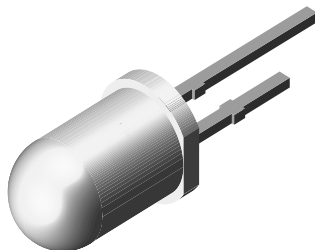


Silicon PIN Photodiode



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: $\phi = \pm 20^\circ$
- Compliant to RoHS Directive 2002/95/EC and in accordance with WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
(5-2008)**

Note

** Please see document "Vishay Material Category Policy":
www.vishay.com/doc?99902

APPLICATIONS

- High speed photo detector

PRODUCT SUMMARY

COMPONENT	I_{ra} (μ A)	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 ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	60	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

BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)						
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}		$\text{cm}\sqrt{\text{Hz/W}}$
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

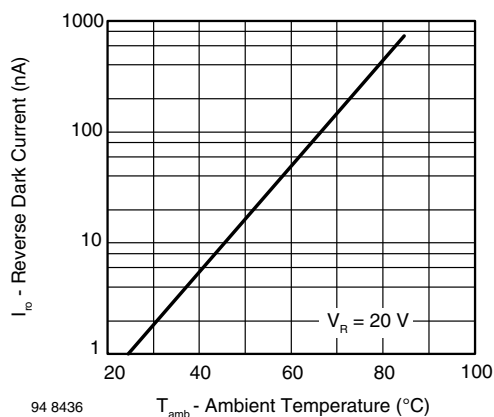
BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

