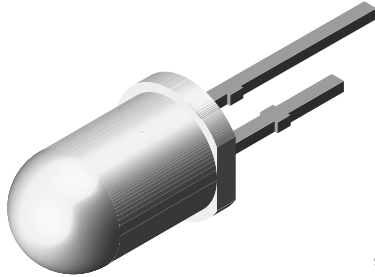


Silicon PIN Photodiode



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FEATURES

- Package type: leaded
- Package form: T-1 $\frac{3}{4}$
- Dimensions (in mm): \varnothing 5
- Leads with stand-off
- High photo sensitivity
- High sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity: $\varphi = \pm 20^\circ$
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



DESCRIPTION

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

APPLICATIONS

- High speed photo detector

PRODUCT SUMMARY

COMPONENT	I_{ra} (μ A)	φ ($^\circ$)	$\lambda_{0.1}$ (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 to 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}	-	0.1	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	-	$^{\circ}$
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	$V_R = 10\text{ V}$, $R_L = 50\text{ }\Omega$, $\lambda = 830\text{ nm}$	t_r	-	80	-	ns
Fall time	$V_R = 10\text{ V}$, $R_L = 50\text{ }\Omega$, $\lambda = 830\text{ nm}$	t_f	-	60	-	ns

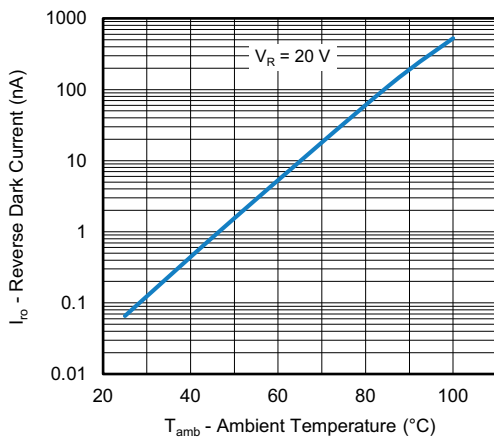
BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

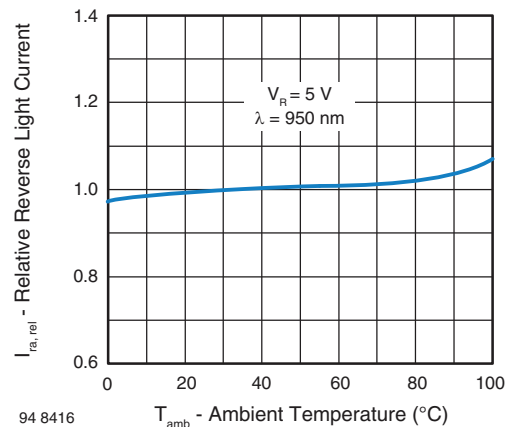
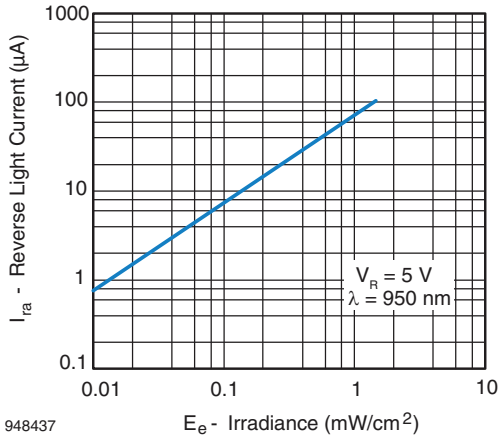
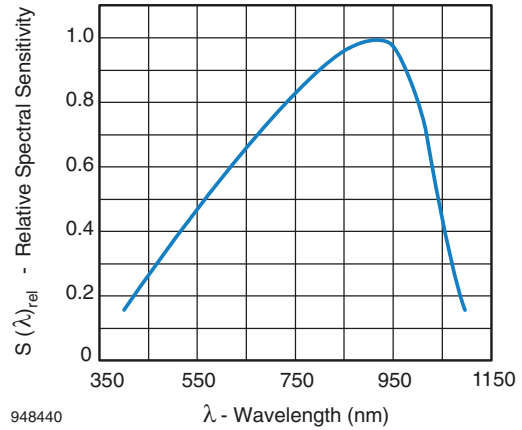


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



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Fig. 3 - Reverse Light Current vs. Irradiance



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Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

