

## Silicon PIN Photodiode



94 8583


**RoHS**  
COMPLIANT

**GREEN**  
(S-2008) \*\*

### FEATURES

- Package type: leaded
- Package form: top view
- Dimensions (L x W x H in mm): 5.4 x 4.3 x 3.2
- 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:  $\phi = \pm 65^\circ$
- 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](http://www.vishay.com/doc?99902)

### APPLICATIONS

- High speed photo detector

### DESCRIPTION

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.

<b>PRODUCT SUMMARY</b>			
COMPONENT	I <sub>ra</sub> ( $\mu$ A)	$\phi$ (deg)	$\lambda_{0.1}$ (nm)
BPW34	50	$\pm 65$	430 to 1100
BPW34S	50	$\pm 65$	430 to 1100

### Note

- Test condition see table "Basic Characteristics"

<b>ORDERING INFORMATION</b>			
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		T <sub>j</sub>	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

<b>BASIC CHARACTERISTICS</b> ( $T_{amb} = 25^\circ C$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 100 \mu A, E = 0$	$V_{(BR)}$	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	$E_e = 1 mW/cm^2, \lambda = 950 nm$	$V_o$		350		mV
Temperature coefficient of $V_o$	$E_e = 1 mW/cm^2, \lambda = 950 nm$	$TK_{Vo}$		- 2.6		mV/K
Short circuit current	$E_A = 1 klx$	$I_k$		70		μA
	$E_e = 1 mW/cm^2, \lambda = 950 nm$	$I_k$		47		μA
Temperature coefficient of $I_k$	$E_e = 1 mW/cm^2, \lambda = 950 nm$	$TK_{Ik}$		0.1		%/K
Reverse light current	$E_A = 1 klx, V_R = 5 V$	$I_{ra}$		75		μA
	$E_e = 1 mW/cm^2, \lambda = 950 nm, V_R = 5 V$	$I_{ra}$	40	50		μA
Angle of half sensitivity		$\phi$		± 65		deg
Wavelength of peak sensitivity		$\lambda_p$		900		nm
Range of spectral bandwidth		$\lambda_{0.1}$		430 to 1100		nm
Noise equivalent power	$V_R = 10 V, \lambda = 950 nm$	NEP		$4 \times 10^{-14}$		W/√Hz
Rise time	$V_R = 10 V, R_L = 1 kΩ, \lambda = 820 nm$	$t_r$		100		ns
Fall time	$V_R = 10 V, R_L = 1 kΩ, \lambda = 820 nm$	$t_f$		100		ns

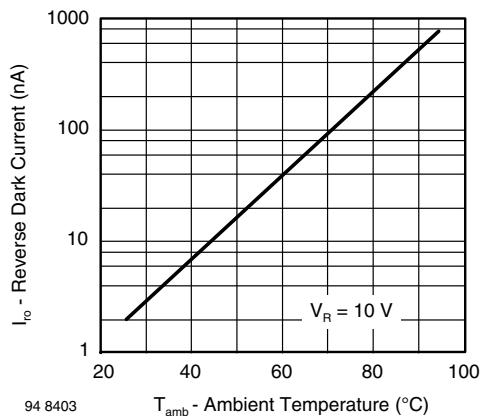
**BASIC CHARACTERISTICS** ( $T_{amb} = 25^\circ C$ , unless otherwise specified)


