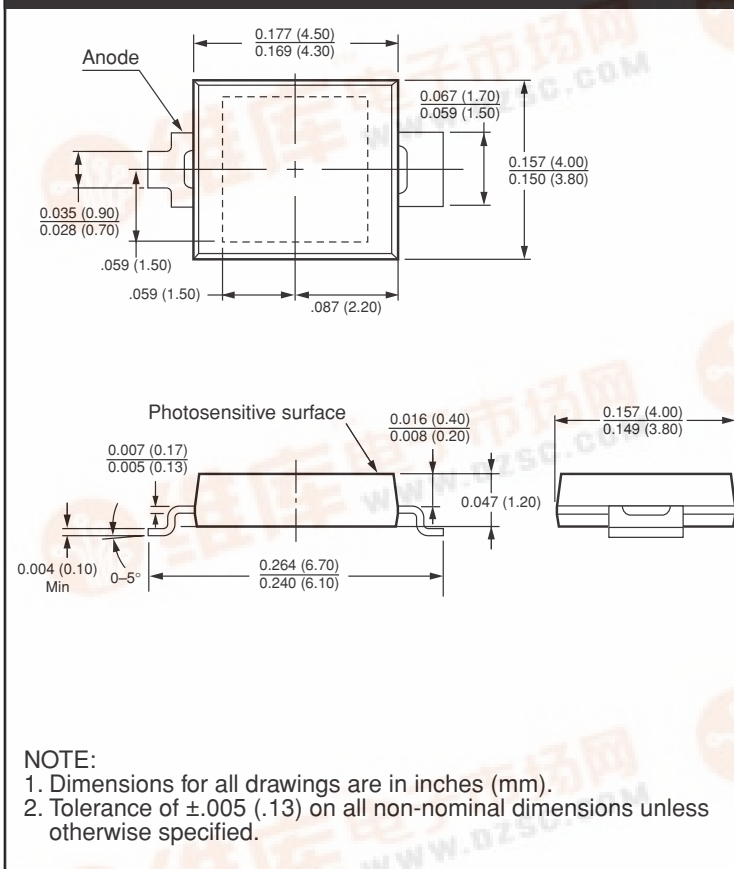
FAIRCHILD
SEMICONDUCTOR®

SURFACE MOUNT SILICON PIN PHOTODIODE

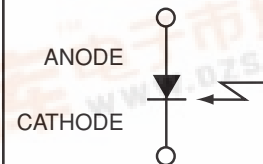
QSB34

QSB34GR, QSB34ZR

PACKAGE DIMENSIONS, QSB34GR



SCHEMATIC



FEATURES

- Daylight Filter
- Surface Mount Packages:
 - QSB34GR for overmount board
 - QSB34ZR for undermount board
- Fast PIN Photodiode
- Wide Reception Angle, 120°
- Large Chip Size = .014 in² (9 mm²)
- High Sensitivity
- Low Capacitance
- Available in 0.470" (12mm) width tape on 7" (178mm) diameter reel; 1,000 units per reel

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 (Reflow) ^(2,3)	T_{SOL-F}	240 for 5 sec	$^\circ\text{C}$
Reverse Voltage	V_R	32	V
Power Dissipation ⁽¹⁾	P_D	150	mW

Notes:

1. Derate power dissipation linearly 2.50 mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$.
2. Solder iron (15W max temp 260 $^\circ\text{C}$ for 5 max sec.)
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Light source is an GaAs LED which has a peak emission wavelength of 940 nm.

QSB34GR, QSB34ZR

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Reverse Voltage	$I_R = 0.1 \text{ mA}$	V_R	32		—	V
Dark Reverse Current	$V_R = 10 \text{ V}$	$I_{R(D)}$	—		30	nA
Peak Sensitivity	$V_R = 5 \text{ V}$	λ_{PK}		940		nm
Reception Angle @ 1/2 Power		Θ		± 60		Degrees
Photo Current	$E_e = 1.0 \text{ mW/cm}^2$, $V_{CE} = 5 \text{ V}^{(4)}$	I_{PH}	25	37	—	μA
Capacitance	$V_R = 3 \text{ V}$	C		25		pF
Rise Time	$V_R = 10 \text{ V}$, $R_L = 50 \Omega$	t_r		20		ns
Fall Time		t_f		20		ns
Spectral Sensitivity		S_λ		.40		A/W

