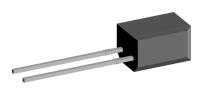
GREEN (5-2008)**



Vishay Semiconductors

Silicon PIN Photodiode



BPW41N is a PIN photodiode with high speed and high

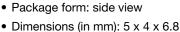
radiant sensitivity in a black, side view plastic package with

daylight blocking filter. Filter bandwidth is matched with

94 8480

FEATURES

Package type: leaded



• Radiant sensitive area (in mm²): 7.5

· High radiant sensitivity

Daylight blocking filter matched with 940 nm emitters

Fast response times

• Angle of half sensitivity: $\varphi = \pm 65^{\circ}$

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

Note

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

APPLICATIONS

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

PRODUCT SUMMARY			
COMPONENT	I _{ra} (μΑ)	φ (deg)	λ _{0.5} (nm)
BPW41N	45	± 65	870 to 1050

Note

DESCRIPTION

900 nm to 950 nm IR emitters.

• Test condition see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
BPW41N	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	Side view	

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	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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BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	I _R = 100 μA, E = 0	V _(BR)	60			V
Reverse dark current	V _R = 10 V, E = 0	I _{ro}		2	30	nA
Diode capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _D		70		pF
	V _R = 3 V, f = 1 MHz, E = 0	C _D		25	40	pF
Open circuit Voltage	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	Vo		350		mV
Temperature coefficient of Vo	$E_{e} = 1 \text{ mW/cm}^{2}, \lambda = 950 \text{ nm}$	TK _{Vo}		- 2.6		mV/K
Short circuit current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	l _k		38		μΑ
Temperature coefficient of I _k	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	TK _{lk}		0.1		%/K
Reverse light current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, \ V_R = 5 \text{ V}$	I _{ra}	43	45		μА
Angle of half sensitivity		φ		± 65		deg
Wavelength of peak sensitivity		λ_{p}		950		nm
Range of spectral bandwidth		λ _{0.5}		870 to 1050		nm
Noise equivalent power	$V_R = 10 \text{ V}, \ \lambda = 950 \text{ nm}$	NEP		4 x 10 ⁻¹⁴		W/√ Hz
Rise time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t _r		100		ns
Fall time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t _f		100		ns

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

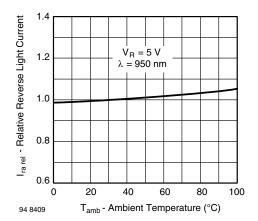


Fig. 1 - Relative Reverse Light Current vs. Ambient Temperature

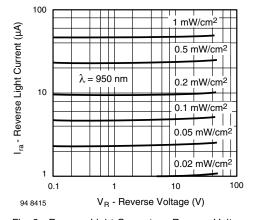


Fig. 3 - Reverse Light Current vs. Reverse Voltage

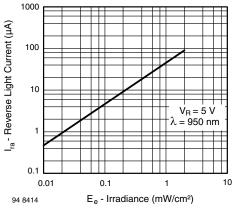


Fig. 2 - Reverse Light Current vs. Irradiance

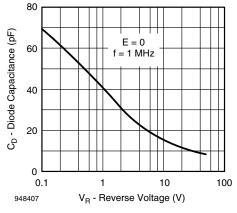


Fig. 4 - Diode Capacitance vs. Reverse Voltage



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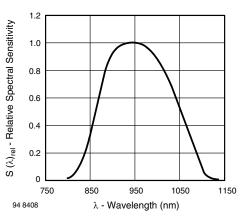


Fig. 5 - Relative Spectral Sensitivity vs. Wavelength

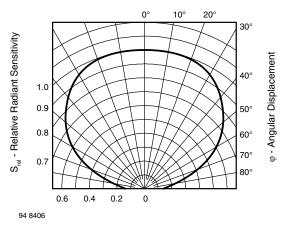
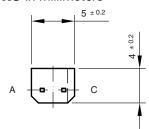
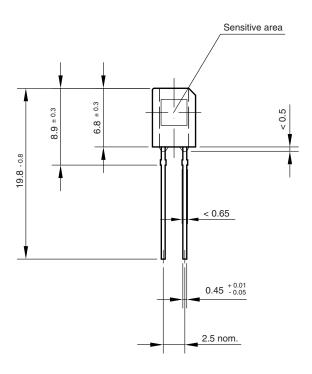


Fig. 6 - Relative Radiant Sensitivity vs. Angular Displacement

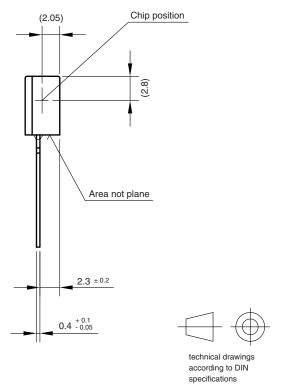
PACKAGE DIMENSIONS in millimeters







96 12195





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Vishay

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