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

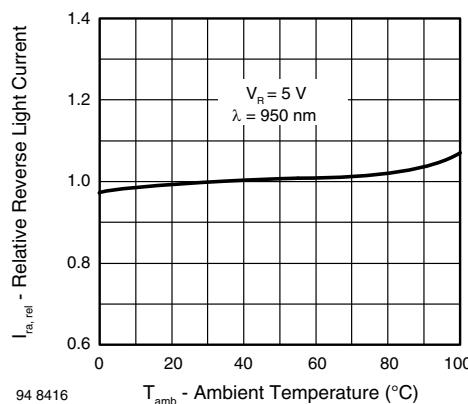


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

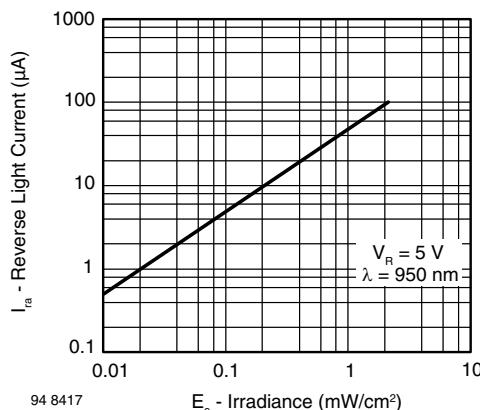


Fig. 3 - Reverse Light Current vs. Irradiance

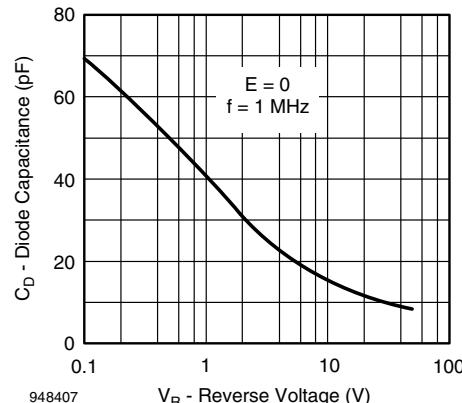


Fig. 6 - Diode Capacitance vs. Reverse Voltage

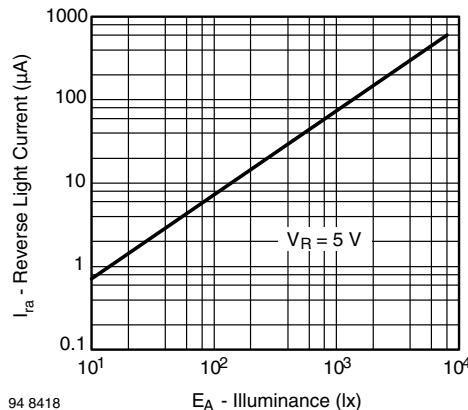


Fig. 4 - Reverse Light Current vs. Illuminance

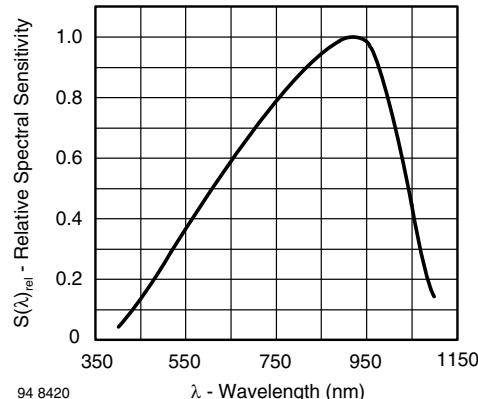


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

