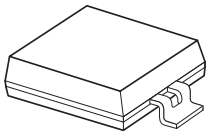
# Surface-Mount Silicon Pin Photodiode

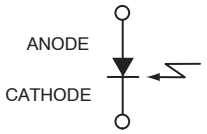
# QSB34GR, QSB34ZR, QSB34CGR, QSB34CZR



**PLCC 2 LEAD**
**CASE 776AX**

**PLCC 2 LEAD**
**CASE 776AY**

**SCHEMATIC**




### 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
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

### ORDERING INFORMATION

| Part Number | Operating Temperature | Package | Shipping† |
|---|---|---|---|
| QSB34GR | −25 to +85°C | PLCC 2 Lead, case 776AX (Pb−Free) | 1000 / Tape & Reel |
| QSB34ZR | | PLCC 2 Lead, case 776AY (Pb−Free) | |
| QSB34CGR | | PLCC 2 Lead, case 776AX (Pb−Free) | |
| QSB34CZR | | PLCC 2 Lead, case 776AY (Pb−Free) | |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Operating Temperature | $T_{OPR}$ | −25 to +85 | °C |
| Storage Temperature | $T_{STG}$ | −40 to +85 | °C |
| Soldering Temperature (Note 1) | $T_{SOL}$ | 260 | °C |
| Reverse Voltage | $V_R$ | 32 | V |
| Power Dissipation at (or below) 25°C Free Air Temperature | $P_C$ | 150 | mW |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
1. Soldering time ≤ 5 s.

## Recommended $I_R$ Reflow Soldering Profile

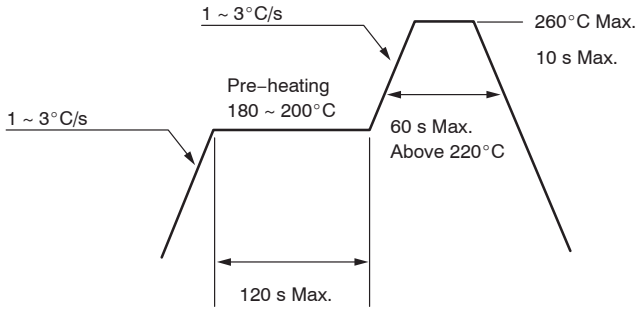



**Figure 1. Recommended $I_R$ Reflow Soldering Profile**

**ELECTRICAL / OPTICAL CHARACTERISTICS** (Values are at $T_A$ = 25°C unless specified otherwise)

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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## TYPICAL PERFORMANCE CHARACTERISTICS