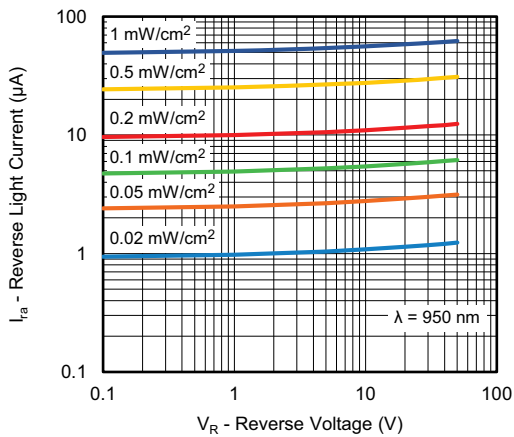
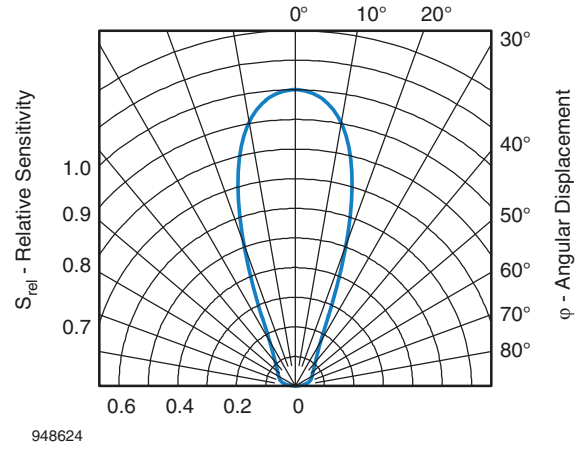
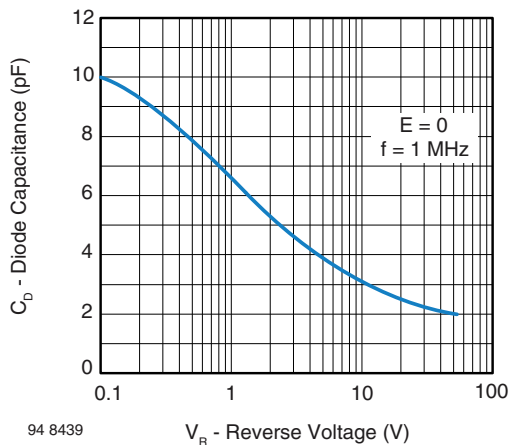


Fig. 4 - Reverse Light Current vs. Reverse Voltage



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Fig. 7 - Relative Sensitivity vs. Angular Displacement

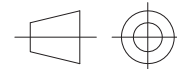
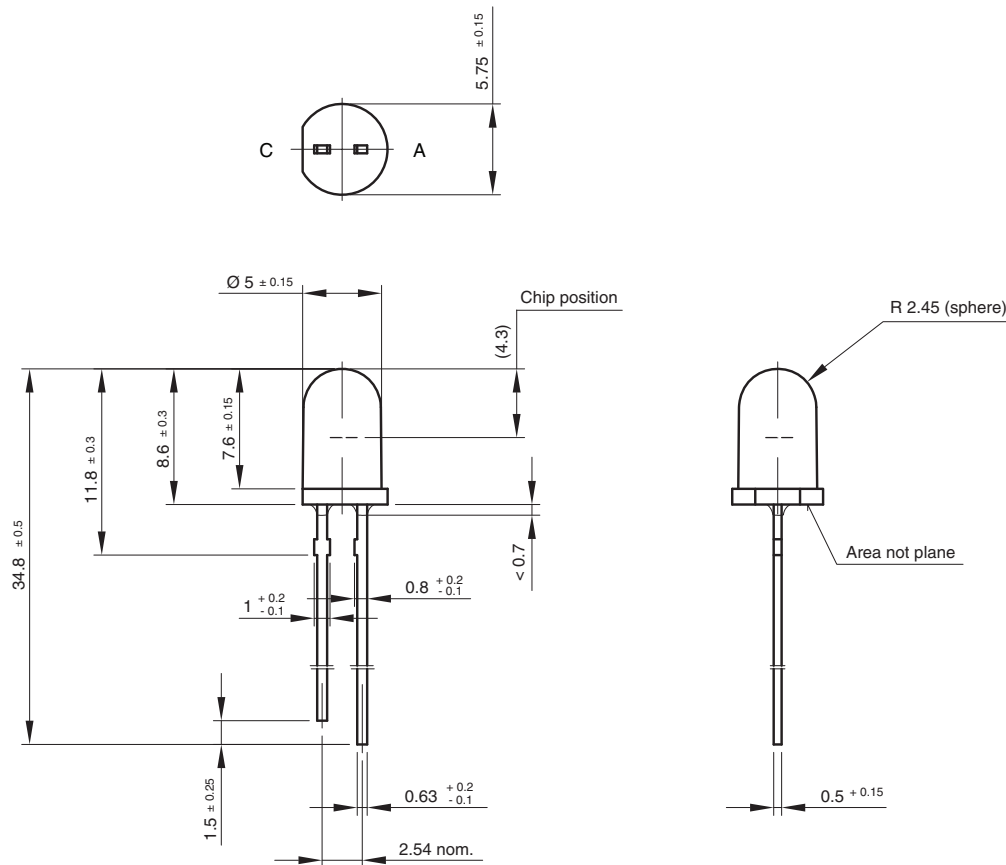


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Fig. 5 - Diode Capacitance vs. Reverse Voltage



PACKAGE DIMENSIONS in millimeters



technical drawings according to DIN specifications

Drawing-No.: 6.544-5185.02-4

Issue:1; 01.07.96

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