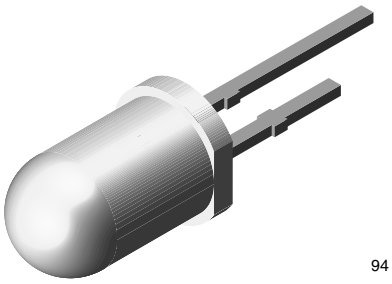
Silicon PIN Photodiode



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FEATURES

- Package type: leaded
- Package form: T-1¾
- Dimensions (in mm): Ø 5
- Leads with stand-off
- High photo sensitivity
- High sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity: φ = ± 20°
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e4

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

DESCRIPTION

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

APPLICATIONS

- High speed photo detector

PRODUCT SUMMARY			
COMPONENT	I_{ra} (µA)	φ (°)	$\lambda_{0.1}$ (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-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	$T_{amb} \leq 25$ °C	P_V	215	mW
Junction temperature		T_j	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 to ambient	Connected with Cu wire, 0.14 mm^2	R_{thJA}	350	K/W

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BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
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}	-	0.1	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	V_O	-	480	-	mV
	E_e = 1 mW/cm², λ = 950 nm	V_O	-	450	-	mV
Short circuit current	E_A = 1 klx	I_K	-	80	-	µA
	E_e = 1 mW/cm², λ = 950 nm	I_K	-	65	-	µA
Reverse light current	E_A = 1 klx, V_R = 5 V	I_{ra}	-	85	-	µA
	E_e = 1 mW/cm², λ = 950 nm, V_R = 5 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	-	°
Wavelength of peak sensitivity		λ_p	-	920	-	nm
Range of spectral bandwidth		$\lambda_{0.1}$	-	380 to 1100	-	nm
Quantum efficiency	λ = 950 nm	η	-	72	-	%
Noise equivalent power	V_R = 20 V, λ = 950 nm	NEP	-	3×10^{-14}	-	W/√Hz
Detectivity	V_R = 20 V, λ = 950 nm	D	-	3×10^{12}	-	cm√Hz/W
Rise time	V_R = 10 V, R_L = 50 Ω, λ = 830 nm	t_r	-	80	-	ns
Fall time	V_R = 10 V, R_L = 50 Ω, λ = 830 nm	t_f	-	60	-	ns

