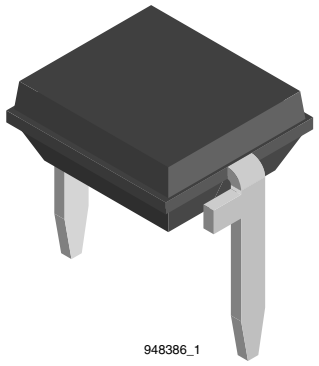
Silicon PIN Photodiode



FEATURES

- Package type: leaded
- Package form: top view
- Dimensions (in mm): 5.4 x 4.3 x 3.2
- Radiant sensitive area (in mm^2): 7.5
- High radiant sensitivity
- Daylight blocking filter matched with 940 nm emitters
- Fast response times
- Angle of half sensitivity: φ = ± 65°
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**

Note

** Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902

DESCRIPTION

BP104 is a PIN photodiode with high speed and high radiant sensitivity in miniature, flat, top view plastic package with daylight blocking filter. Filter bandwidth is matched with 900 nm to 950 nm IR emitters.
BP104S is packed in tubes, specifications like BP104.

APPLICATIONS

- High speed detector for infrared radiation
- Infrared remote control and free air data transmission systems, e.g. in combination with TSALxxxx series IR emitters

PRODUCT SUMMARY			
COMPONENT	I_{ra} (µA)	φ (deg)	$\lambda_{0.5}$ (nm)
BP104	45	± 65	870 to 1050
BP104S	45	± 65	870 to 1050

Note

- Test condition see table “Basic Characteristics”

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
BP104	Bulk	MOQ: 3000 pcs, 3000 pcs/bulk	Top view
BP104S	Tube	MOQ: 1800 pcs, 45 pcs/tube	Top 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	$T_{amb} \leq 25$ °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	t ≤ 3 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	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/cm², λ = 950 nm	V_o		350		mV
Short circuit current	E_e = 1 mW/cm², λ = 950 nm	I_k		38		µA
Reverse light current	E_e = 1 mW/cm², λ = 950 nm, V_R = 5 V	I_{ra}	40	45		µA
Angle of half sensitivity		φ		± 65		deg
Wavelength of peak sensitivity		λ_p		950		nm
Range of spectral bandwidth		$\lambda_{0.5}$		870 to 1050		nm
Noise equivalent power	V_R = 10 V, λ = 950 nm	NEP		4 x 10^{-14}		W/√ Hz
Rise time	V_R = 10 V, R_L = 1 kΩ, λ = 820 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)

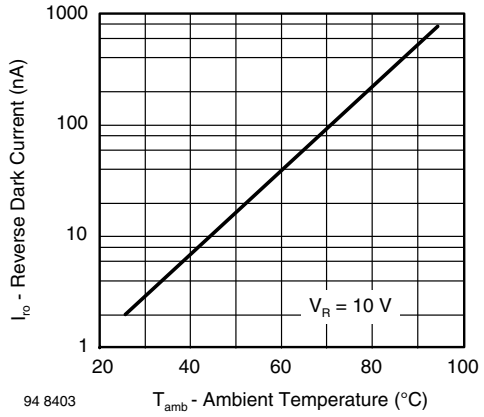

Fig. 1 - Reverse Dark Current vs. Ambient Temperature

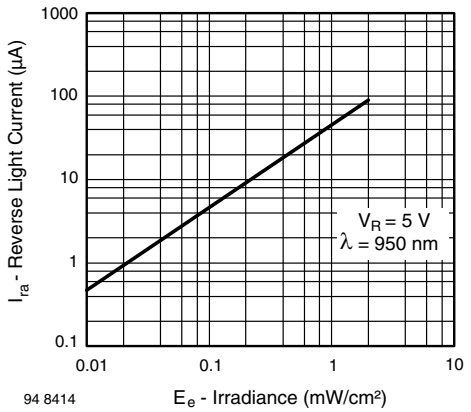

Fig. 3 - Reverse Light Current vs. Irradiance

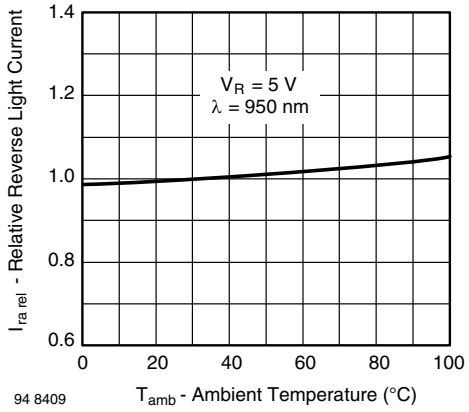

Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

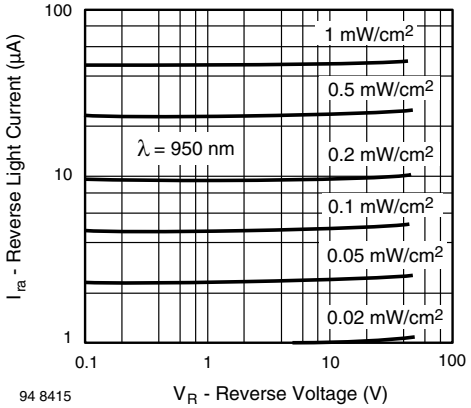

Fig. 4 - Reverse Light Current vs. Reverse Voltage

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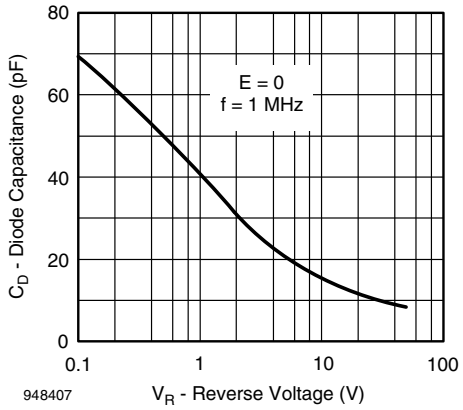