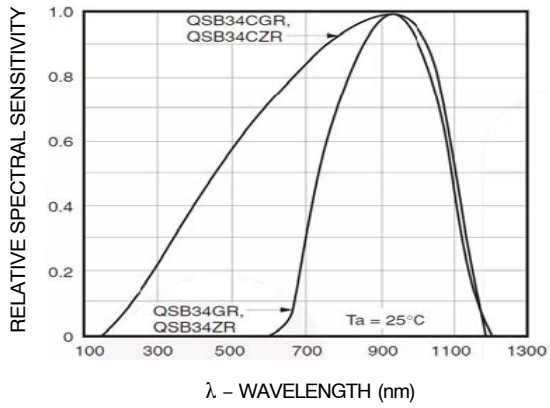



**Figure 1. Relative Spectral Sensitivity vs. Wavelength**

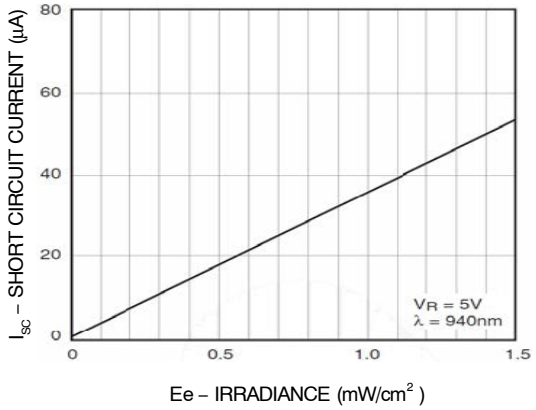



**Figure 2. Short Circuit Current vs. Irradiance**

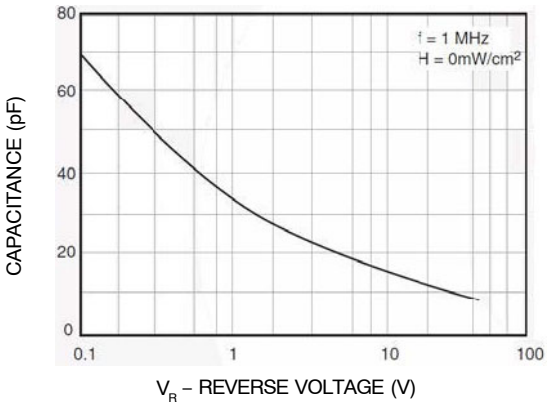



**Figure 3. Capacitance vs. Reverse Voltage**

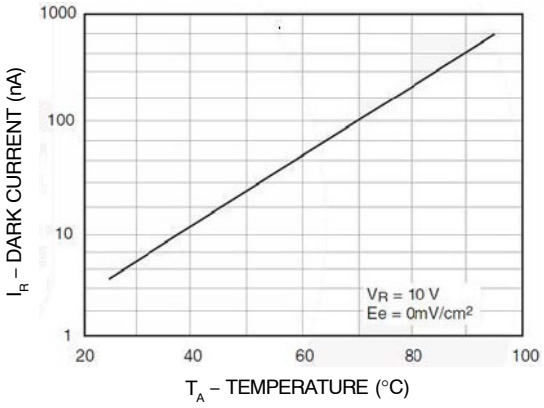



**Figure 4. Dark Current vs. Temperature**

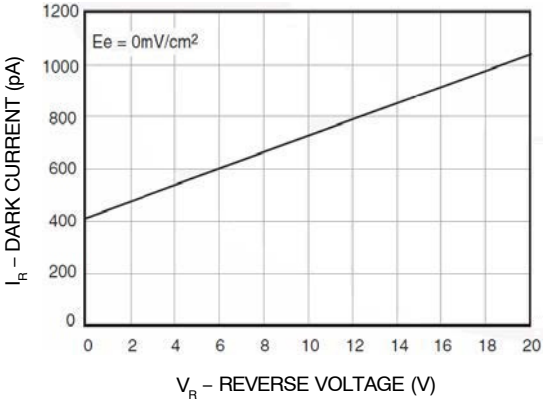



**Figure 5. Dark Current vs. Reverse Voltage**

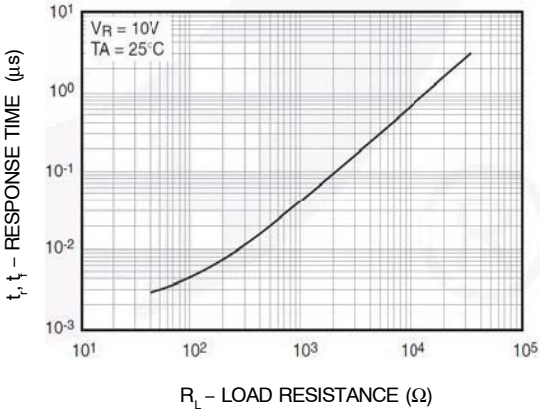



**Figure 6. Response Time vs. Load Resistance**

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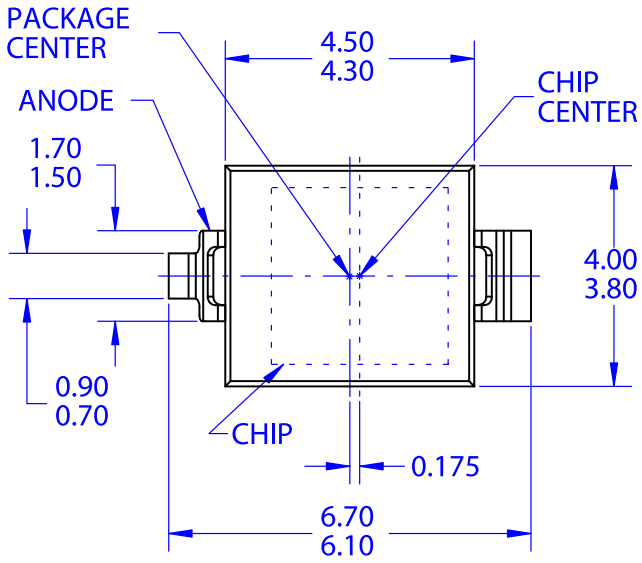
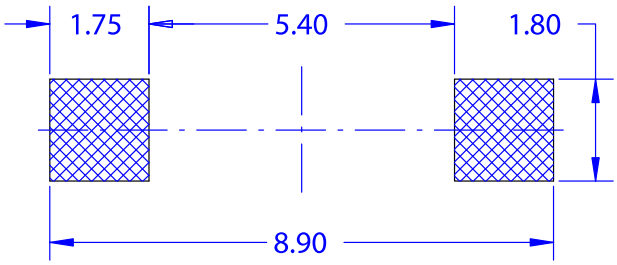
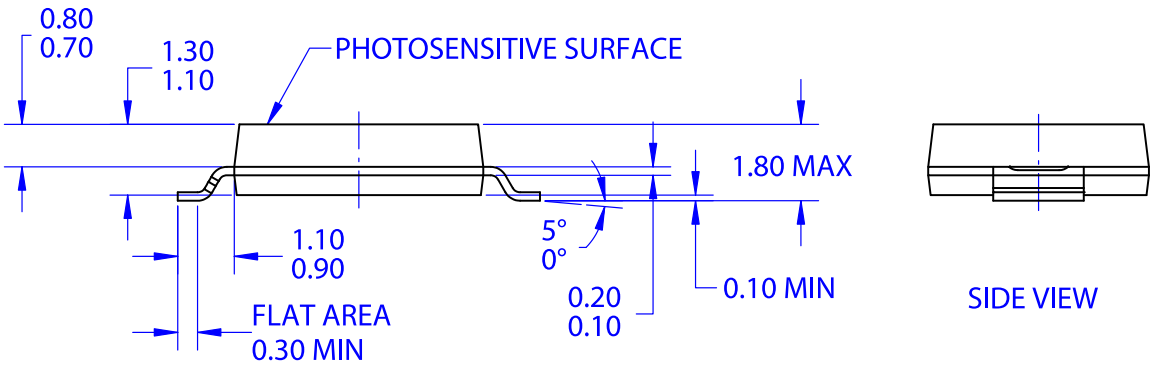