TYPICAL PERFORMANCE CURVES

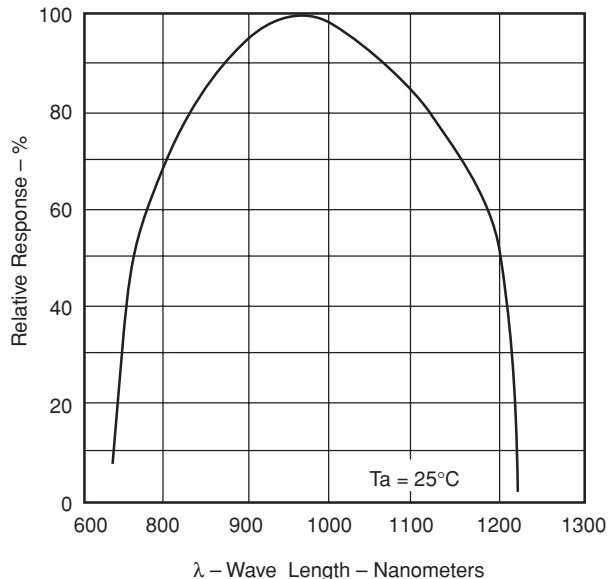


Fig. 1 Relative Spectral Sensitivity vs. Wavelength

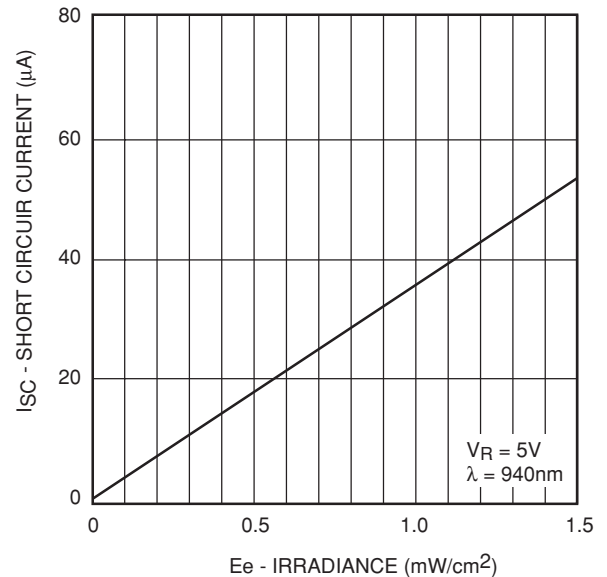
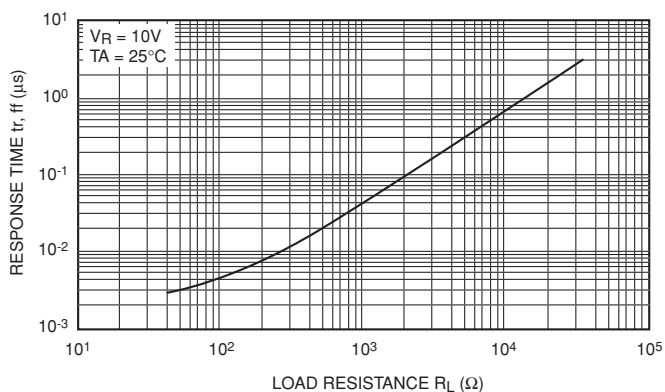
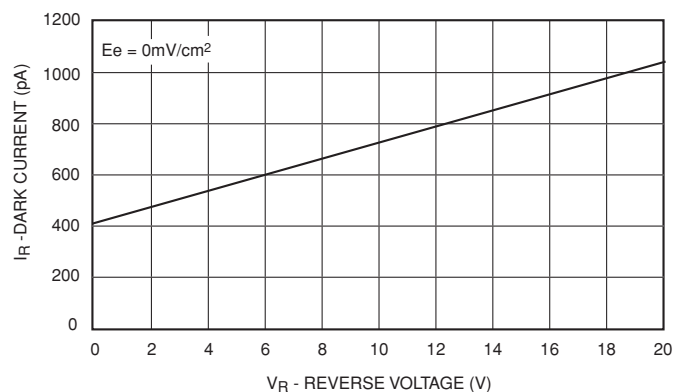
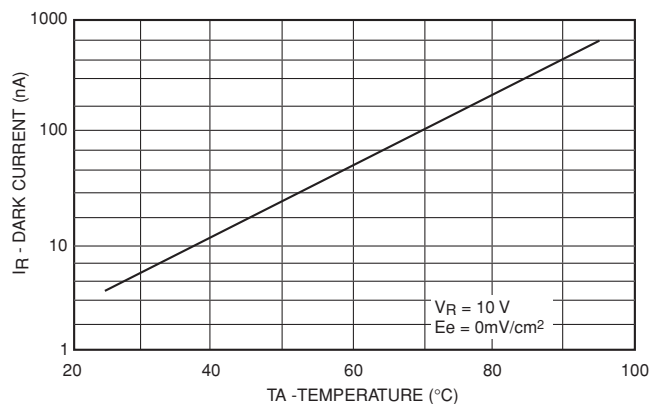
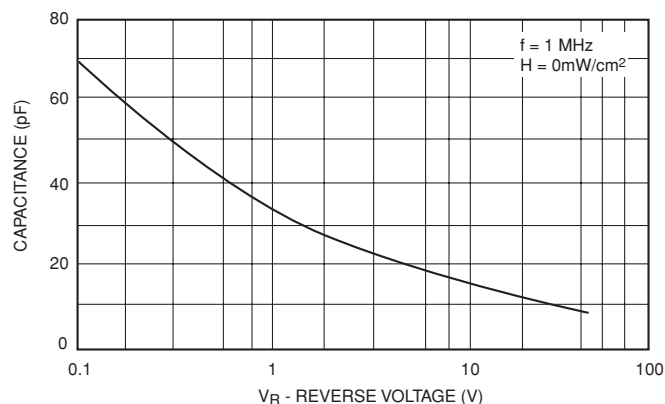


