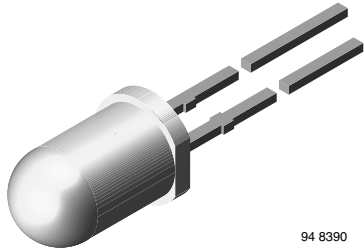


Silicon PIN Photodiode, RoHS Compliant



94 8390

DESCRIPTION

BPV10 is a PIN photodiode with high speed and high radiant sensitivity in clear, T-1 $\frac{3}{4}$ plastic package. It is sensitive to visible and near infrared radiation.

FEATURES

- Package type: leaded
- Package form: T-1 $\frac{3}{4}$
- Dimensions (in mm): \varnothing 5
- Leads with stand-off
- Radiant sensitive area (in mm²): 0.78
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- High bandwidth: 250 MHz at $V_R = 12$ V
- Fast response times
- Angle of half sensitivity: $\varphi = \pm 20^\circ$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

APPLICATIONS

- High speed photo detector

| PRODUCT SUMMARY | | | |
|-----------------|---------------|-----------------|----------------------|
| COMPONENT | I_{ra} (mA) | φ (deg) | $\lambda_{0.1}$ (nm) |
| BPV10 | 70 | ± 20 | 380 to 1100 |

Note

Test condition see table “Basic Characteristics”

| ORDERING INFORMATION | | | |
|----------------------|-----------|------------------------------|-------------------|
| ORDERING CODE | PACKAGING | REMARKS | PACKAGE FORM |
| BPV10 | Bulk | MOQ: 4000 pcs, 4000 pcs/bulk | T-1 $\frac{3}{4}$ |

Note

MOQ: minimum order quantity

| ABSOLUTE MAXIMUM RATINGS | | | | |
|-------------------------------------|--|------------|---------------|------------------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Reverse voltage | | V_R | 10 | V |
| Power dissipation | $T_{amb} \leq 25^\circ\text{C}$ | P_V | 215 | mW |
| Junction temperature | | T_j | 100 | $^\circ\text{C}$ |
| Operating temperature range | | T_{amb} | - 40 to + 100 | $^\circ\text{C}$ |
| Storage temperature range | | T_{stg} | - 40 to + 100 | $^\circ\text{C}$ |
| Soldering temperature | $t \leq 5$ s, 2 mm from body | T_{sd} | 260 | $^\circ\text{C}$ |
| Thermal resistance junction/ambient | Connected with Cu wire, 0.14 mm ² | R_{thJA} | 350 | K/W |

Note

$T_{amb} = 25^\circ\text{C}$, unless otherwise specified



| BASIC CHARACTERISTICS | | | | | | |
|--------------------------------|---|-----------------|------|---------------------|------|---------------------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | $I_F = 50 \text{ mA}$ | V_F | | 1.0 | 1.3 | V |
| Breakdown voltage | $I_R = 100 \text{ }\mu\text{A}, E = 0$ | $V_{(BR)}$ | 60 | | | V |
| Reverse dark current | $V_R = 20 \text{ V}, E = 0$ | I_{ro} | | 1 | 5 | nA |
| Diode capacitance | $V_R = 0 \text{ V}, f = 1 \text{ MHz}, E = 0$ | C_D | | 11 | | pF |
| | $V_R = 5 \text{ V}, f = 1 \text{ MHz}, E = 0$ | C_D | | 3.8 | | pF |
| Open circuit voltage | $E_A = 1 \text{ klx}$ | V_O | | 480 | | mV |
| | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$ | V_O | | 450 | | mV |
| Short circuit current | $E_A = 1 \text{ klx}$ | I_K | | 80 | | μA |
| | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$ | I_K | | 65 | | μA |
| Reverse light current | $E_A = 1 \text{ klx}, V_R = 5 \text{ V}$ | I_{ra} | | 85 | | μA |
| | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_R = 5 \text{ V}$ | I_{ra} | 38 | 70 | | μA |
| Absolute spectral sensitivity | $V_R = 5 \text{ V}, \lambda = 950 \text{ nm}$ | $s(\lambda)$ | | 0.55 | | A/W |
| Angle of half sensitivity | | ϕ | | ± 20 | | deg |
| Wavelength of peak sensitivity | | λ_p | | 920 | | nm |
| Range of spectral bandwidth | | $\lambda_{0.1}$ | | 380 to 1100 | | nm |
| Quantum efficiency | $\lambda = 950 \text{ nm}$ | η | | 72 | | % |
| Noise equivalent power | $V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$ | NEP | | 3×10^{-14} | | W/ $\sqrt{\text{Hz}}$ |
| Detectivity | $V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$ | D | | 3×10^{12} | | $\text{cm}^2/\text{Hz/W}$ |
| Rise time | $V_R = 50 \text{ V}, R_L = 50 \text{ }\Omega, \lambda = 820 \text{ nm}$ | t_r | | 2.5 | | ns |
| Fall time | $V_R = 50 \text{ V}, R_L = 50 \text{ }\Omega, \lambda = 820 \text{ nm}$ | t_f | | 2.5 | | ns |

