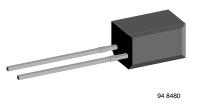
**Vishay Semiconductors** 



# Silicon PIN Photodiode, RoHS Compliant



BPW82 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 870 nm to

## FEATURES

- Package type: leaded
- Package form: side view
- Dimensions (L x W x H in mm): 5 x 4 x 6.8
- Radiant sensitive area (in mm<sup>2</sup>): 7.5
- High radiant sensitivity
- Daylight blocking filter matched with 870 nm to 950 nm emitters
- · Fast response times
- Angle of half sensitivity:  $\phi = \pm 65^{\circ}$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC

## **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 <sub>ra</sub> (μΑ)	φ <b>(deg)</b>	λ <sub>0.5</sub> (nm)			
BPW82	45	± 65	790 to 1050			

#### Note

DESCRIPTION

950 nm IR emitters.

Test condition see table "Basic Characteristics"

# ORDERING INFORMATION ORDERING CODE PACKAGING REMARKS PACKAGE FORM BPW82 Bulk MOQ: 4000 pcs, 4000 pcs/bulk Side view

#### Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Reverse voltage		V <sub>R</sub>	60	V		
Power dissipation	$T_{amb} \le 25 \ ^{\circ}C$	Pv	215	mW		
Junction temperature		Tj	100	°C		
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C		
Storage temperature range		T <sub>stg</sub>	- 40 to + 100	°C		
Soldering temperature	t ≤ 5 s	T <sub>sd</sub>	260	°C		
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm <sup>2</sup>	R <sub>thJA</sub>	350	K/W		

### Note

T<sub>amb</sub> = 25 °C, unless otherwise specified



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BASIC CHARACTERISTICS							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Breakdown voltage	I <sub>R</sub> = 100 μA, E = 0	V <sub>(BR)</sub>	60			V	
Reverse dark current	V <sub>R</sub> = 10 V, E = 0	I <sub>ro</sub>		2	30	nA	
Diode capacitance	$V_{R} = 0 V, f = 1 MHz, E = 0$	CD		70		pF	
	$V_{R} = 3 V, f = 1 MHz, E = 0$	CD		25	40	pF	
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2$ , $\lambda = 870 \text{ nm}$	Vo		350		mV	
Short circuit current	$E_e = 1 \text{ mW/cm}^2$ , $\lambda = 870 \text{ nm}$	l <sub>k</sub>		38		μΑ	
Reverse light current	$E_e = 1 \text{ mW/cm}^2, \lambda = 870 \text{ nm},$ $V_R = 5 \text{ V}$	I <sub>ra</sub>	43	45		μΑ	
Angle of half sensitivity		φ		± 65		deg	
Wavelength of peak sensitivity		λ <sub>p</sub>		950		nm	
Range of spectral bandwidth		λ <sub>0.5</sub>		790 to 1050		nm	
Noise equivalent power	$V_{R} = 10 \text{ V}, \lambda = 870 \text{ nm}$	NEP		4 x 10 <sup>-14</sup>		W/√Hz	
Rise time	$V_R = 10 \text{ V}, \text{ R}_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t <sub>r</sub>		100		ns	
Fall time	$V_{R} = 10 V, R_{L} = 1 k\Omega, \lambda = 820 nm$	t <sub>f</sub>		100		ns	

#### Note

Tamb = 25 °C, unless otherwise specified

## **BASIC CHARACTERISTICS**

 $T_{amb}$  = 25 °C, unless otherwise specified

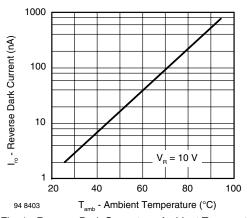


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

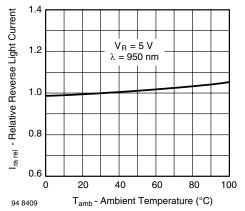


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

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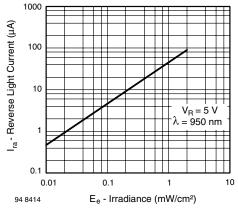


Fig. 3 - Reverse Light Current vs. Irradiance

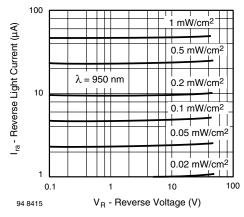


Fig. 4 - Reverse Light Current vs. Reverse Voltage

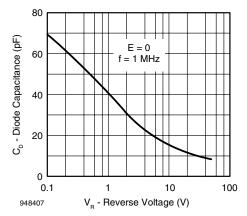


Fig. 5 - Diode Capacitance vs. Reverse Voltage

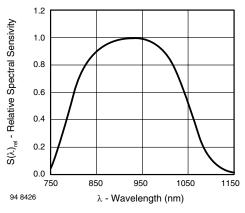


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

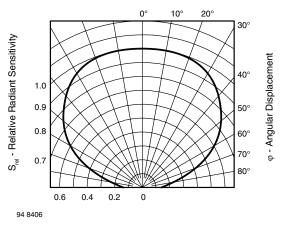
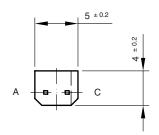


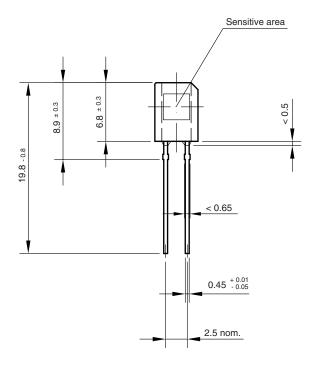
Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

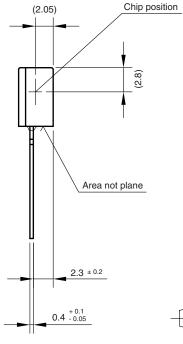


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## **PACKAGE DIMENSIONS** in millimeters









technical drawings according to DIN specifications

Drawing-No.: 6.544-5108.01-4 Issue:1; 01.07.96 96 12195



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