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

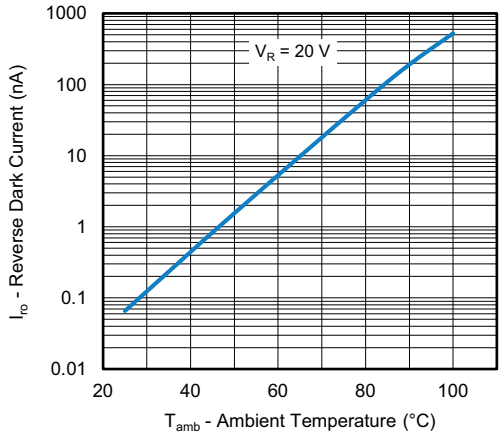

Fig. 1 - Reverse Dark Current vs. Ambient Temperature

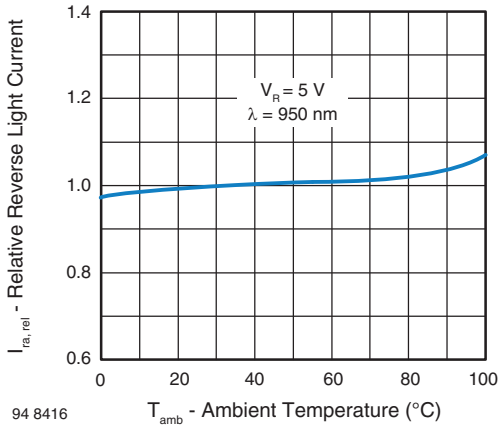

Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

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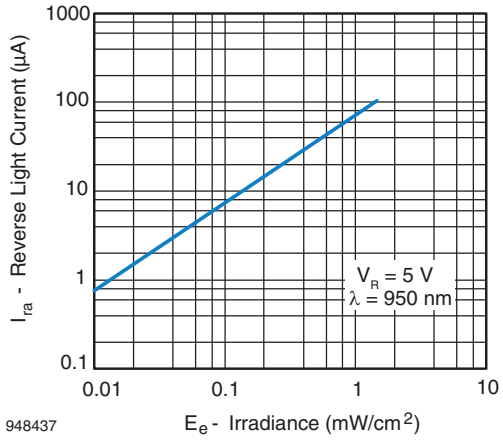