Note

$T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

BASIC CHARACTERISTICS

$T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

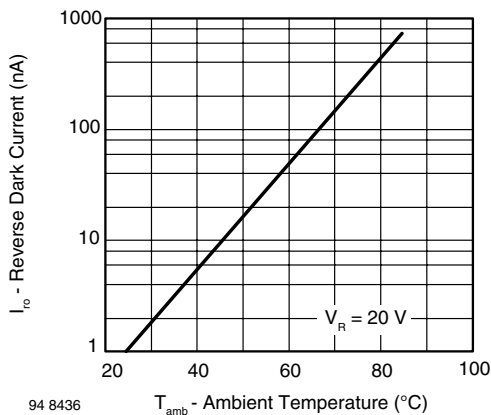


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

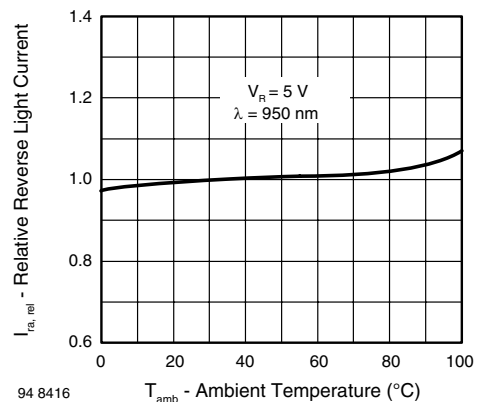
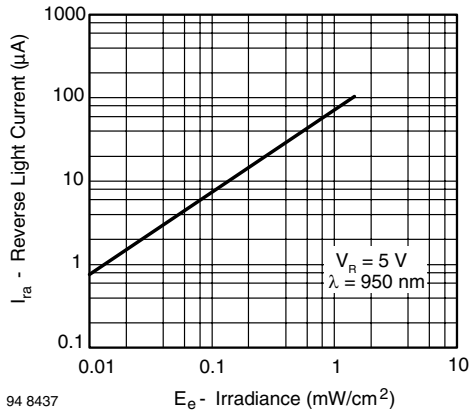
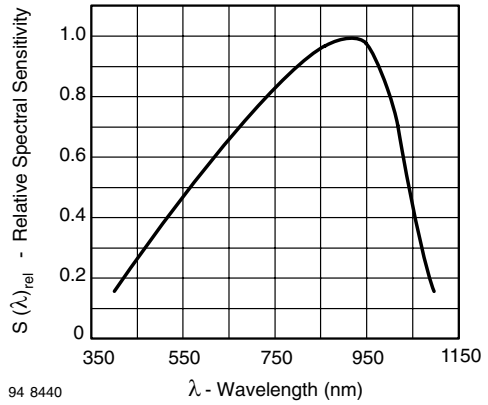


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



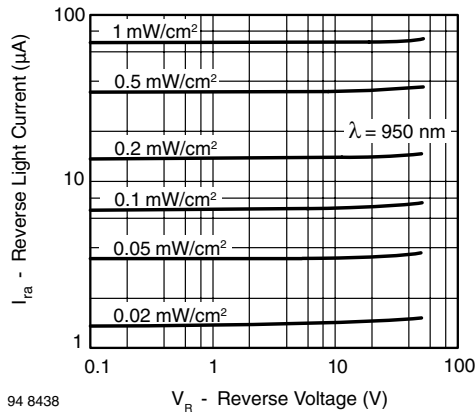
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Fig. 3 - Reverse Light Current vs. Irradiance



