

RoHS

HALOGEN FREE

Silicon PIN Photodiode



DESCRIPTION

VBPW34S and VBPW34SR are high speed and high sensitive PIN photodiodes. It is a surface mount device (SMD) including the chip with a 7.5 mm² sensitive area detecting visible and near infrared radiation.

FEATURES

Package type: surface mount

• Package form: GW, RGW



• 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: $\varphi = \pm 65^{\circ}$

• Floor life: 168 h, MSL 3, acc. J-STD-020

· Lead (Pb)-free reflow soldering

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

Halogen-free according to IEC 61249-2-21 definition

APPLICATIONS

· High speed photo detector

PRODUCT SUMMARY			
COMPONENT	I _{ra} (μΑ)	φ (deg)	λ0.1 (nm)
VBPW34S	55	± 65	430 to 1100
VBPW34SR	55	± 65	430 to 1100

Note

• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	ACKAGING REMARKS PACKAGE		
VBPW34S	Tape and reel	MOQ: 1000 pcs, 1000 pcs/reel	Gullwing	
VBPW34SR	Tape and reel	MOQ: 1000 pcs, 1000 pcs/reel	Reverse gullwing	

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		T _j	100	°C
Operating temperature range		T _{amb}	- 40 to + 100	°C
Storage temperature range		T _{stg}	- 40 to + 100	°C
Soldering temperature	Acc. reflow solder profile fig. 8	T _{sd}	260	°C
Thermal resistance junction/ambient		R _{thJA}	350	K/W



PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 50 mA	V _F		1	1.3	V
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	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	I _k		50		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	$E_{e}=1~\text{mW/cm}^{2},\lambda=950~\text{nm},\\ V_{R}=5~\text{V}$	I _{ra}	45	55		μΑ
Angle of half sensitivity		φ		± 65		deg
Wavelength of peak sensitivity		λ_{p}		940		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	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega,$ $\lambda = 820 \text{ nm}$	t _r		100		ns
Fall time	V_R = 10 V, R_L = 1 kΩ, λ = 820 nm	t _f		100		ns

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

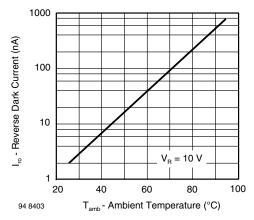


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

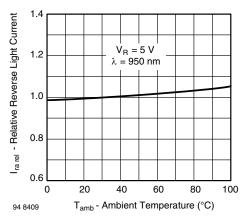
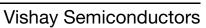


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature





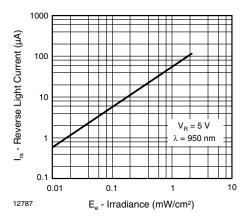


Fig. 3 - Reverse Light Current vs. Irradiance

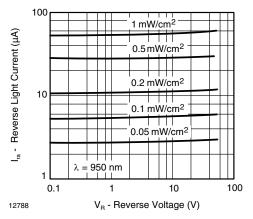


Fig. 4 - Reverse Light Current vs. Reverse Voltage

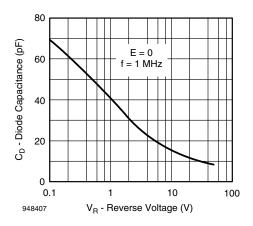


Fig. 5 - Diode Capacitance vs. Reverse Voltage

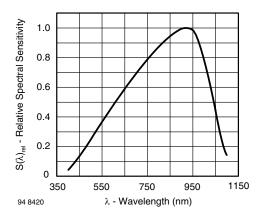


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

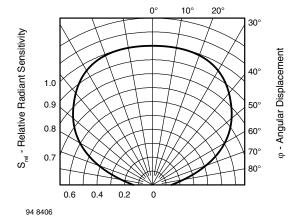
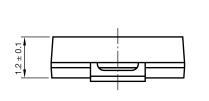
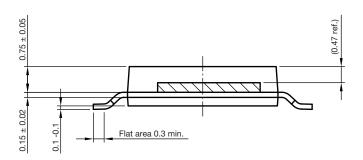


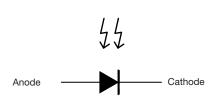
Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

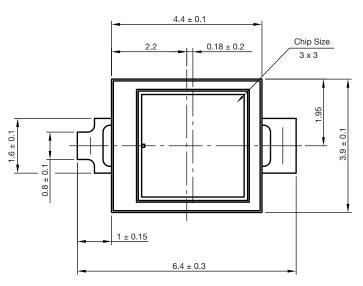


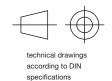
PACKAGE DIMENSIONS FOR VBPW34S in millimeters