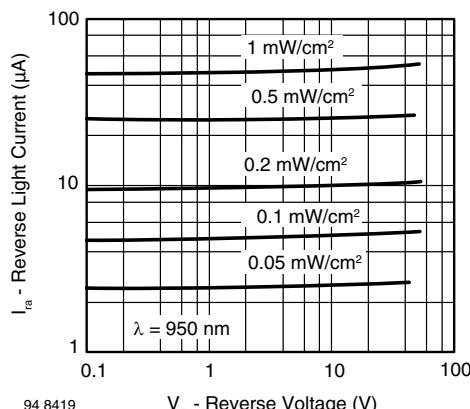


Fig. 5 - Reverse Light Current vs. Reverse Voltage

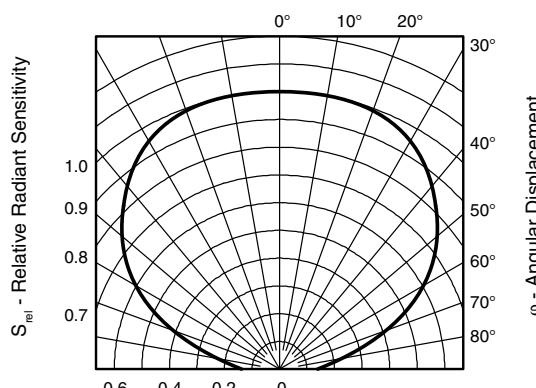
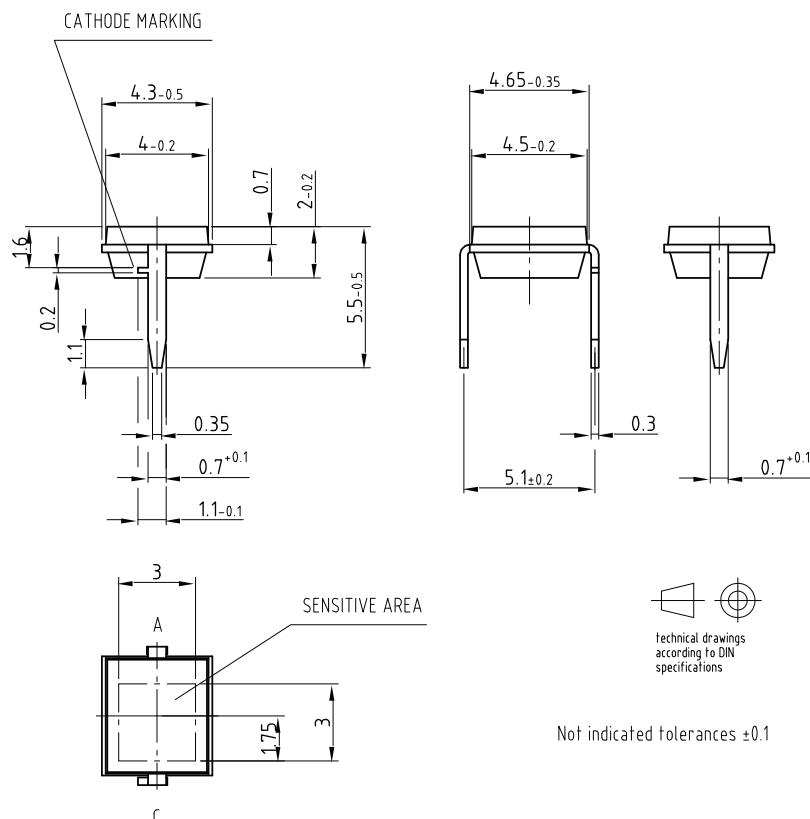


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

**PACKAGE DIMENSIONS** in millimeters


Drawing-No.: 6.544-5315.01-4

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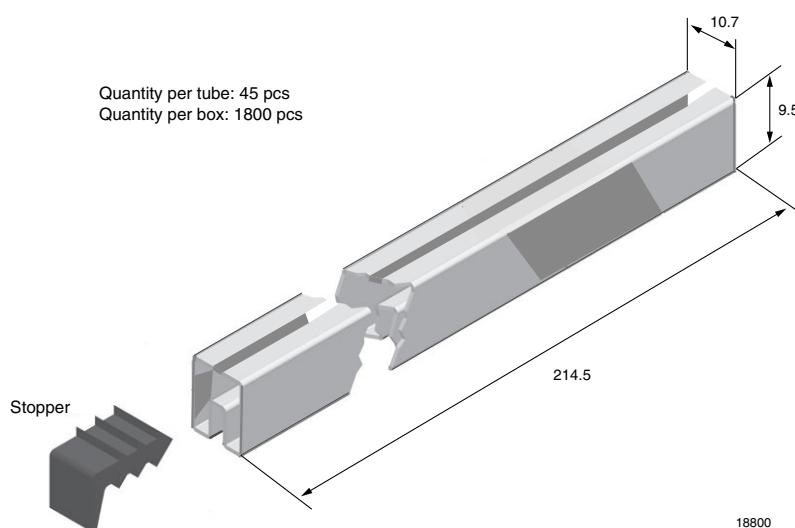
**TUBE PACKAGING DIMENSIONS** in millimeters


Fig. 9 - Drawing Proportions not scaled



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