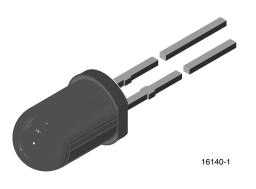
BPV10NF

Vishay Semiconductors

www.vishay.com

Silicon PIN Photodiode



DESCRIPTION

BPV10NF is a PIN photodiode with high speed and high sensitivity in black, T-1¾ plastic package with daylight blocking filter. Filter bandwidth is matched with 850 nm to 950 nm IR emitters.

FEATURES

- Package type: leaded
- Package form: T-1¾
- Dimensions (in mm): Ø 5
- · Leads with stand-off
- High sensitivity
- · Daylight blocking filter matched with 850 nm to 950 nm emitters
- Fast response times
- Angle of half sensitivity: . = ± 20°
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- High speed detector for infrared radiation
- Infrared remote control and free air data transmission systems, e.g. in combination with TSFFxxxx series IR emitters

PRODUCT SUMMARY			
COMPONENT	I_{ra} (μA) at E _e = 1.0 mW/cm², λ = 940 nm, V _R = 5.0 V	φ (°)	λ _{0.5} (nm)
BPV10NF	60	± 20	780 to 1050

Note

· Test condition see table "Basic Characteristics"

ORDERING INFORMATION ORDERING CODE PACKAGING REMARKS PACKAGE FORM **BPV10NF** Bulk MOQ: 4000 pcs, 4000 pcs/bulk T-1¾ BPV10NF-CS21 MOQ: 5000 pcs, 1000 pcs/reel T-1

Reel

Note

• MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25 \text{ °C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT			
Reverse voltage		V _R	60	V			
Power dissipation	T _{amb} ≤ 25 °C	Pv	215	mW			
Junction temperature		Тj	100	°C			
Operating temperature range		T _{amb}	-40 to +100	°C			
Storage temperature range		T _{stg}	-40 to +100	°C			
Soldering temperature	$t \le 5$ 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			



HALOGEN FREE

<u>GREEN</u>

(5-2008)

BPV10NF



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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	-	0.85	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	$V_{R} = 0 V, f = 1 MHz, E = 0$	CD	-	11	-	pF	
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 850 \text{ nm}$	Vo	-	410	-	mV	
Short circuit current	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 870 \text{ nm}$	۱ _K	-	50	-	μA	
Reverse light current	$E_e = 1 \text{ mW/cm}^2, \lambda = 870 \text{ nm}, V_R = 5 \text{ V}$	I _{ra}	-	55	-	μA	
	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 940 \text{ nm}$, $V_R = 5 \text{ V}$	I _{ra}	30	60	-	μA	
Temperature coefficient of Ira	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 870 \text{ nm}$, $V_R = 5 \text{ V}$	TK _{lra}	-	-0.1	-	%/K	
Absolute spectral sensitivity	$V_R = 5 V, \lambda = 870 \text{ nm}$	s(λ)	-	0.55	-	A/W	
Angle of half sensitivity		φ	-	± 20	-	0	
Wavelength of peak sensitivity		λρ	-	940	-	nm	
Range of spectral bandwidth		λ _{0.5}	-	780 to 1050	-	nm	
Quantum efficiency	$\lambda = 950 \text{ nm}$	η	-	70	-	%	
Noise equivalent power	$V_{\rm R}$ = 20 V, λ = 950 nm	NEP	-	3 x 10 ⁻¹⁴	-	W/√Hz	
Detectivity	V_{R} = 20 V, λ = 950 nm	D	-	3 x 10 ¹²	-	cm√Hz/W	
Rise time	V_R = 10 V, R_L = 50 Ω , λ = 830 nm	t _r	-	80	-	ns	
Fall time	$V_R = 10 \text{ V}, R_L = 50 \Omega, \lambda = 830 \text{nm}$	t _f	-	60	-	ns	

BASIC CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

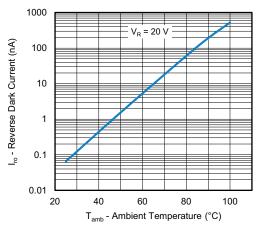


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

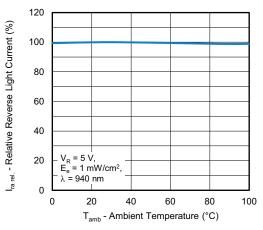


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

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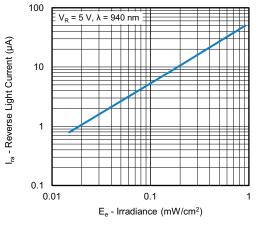


Fig. 3 - Reverse Light Current vs. Irradiance

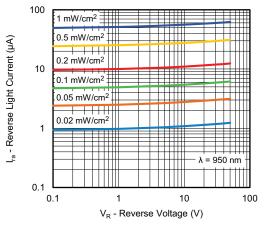


Fig. 4 - Reverse Light Current vs. Reverse Voltage

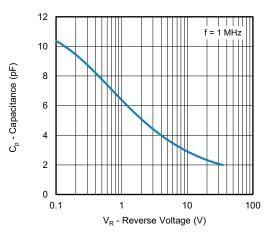


Fig. 5 - Diode Capacitance vs. Reverse Voltage

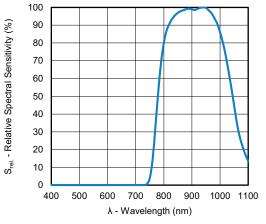


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

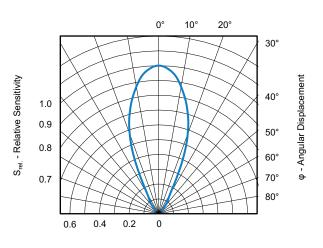


Fig. 7 - Relative Sensitivity vs. Angular Displacement

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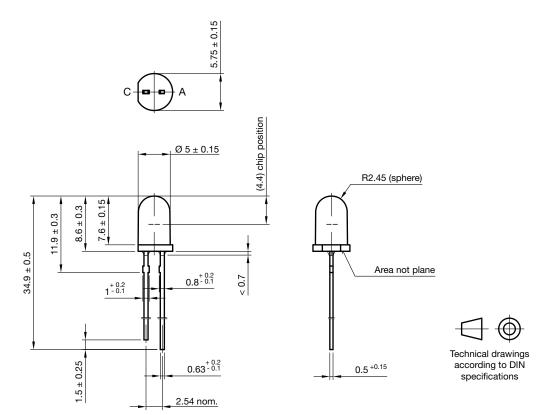
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PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5185.01-4 Issue: 2; 11.04.2008



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