430 to 1100

RoHS

GREEN (5-2008)\*\*



# Vishay Semiconductors

# Silicon PIN Photodiode



BPW34 is a PIN photodiode with high speed and high

radiant sensitivity in miniature, flat, top view, clear plastic

package. It is sensitive to visible and near infrared radiation. BPW34S is packed in tubes, specifications like BPW34.

### **FEATURES**

Package type: leaded





• Radiant sensitive area (in mm<sup>2</sup>): 7.5

· High photo sensitivity

· High radiant sensitivity

· Suitable for visible and near infrared radiation

• Fast response times

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

 Compliant to RoHS Directive 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 photo detector

± 65

PRODUCT SUMMARY			
COMPONENT	I <sub>ra</sub> (μA)	φ (deg)	λ <sub>0.1</sub> (nm)
BPW34	50	± 65	430 to 1100

### Note

BPW34S

**DESCRIPTION** 

Test condition see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
BPW34	Bulk	MOQ: 3000 pcs, 3000 pcs/bulk	Top view	
BPW34S	Tube	MOQ: 1800 pcs, 45 pcs/tube	Top view	

### Note

MOQ: minimum order quantity

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	60	V
Power dissipation	T <sub>amb</sub> ≤ 25 °C	P <sub>V</sub>	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 ≤ 3 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



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<b>BASIC CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
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 <sub>R</sub> = 0 V, f = 1 MHz, E = 0	C <sub>D</sub>		70		pF
	V <sub>R</sub> = 3 V, f = 1 MHz, E = 0	C <sub>D</sub>		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 <sub>Vo</sub>		- 2.6		mV/K
Short circuit current	E <sub>A</sub> = 1 klx	l <sub>k</sub>		70		μΑ
Short circuit current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	l <sub>k</sub>		47		μΑ
Temperature coefficient of I <sub>k</sub>	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	TK <sub>lk</sub>		0.1		%/K
Reverse light current	E <sub>A</sub> = 1 klx, V <sub>R</sub> = 5 V	I <sub>ra</sub>		75		μΑ
	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, \ V_R = 5 \text{ V}$	I <sub>ra</sub>	40	50		μΑ
Angle of half sensitivity		φ		± 65		deg
Wavelength of peak sensitivity		$\lambda_{p}$		900		nm
Range of spectral bandwidth		λ <sub>0.1</sub>		430 to 1100		nm
Noise equivalent power	V <sub>R</sub> = 10 V, λ = 950 nm	NEP		4 x 10 <sup>-14</sup>		W/√Hz
Rise time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t <sub>r</sub>		100		ns
Fall time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t <sub>f</sub>		100		ns

## **BASIC CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

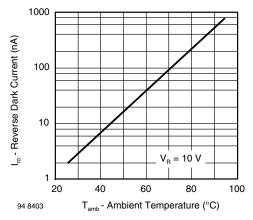


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

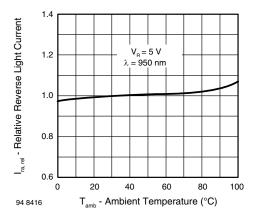


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



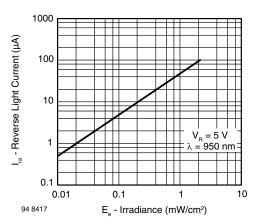


Fig. 3 - Reverse Light Current vs. Irradiance

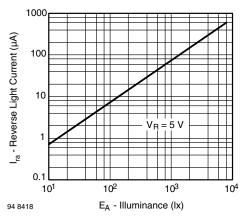


Fig. 4 - Reverse Light Current vs. Illuminance

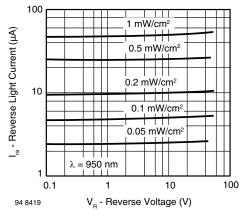


Fig. 5 - Reverse Light Current vs. Reverse Voltage

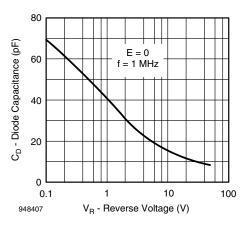


Fig. 6 - Diode Capacitance vs. Reverse Voltage

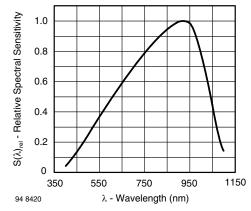


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

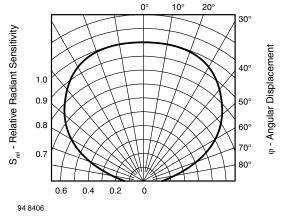
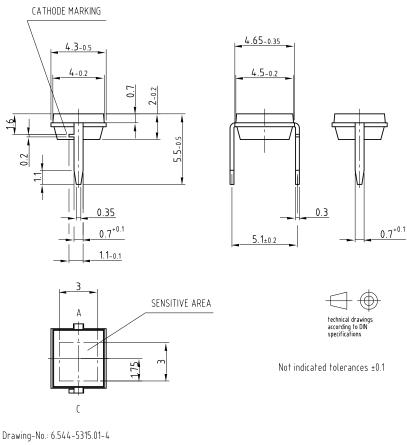


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

# Vishay Semiconductors

## **PACKAGE DIMENSIONS** in millimeters



Drawing-No.: 6.544-5315.01-4 Issue: 1; 19.10.07 96 12186

### **TUBE PACKAGING DIMENSIONS** in millimeters

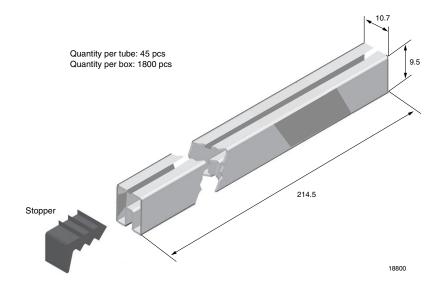


Fig. 9 - Drawing Proportions not scaled



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