

Vishay Semiconductors

Silicon PIN Photodiode, RoHS Compliant



FEATURES

Package type: leadedPackage form: TO-18

• Dimensions (in mm): Ø 4.7

• Radiant sensitive area (in mm²): 0.78

High photo sensitivity

· High radiant sensitivity

· Suitable for visible and near infrared radiation

Fast response times

• Angle of half sensitivity: $\varphi = \pm 12^{\circ}$

· Hermetically sealed package

· Cathode connected to package

· Central chip alignment

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

APPLICATIONS

· High speed photo detector

DESCRIPTION

BPW24R is a high sensitive silicon planar photodiode in a standard TO-18 hermetically sealed metal case with a glass lane.

A precise alignment of the chip gives a good coincidence of mechanical and optical axes. The device features a low capacitance and high speed even at low supply voltages.

PRODUCT SUMMARY			
COMPONENT	I _{ra} (A)	φ (deg)	λ _{0.1} (nm)
BPW24R	60	± 12	400 to 1100

Note

· Test condition see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
BPW24R	Bulk	MOQ: 1000 pcs, 1000 pcs/bulk	TO-18	

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	210	mW
Junction temperature		Tj	125	°C
Operating temperature range		T _{amb}	- 40 to + 125	°C
Storage temperature range		T _{stg}	- 40 to + 125	°C
Soldering temperature	t ≤ 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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PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	I _R = 100 μA, E = 0	V _(BR)	60	200		V
Reverse dark current	V _R = 50 V, E = 0	I _{ro}		2	10	nA
Diode capacitance	$V_R = 0 \text{ V, } f = 1 \text{ MHz, } E = 0$	C _D		11		pF
	V _R = 5 V, f = 1 MHz, E = 0	C _D		3.8		pF
	V _R = 20 V, f = 1 MHz, E = 0	C _D		2.5		pF
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	Vo		450		mV
Temperature coefficient of Vo	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	TK _{Vo}		- 2		mV/K
Short circuit current	$E_{e} = 1 \text{ mW/cm}^{2}, \lambda = 950 \text{ nm}$	l _k		55		μΑ
Temperature coefficient of I _k	E _A = 1 klx	TK _{lk}		0.1		%/K
Reverse light current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, \ V_R = 20 \text{ V}$	I _{ra}	45	60		μΑ
Absolute Spectral Sensitivity	$V_R = 5 \text{ V}, \ \lambda = 870 \text{ nm}$	s(λ)		0.60		A/W
	$V_{R} = 5 \text{ V}, \ \lambda = 900 \text{ nm}$	s(λ)		0.55		A/W
Angle of half sensitivity		φ		± 12		deg
Wavelength of peak sensitivity		λ_{p}		900		nm
Range of spectral bandwidth		λ _{0.1}	400		1100	nm
Rise time	$V_R = 20 \text{ V}, R_L = 50 \Omega, \lambda = 820 \text{ nm}$	t _r		7		ns
Fall time	$V_R = 20 \text{ V}, R_L = 50 \Omega, \lambda = 820 \text{ nm}$	t _f		7		ns

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

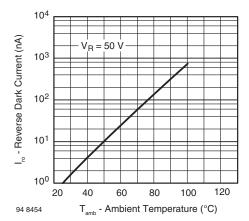


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

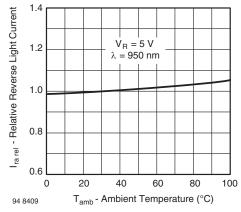


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature





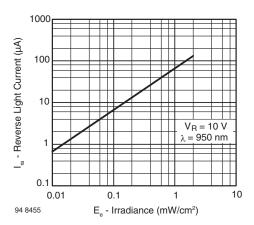


Fig. 3 - Reverse Light Current vs. Irradiance

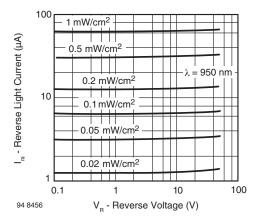


Fig. 4 - Reverse Light Current vs. Reverse Voltage

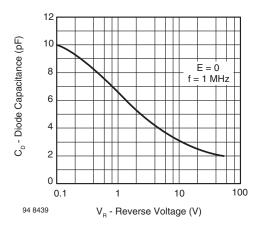


Fig. 5 - Diode Capacitance vs. Reverse Voltage

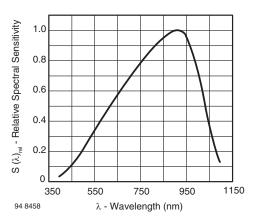


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

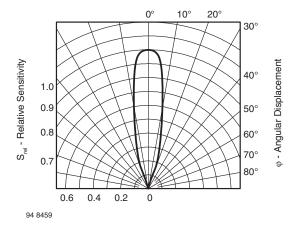
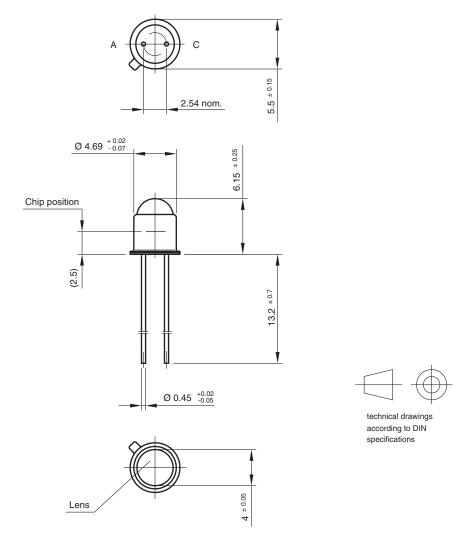


Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement



PACKAGE DIMENSIONS in millimeters



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