



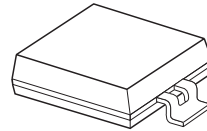


ON Semiconductor®

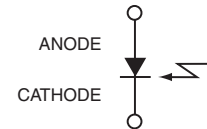
## QSB34GR / QSB34ZR / QSB34CGR / QSB34CZR Surface-Mount Silicon Pin Photodiode

### Features

- Daylight Filter (QSB34GR and QSB34ZR Only)
- Surface-Mount Packages:
  - QSB34GR / QSB34CGR for Over-Mount Board
  - QSB34ZR / QSB34CZR for Under-Mount Board
- Fast PIN Photodiode
- Wide Reception Angle: 120°
- Large Chip Size: 3 mm x 3 mm
- Sensitive Area: 2.55 mm x 2.55 mm
- High Sensitivity
- Low Capacitance
- Available in 0.470 inch (12 mm) Width Tape on 7 inch (178 mm) Diameter Reel: 1,000 Units per Reel



### Schematic



### Ordering Information

Part Number	Operating Temperature	Package	Packing Method
QSB34GR	-25 to +85°C	PLCC 2L	Tape and Reel
QSB34ZR			
QSB34CGR			
QSB34CZR			

QSB34GR / QSB34ZR / QSB34CGR / QSB34CZR — Surface-Mount Silicon Pin Photodiode

## Absolute Maximum Ratings

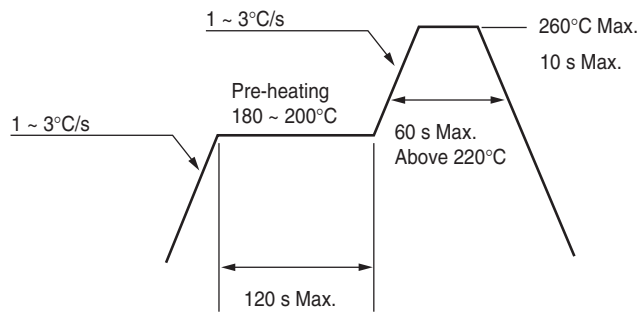
Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise specified.

Symbol	Parameter	Min.	Unit
$T_{\text{OPR}}$	Operating Temperature	-25 to +85	°C
$T_{\text{STG}}$	Storage Temperature	-40 to + 85	
$T_{\text{SOL}}^{(1)}$	Soldering Temperature	260	
$V_R$	Reverse Voltage	32	V
$P_C$	Power Dissipation at (or below) $25^\circ\text{C}$ Free Air Temperature	150	mW

**Note:**

- Soldering time  $\leq 5$  s.

## Recommend $I_R$ Reflow Soldering Profile



## Electrical / Optical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless specified otherwise.

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_R$	Reverse Voltage	$I_R = 0.1 \text{ mA}$	32			V
$I_{R(D)}$	Dark Reverse Current	$V_R = 10 \text{ V}$			30	nA
$\lambda_{PK}$	Peak Sensitivity			940		nm
$\theta$	Reception Angle at 1/2 Power			$\pm 60$		°
$I_{PH}$	Photo Current	$E_e = 1 \text{ mW / cm}^2$ , $V_{CE} = 5 \text{ V}$	25	37		$\mu\text{A}$
C	Capacitance	$V_R = 3 \text{ V}$		25		pF
$t_r$	Rise Time	$V_R = 10 \text{ V}, R_L = 50 \Omega$		50		ns
$t_f$	Fall Time			50		ns
$\lambda_{0.5}$	Special Sensitivity	QSB34GR, QSB34ZR	730		1100	nm
		QSB34CGR, QSB34CZR	400		1100	