TOP VIEW




LAND PATTERN RECOMMENDATION




FRONT VIEW

SIDE VIEW

NOTES:
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**PLCC 2 LEAD**
CASE 776AY
ISSUE O

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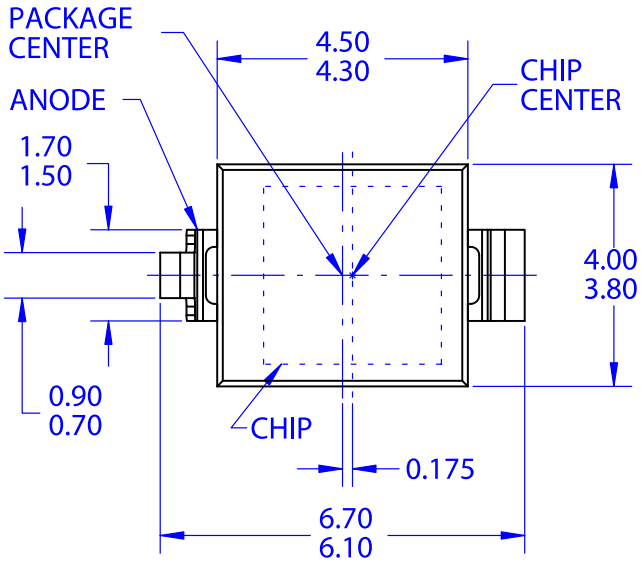
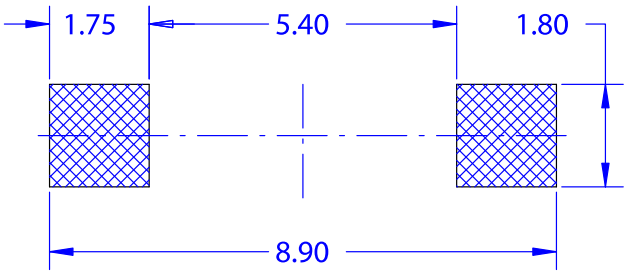



TOP VIEW

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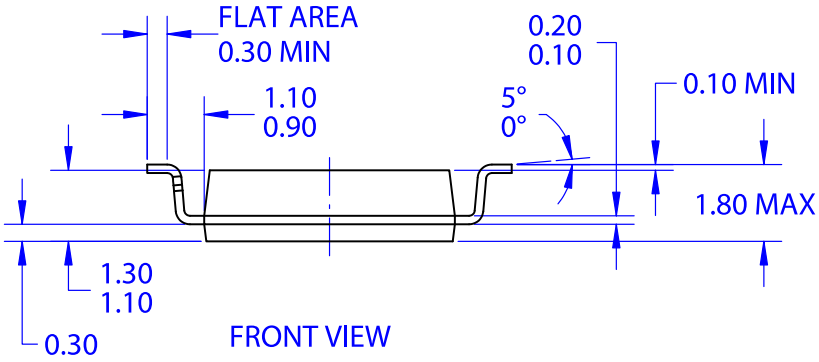


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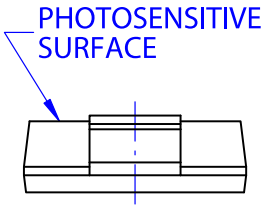


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