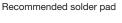


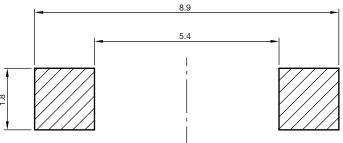










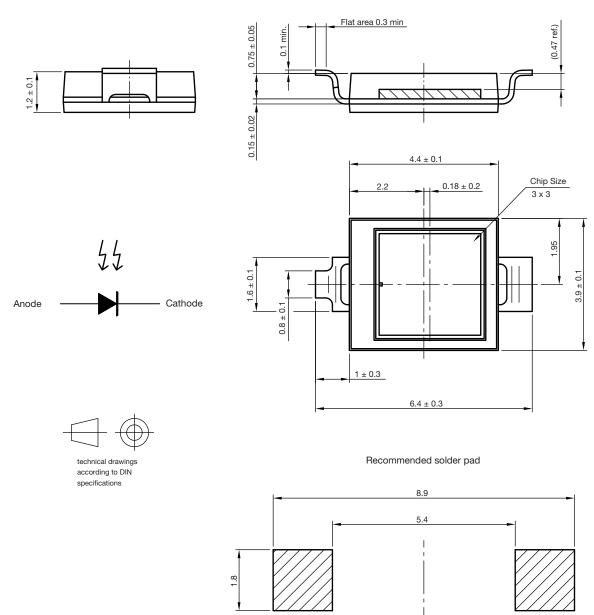


Drawing-No.: 6.541-5086.01-4

Issue: 1; 15.04.10

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PACKAGE DIMENSIONS FOR VBPW34SR in millimeters



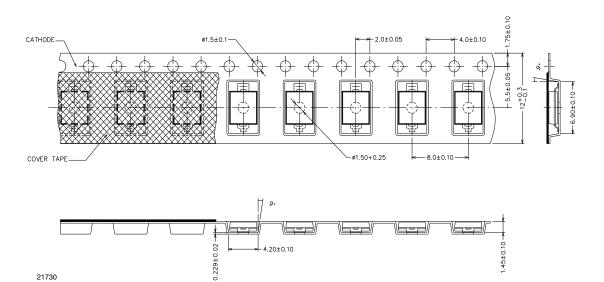
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Issue: 1; 15.04.10

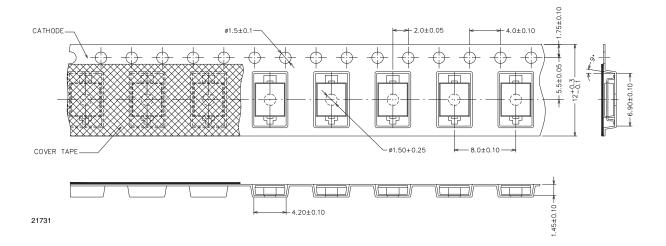
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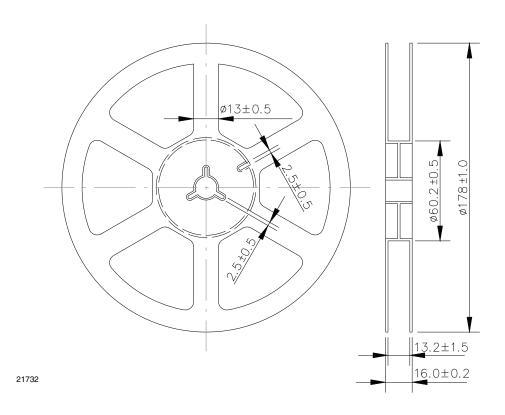
TAPING DIMENSIONS FOR VBPW34S in millimeters



TAPING DIMENSIONS FOR VBPW34SR in millimeters



REEL DIMENSIONS FOR VBPW34S AND VBPW34SR in millimeters



SOLDER PROFILE

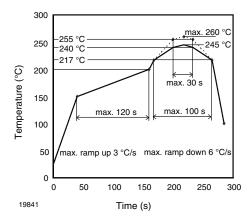


Fig. 8 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

DRYPACK

Devices are packed in moisture barrier bags (MBB) to prevent the products from moisture absorption during transportation and storage. Each bag contains a desiccant.

FLOOR LIFE

Time between soldering and removing from MBB must not exceed the time indicated in J-STD-020:

Moisture sensitivity: level 3

Floor life: 168 h

Conditions: T_{amb} < 30 °C, RH < 60 %

DRYING

In case of moisture absorption devices should be baked before soldering. Conditions see J-STD-020 or recommended conditions:

192 h at 40 °C (+ 5 °C), RH < 5 %

or

96 h at 60 °C (+ 5 °C), RH < 5 %.



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Vishay

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