## Typical Performance Characteristics

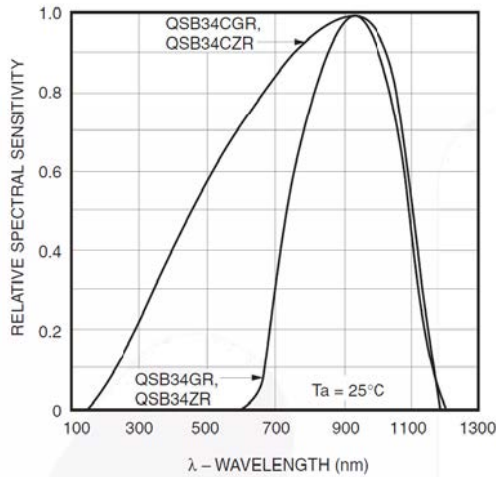


Figure 1. Relative Spectral Sensitivity vs. Wavelength

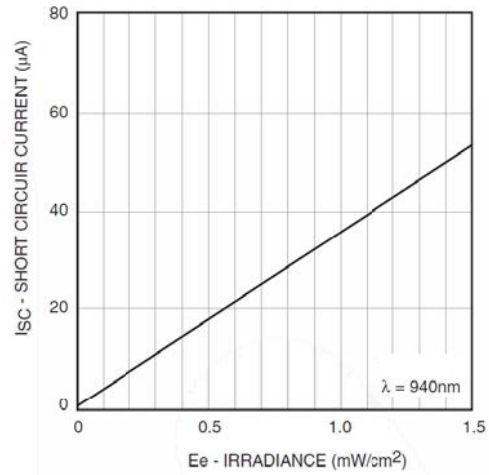


Figure 2. Short Circuit Current vs. Irradiance

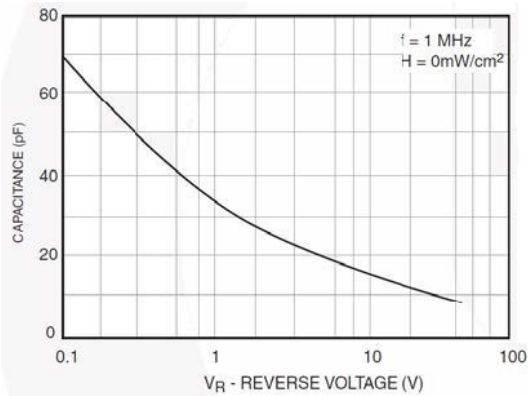


Figure 3. Capacitance vs. Reverse Voltage

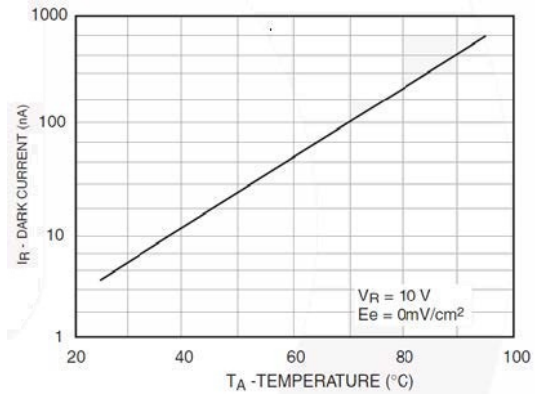


Figure 4. Dark Current vs. Temperature

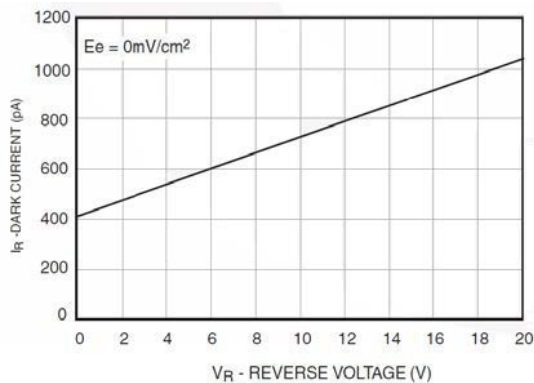


Figure 5. Dark Current vs. Reverse Voltage

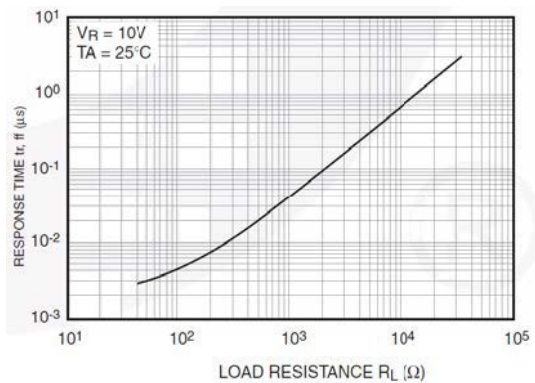
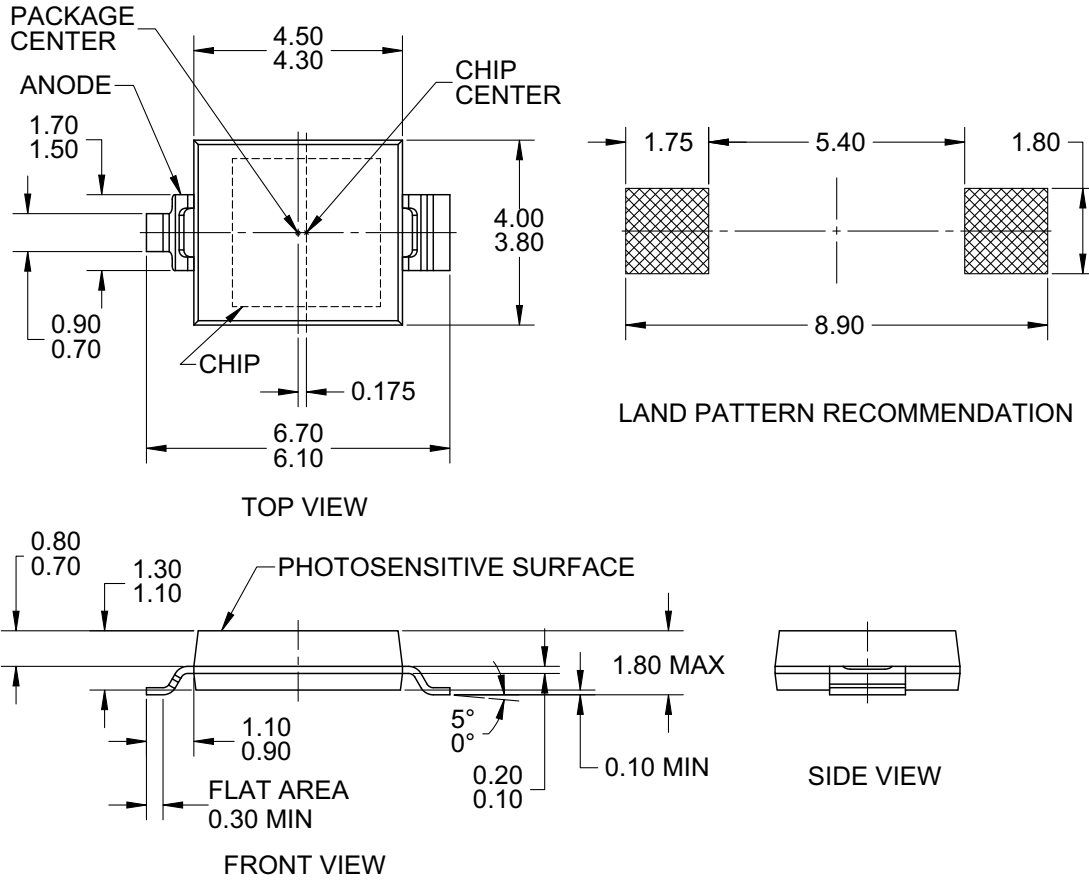