Fig. 2 Short Circuit Current vs. Irradiance

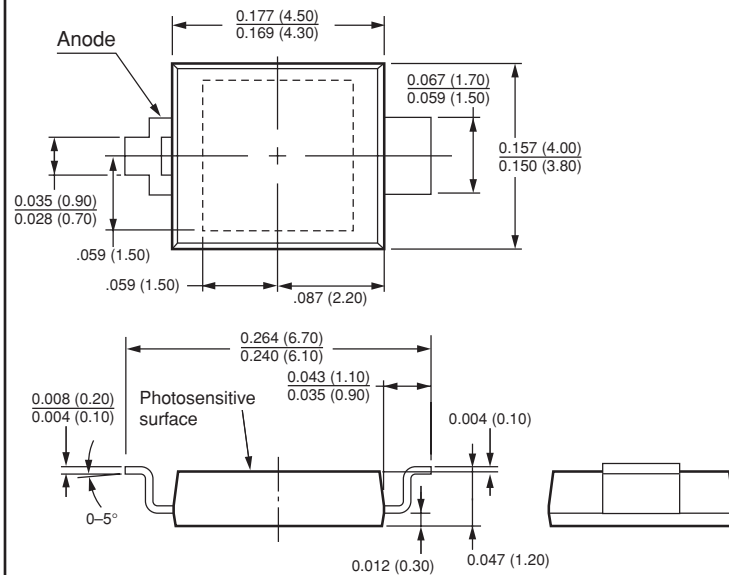
QSB34GR, QSB34ZR

TYPICAL PERFORMANCE CURVES (Cont.)



QSB34GR, QSB34ZR

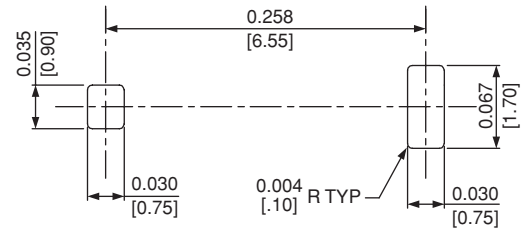
PACKAGE DIMENSIONS, QSB34ZR



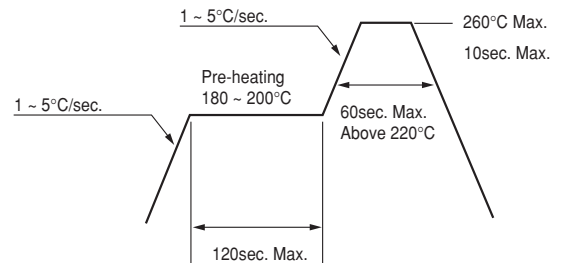
NOTE:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± 0.005 (.13) on all non-nominal dimensions unless otherwise specified.

