GREEN (5-2008)**



Vishay Semiconductors

Silicon PIN Photodiode



DESCRIPTION

BPV10 is a PIN photodiode with high speed and high radiant sensitivity in clear, T-1¾ plastic package. It is sensitive to visible and near infrared radiation.

FEATURES

Package type: leadedPackage form: T-1¾

• Dimensions (in mm): Ø 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: $\varphi = \pm 20^{\circ}$

 Compliant to RoHS Directive 2002/95/EC and in accordance with WEEE 2002/96/EC

Note

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

APPLICATIONS

• High speed photo detector

PRODUCT SUMMARY			
COMPONENT	I _{ra} (μΑ)	φ (deg)	λ _{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-1¾	

Note

• MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V _R	60	V	
Power dissipation	T _{amb} ≤ 25 °C	P _V	215	mW	
Junction temperature		Tj	100	°C	
Operating temperature range		T _{amb}	- 40 to + 100	°C	
Storage temperature range		T _{stg}	- 40 to + 100	°C	
Soldering temperature	t ≤ 5 s, 2 mm from body	T _{sd}	260	°C	
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm ²	R _{thJA}	350	K/W	



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PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 50 mA	V_{F}		1.0	1.3	V
Breakdown voltage	I _R = 100 μA, E = 0	V _(BR)	60			V
Reverse dark current	V _R = 20 V, E = 0	I _{ro}		1	5	nA
Diode capacitance	V _R = 0 V, f = 1 MHz, E = 0	C_D		11		pF
	V _R = 5 V, f = 1 MHz, E = 0	C_D		3.8		pF
Open circuit voltage	E _A = 1 klx	Vo		480		mV
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	Vo		450		mV
Short circuit current	E _A = 1 klx	I _K		80		μΑ
Snort circuit current	$E_{e} = 1 \text{ mW/cm}^{2}, \lambda = 950 \text{ nm}$	I _K		65		μΑ
Reverse light current	E _A = 1 klx, V _R = 5 V	I _{ra}		85		μΑ
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm},$ $V_R = 5 \text{ V}$	I _{ra}	38	70		μA
Absolute spectral sensitivity	V _R = 5 V, λ = 950 nm	s(λ)		0.55		A/W
Angle of half sensitivity		φ		± 20		deg
Wavelength of peak sensitivity		λ_{p}		920		nm
Range of spectral bandwidth		λ _{0.1}		380 to 1100		nm
Quantum efficiency	λ = 950 nm	η		72		%
Noise equivalent power	$V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$	NEP		3 x 10 ⁻¹⁴		W/√Hz
Detectivity	$V_R = 20 \text{ V}, \lambda = 950 \text{ nm}$	D		3 x 10 ¹²		cm√Hz/V
Rise time	$V_R = 50 \text{ V}, R_L = 50 \Omega, \lambda = 820 \text{ nm}$	t _r		2.5		ns
Fall time	$V_{R} = 50 \text{ V}, R_{L} = 50 \Omega, \lambda = 820 \text{ nm}$	t _f		2.5		ns

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

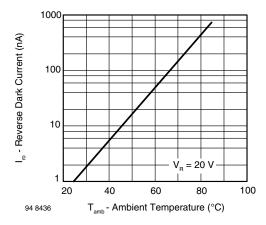


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

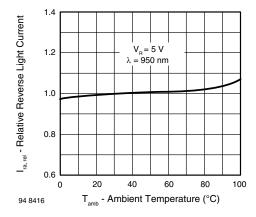


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



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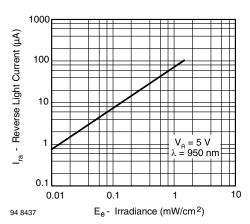


Fig. 3 - Reverse Light Current vs. Irradiance

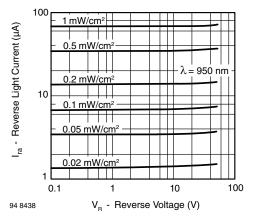


Fig. 4 - Reverse Light Current vs. Reverse Voltage

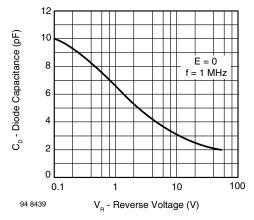


Fig. 5 - Diode Capacitance vs. Reverse Voltage

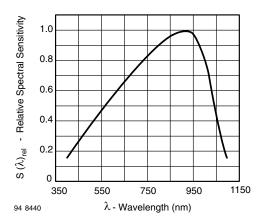


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

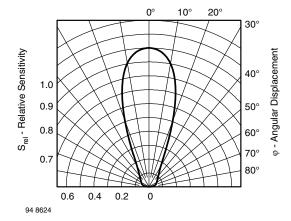
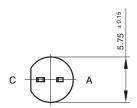
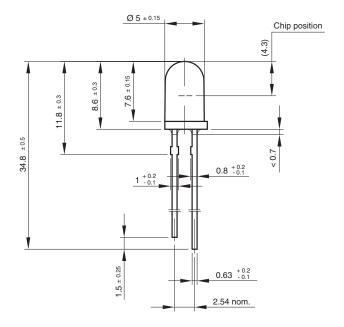


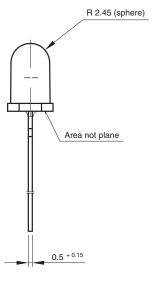
Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement



PACKAGE DIMENSIONS in millimeters







technical drawings

according to DIN specifications

Drawing-No.: 6.544-5185.02-4

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