Fig. 3 - Reverse Light Current vs. Irradiance

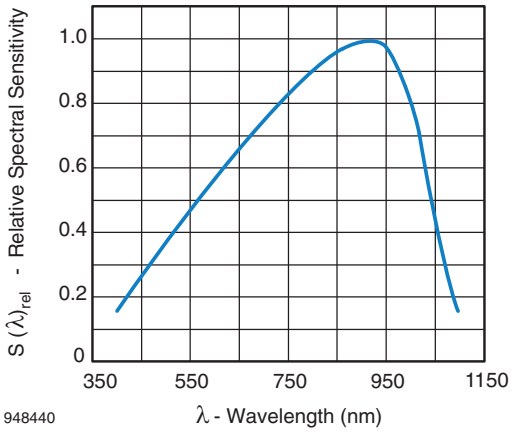

Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

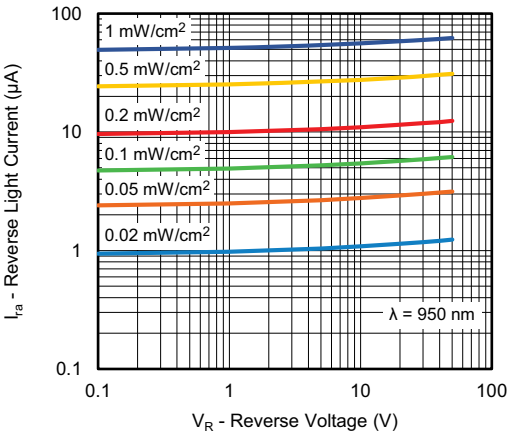

Fig. 4 - Reverse Light Current vs. Reverse Voltage

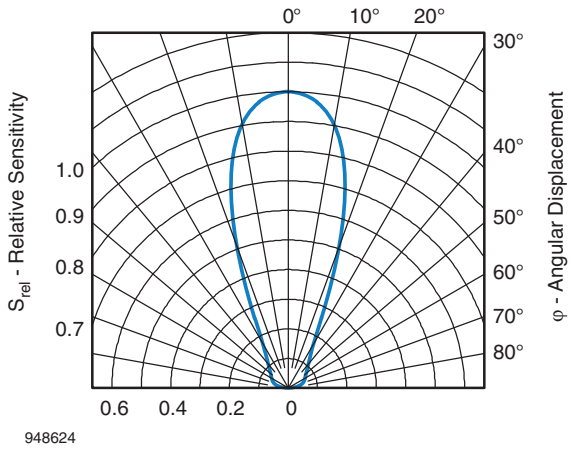

Fig. 7 - Relative Sensitivity vs. Angular Displacement

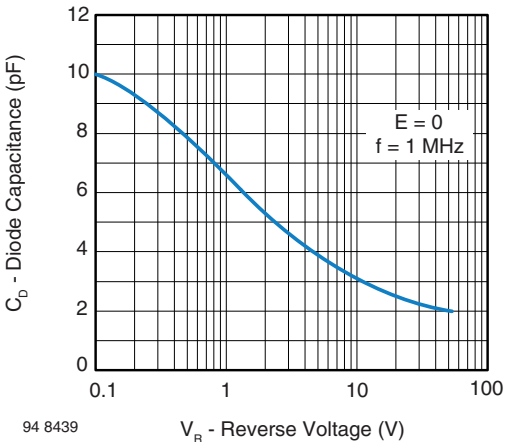

Fig. 5 - Diode Capacitance vs. Reverse Voltage

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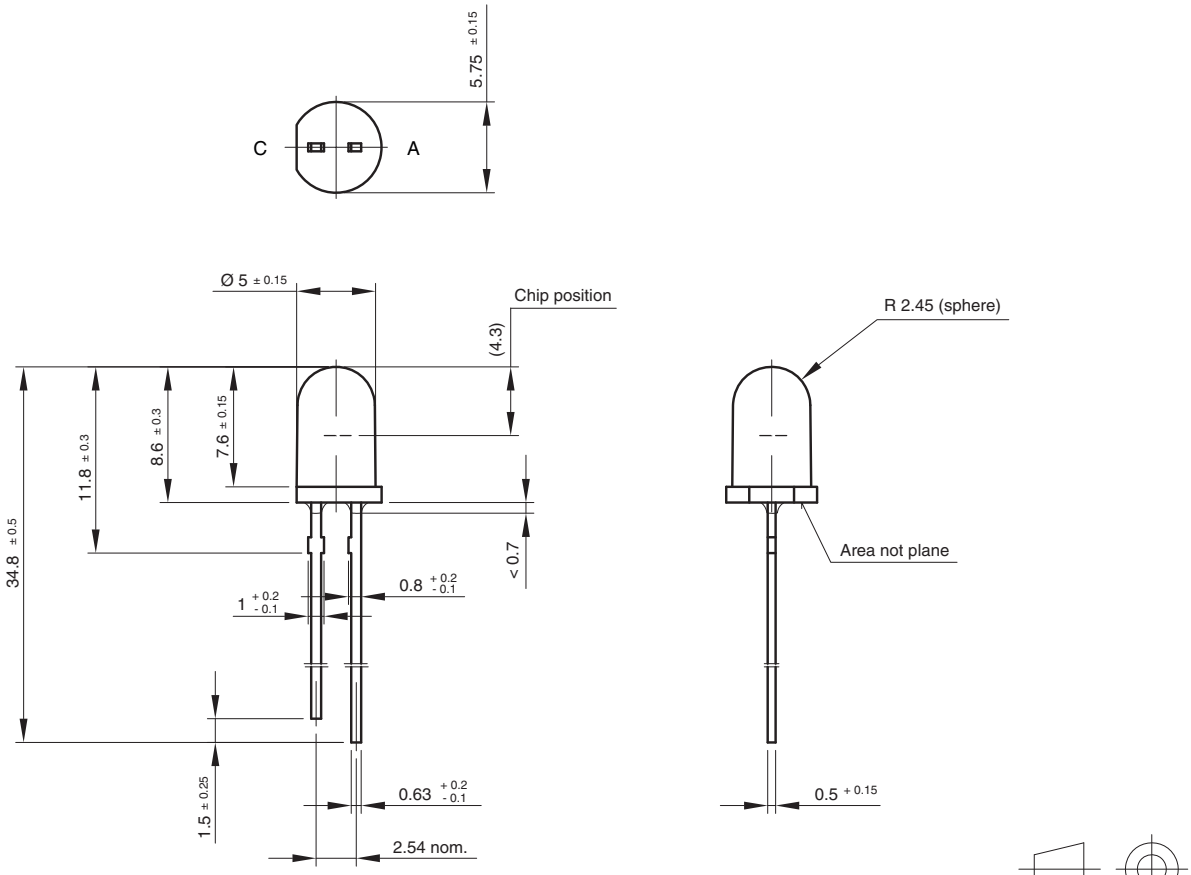
PACKAGE DIMENSIONS in millimeters



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