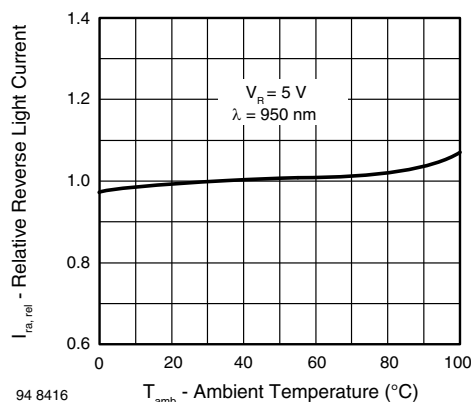


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

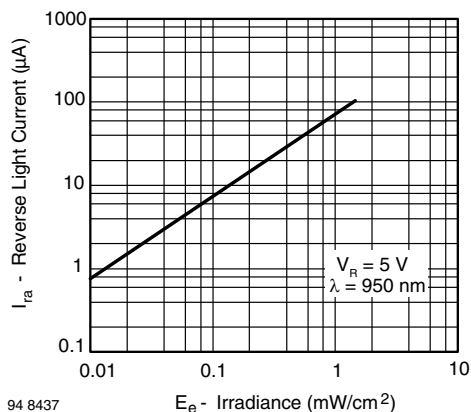


Fig. 3 - Reverse Light Current vs. Irradiance

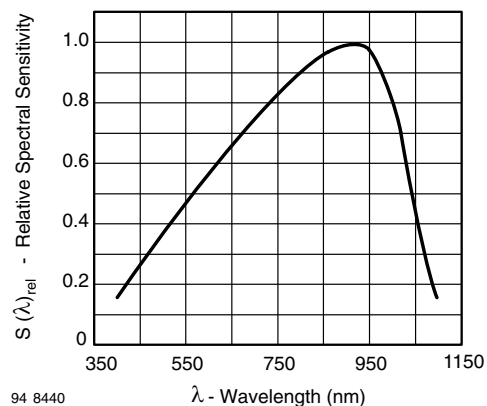


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

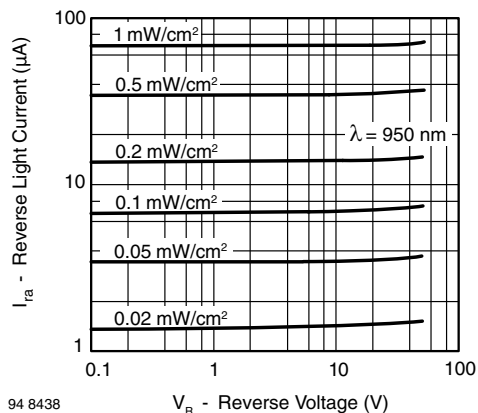


Fig. 4 - Reverse Light Current vs. Reverse Voltage

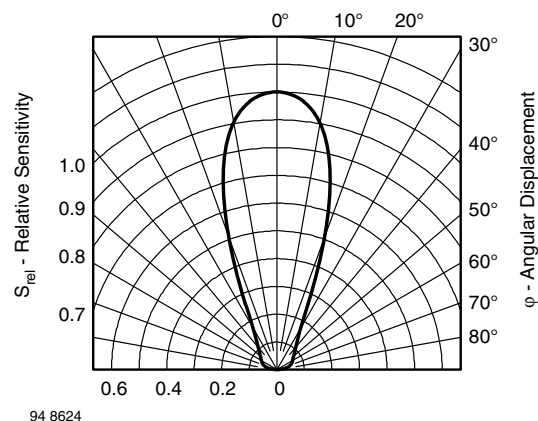


Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

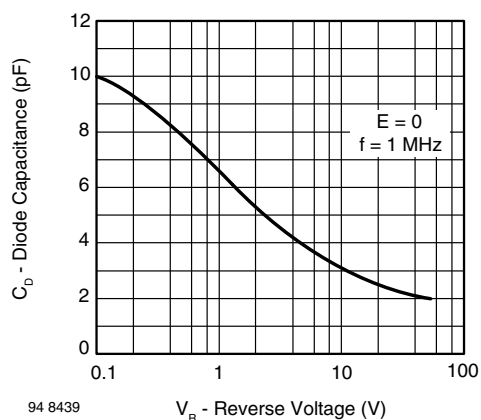
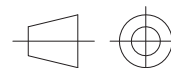
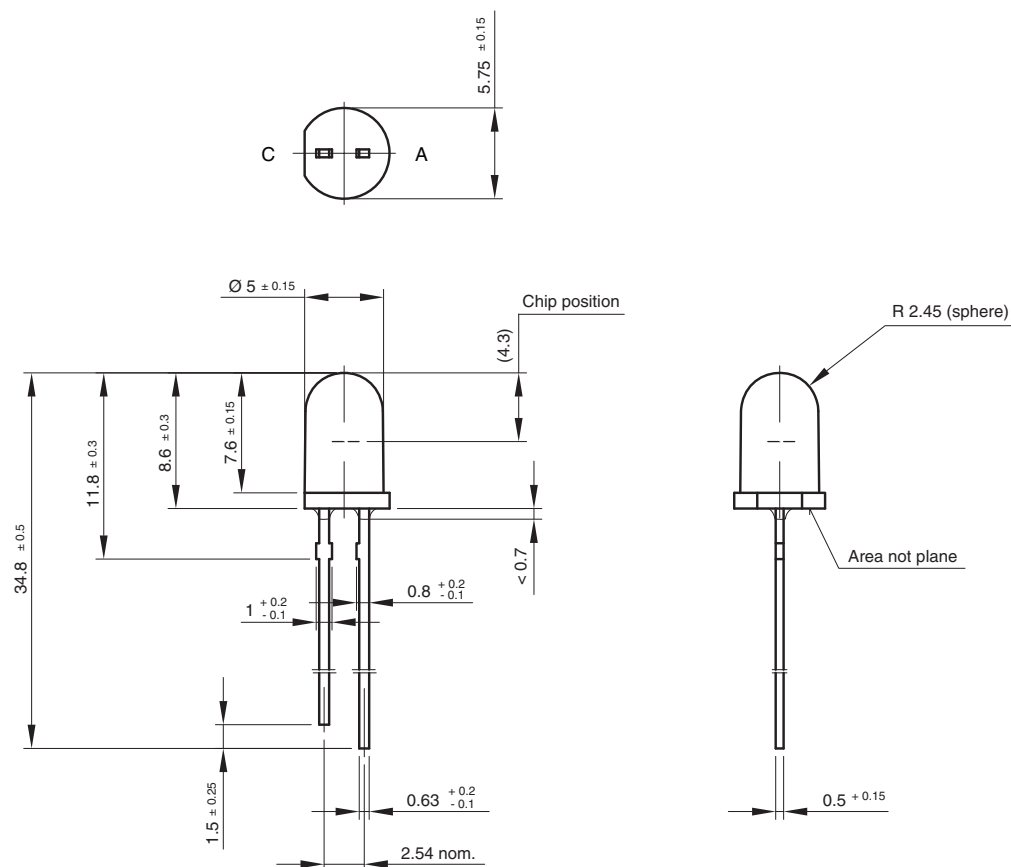


Fig. 5 - Diode Capacitance vs. Reverse Voltage

PACKAGE DIMENSIONS in millimeters


technical drawings
according to DIN
specifications

Drawing-No.: 6.544-5185.02-4

Issue:1; 01.07.96

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