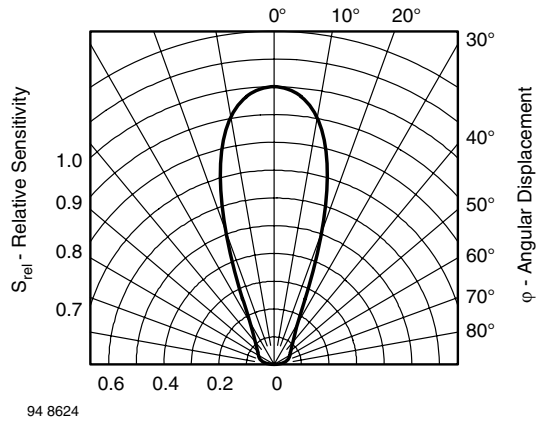
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Fig. 6 - Relative Spectral Sensitivity vs. Wavelength



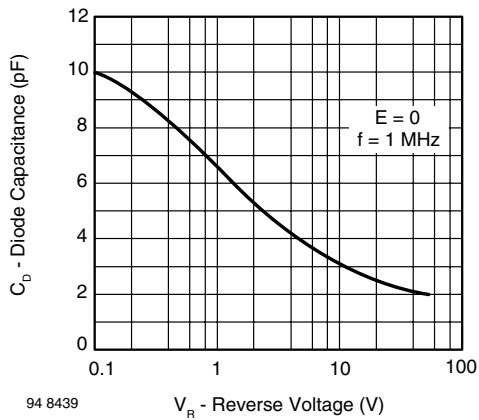
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Fig. 4 - Reverse Light Current vs. Reverse Voltage



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Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

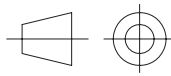
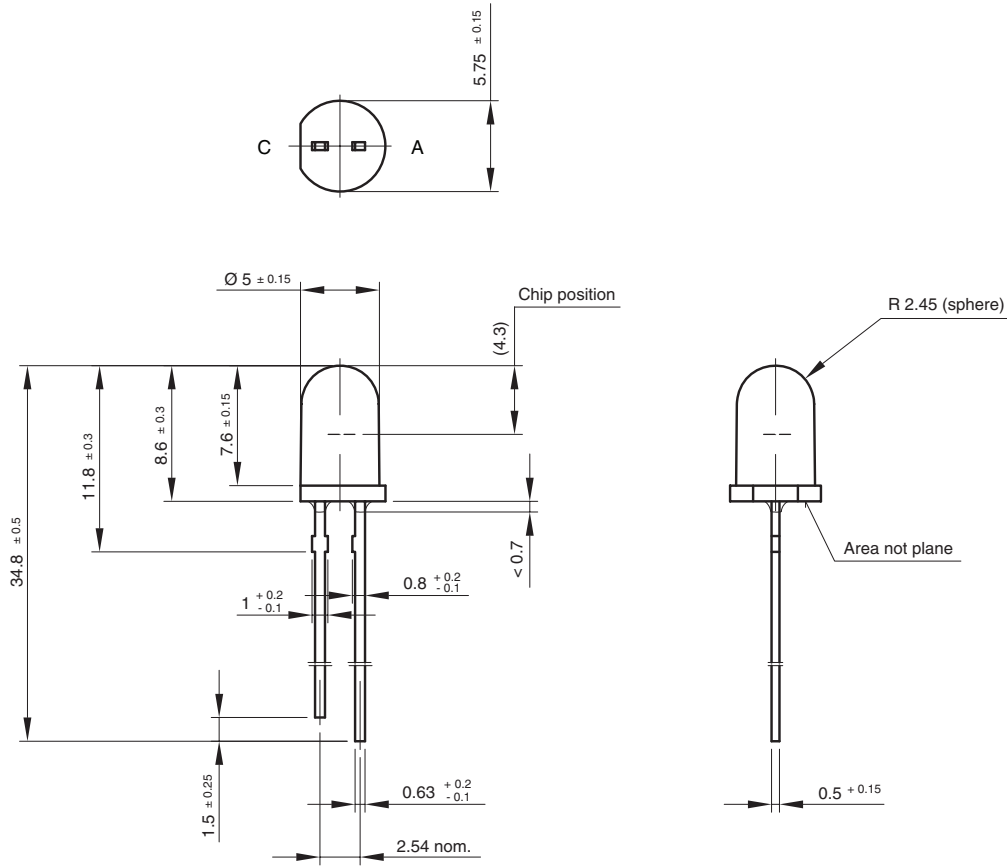


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Fig. 5 - Diode Capacitance vs. Reverse Voltage



PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 6.544-5185.02-4
Issue:1; 01.07.96
96 12199



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