Figure 6. Response Time vs. Load Resistance

**Physical Dimensions**

**PLCC 2L (QSB34GR / CGR)**



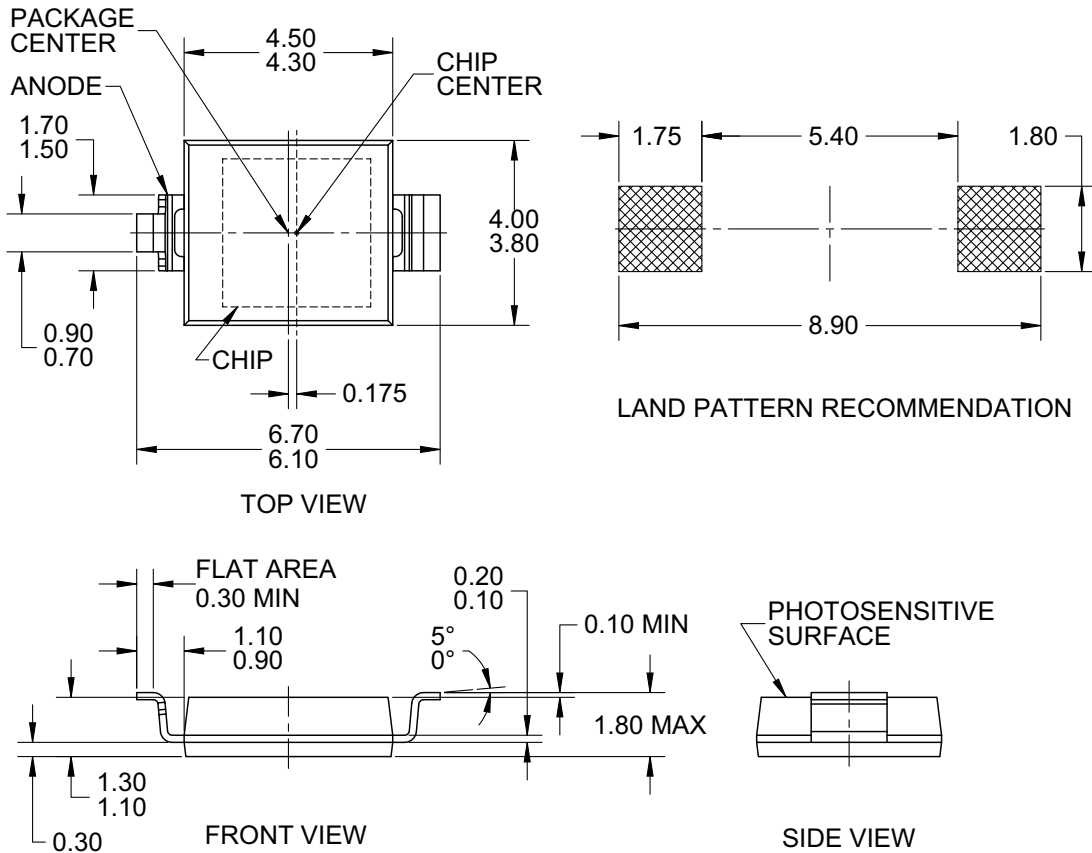
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**Figure 7. PLCC DETECTOR (ACTIVE)**

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Physical Dimensions (continued)

PLCC 2L (QSB34ZR / CZR)



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Figure 8. PLCC DETECTOR (ACTIVE)

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