Fig. 5 - Diode Capacitance vs. Reverse Voltage

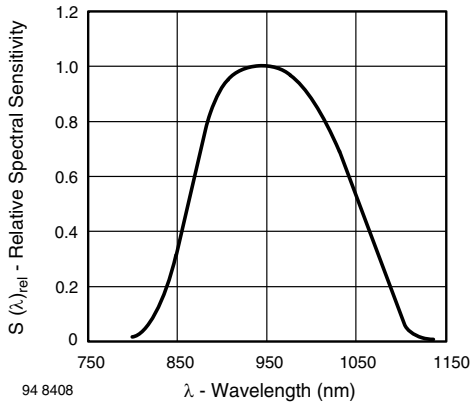

Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

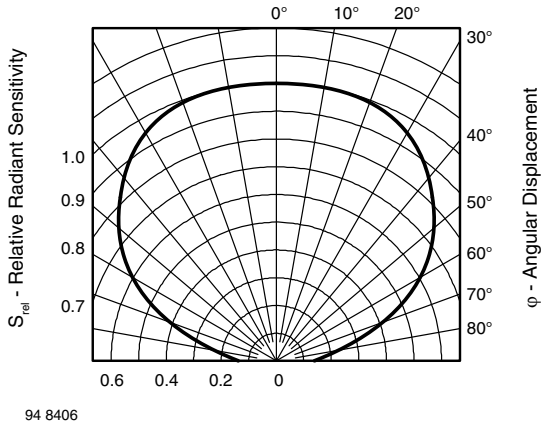

Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

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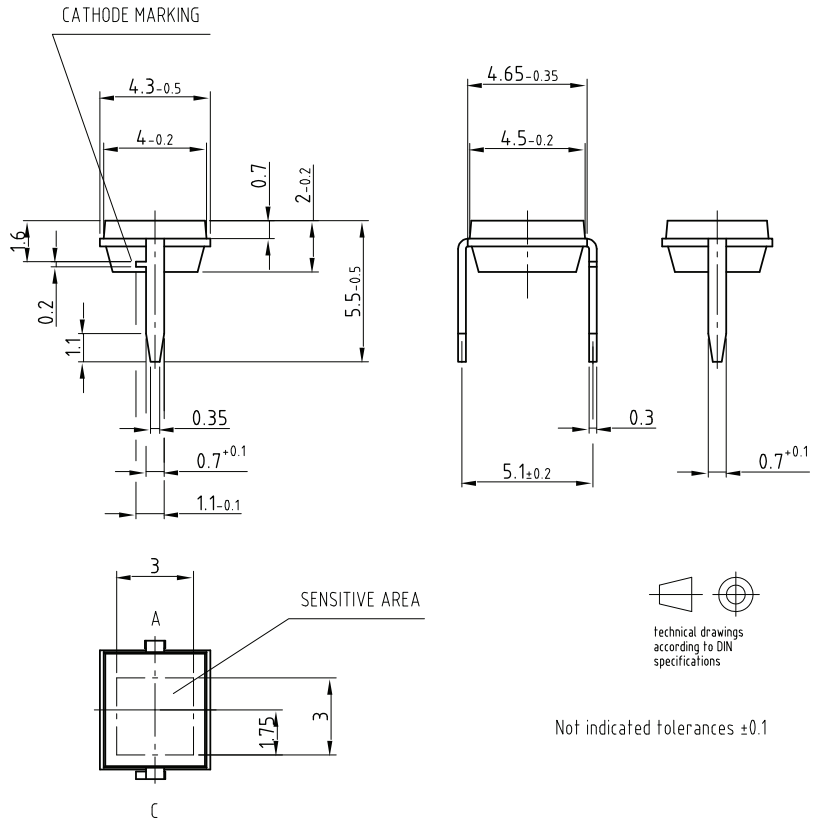
PACKAGE DIMENSIONS in millimeters



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TUBE PACKAGING DIMENSIONS in millimeters

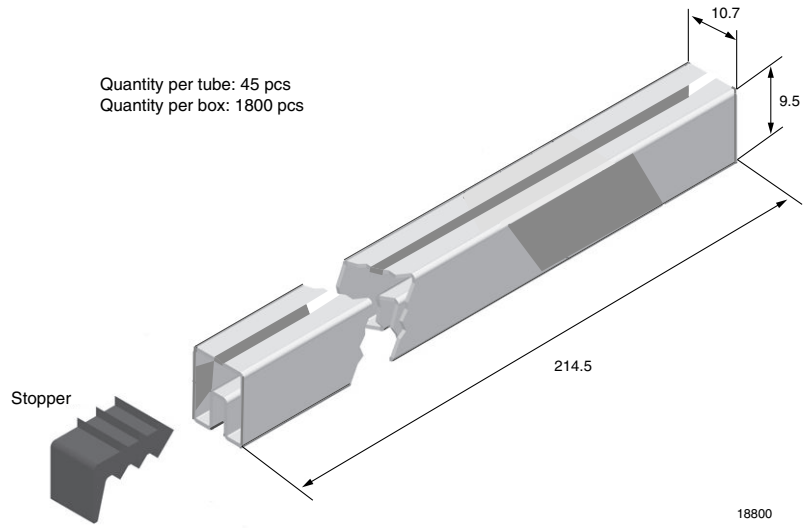

Fig. 8 - Drawing Proportions not scaled

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