RECOMMENDED SOLDER SCREEN PATTERN (For Reference Only)



RECOMMENDED IR REFLOW SOLDERING PROFILE

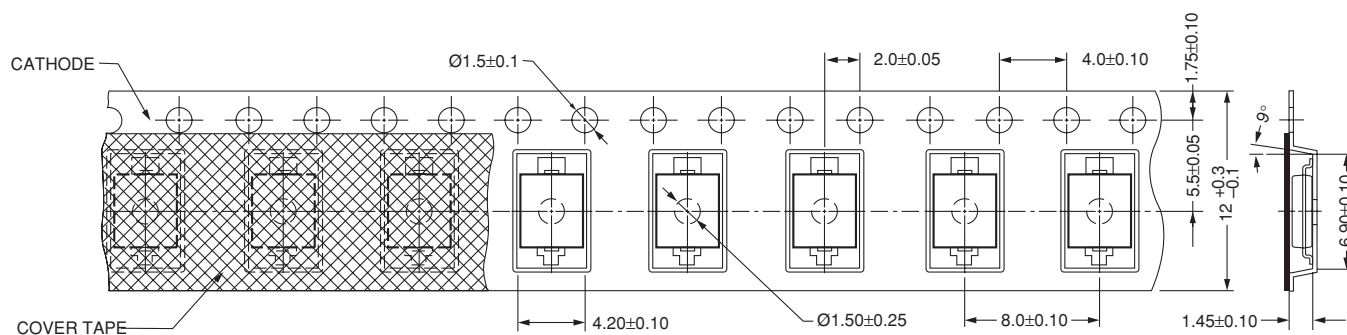
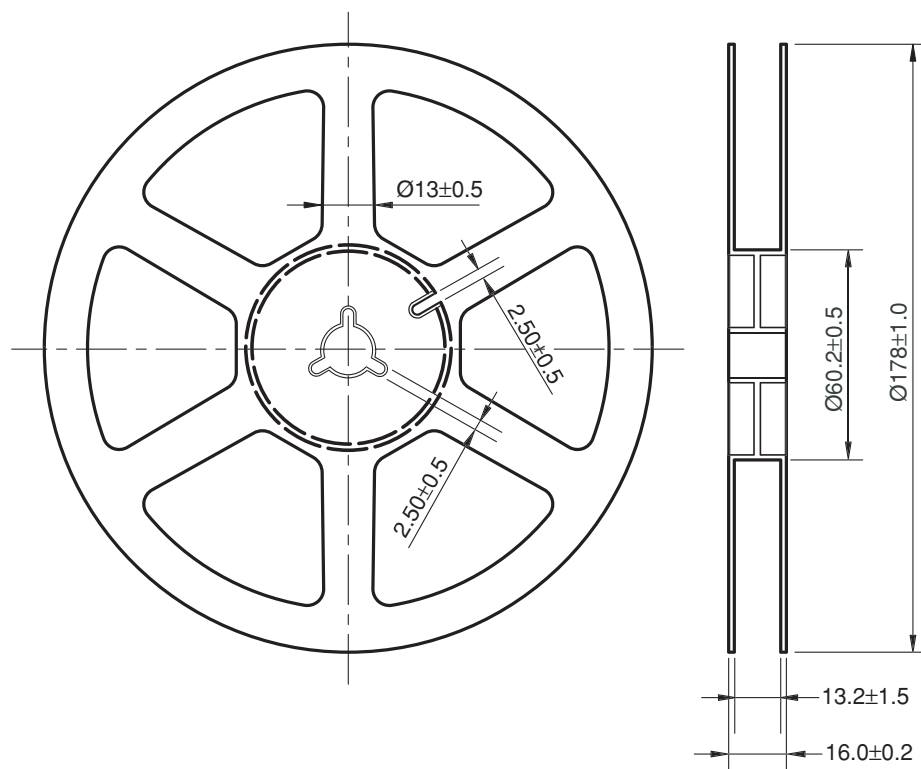


ORDERING INFORMATION

Option	Description
QSB34GR	Gullwing, 1000 units per reel
QSB34ZR	Z-Bend reversed, 1000 units per reel

QSB34GR, QSB34ZR

TAPE & REEL DIMENSIONS



Unit: mm



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2. A critical component in 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.