BPW46

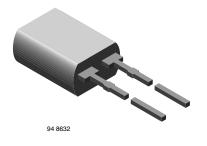
Vishay Semiconductors

λ_{0.1} (nm)

430 to 1100



Silicon PIN Photodiode



DESCRIPTION

BPW46 is a PIN photodiode with high speed and high radiant sensitivity in a clear, side view plastic package. It is sensitive to visible and near infrared radiation.

FEATURES

- · Package type: leaded
- Package form: side view
- Dimensions (L x W x H in mm): 5 x 3 x 6.4
- Radiant sensitive area (in mm²): 7.5
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity: $\phi = \pm 65^{\circ}$
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

• High speed photo detector

± 65

PRODUCT SUMMARY COMPONENT I_{ra} (μA) φ (deg)

50

Note

BPW46

• Test condition see table "Basic Characteristics"

ORDERING INFORMATION						
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM			
BPW46	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	$T_{amb} \le 25 \ ^{\circ}C$	Pv	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	$t \le 5 s$	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	$V_{R} = 0 V, f = 1 MHz, E = 0$	CD		70		pF	
	$V_R = 3 V, f = 1 MHz, E = 0$	CD		25	40	pF	
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$	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 _A = 1 klx	l _k		70		μA	
	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$	l _k		47		μA	
Temperature coefficient of I_k	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$	TK _{lk}		0.1		%/K	
Reverse light current	$E_A = 1 \text{ klx}, V_R = 5 \text{ V}$	I _{ra}		75		μA	
	$E_{e} = 1 \text{ mW/cm}^{2}, \lambda = 950 \text{ nm}, \\ V_{R} = 5 \text{ V}$	I _{ra}	40	50		μA	
Angle of half sensitivity		φ		± 65		deg	
Wavelength of peak sensitivity		λp		900		nm	
Range of spectral bandwidth		λ _{0.1}		430 to 1100		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 V, R_L = 1 k Ω , λ = 820 nm	tr		100		ns	
Fall time	$V_{R} = 10 V, R_{L} = 1 k\Omega, \lambda = 820 nm$	t _f		100		ns	

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

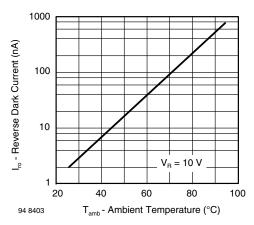


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

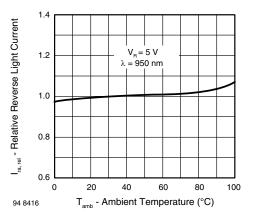


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

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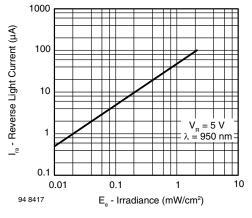


Fig. 3 - Reverse Light Current vs. Irradiance

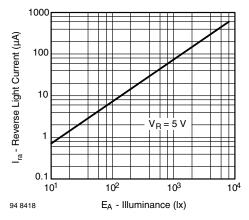


Fig. 4 - Reverse Light Current vs. Illuminance

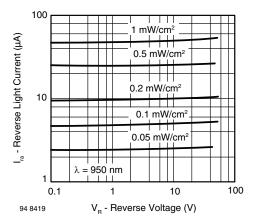


Fig. 5 - Reverse Light Current vs. Reverse Voltage

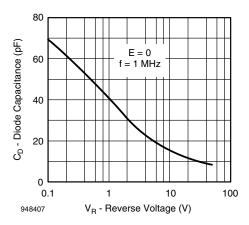


Fig. 6 - Diode Capacitance vs. Reverse Voltage

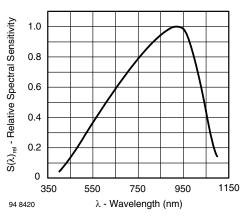


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

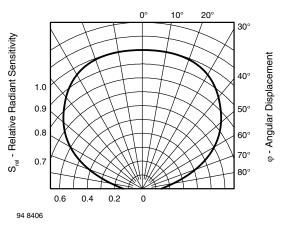
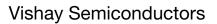


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

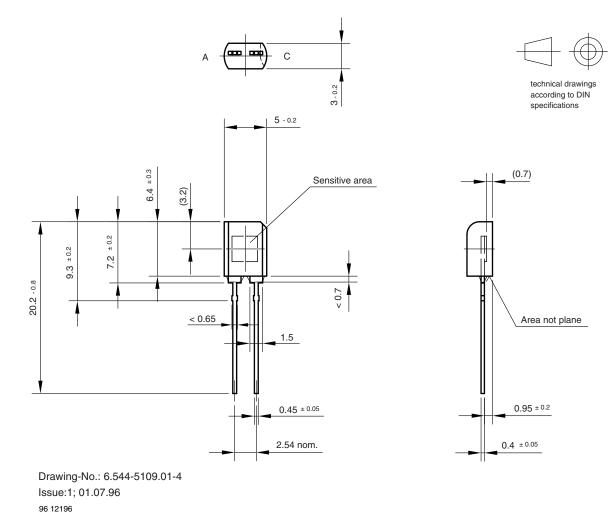
3





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PACKAGE DIMENSIONS in millimeters





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