SCA-HS16B

Silicon PIN Photodiode

Data Sheet

Description

The SCA-HS16B is a high-speed silicon PIN photodiode with bandwidth of 1GHz and low capacitance with high responsivity across the spectral range of 320nm to 1100 nm. This N-type photodiode offers high speed, low capacitance, and high breakdown voltage characteristics.

The standard version of model SCA-HS16B is housed in a hermetically sealed TO-18 metal case. It is also available in custom packages and in chip form for hybrid circuit boards. This device is capable of meeting MIL-PRF-19500 requirements for environmental integrity and reliability.

Please contact Semicoa for special configurations
www.***SEMICOA***.com or (714) 979-1900.

Applications

- Fiber Optic Communications
- Fast Pulse Measurement
- Data Communications
- Optical Power Meters

Features

- Photoconductive or Photovoltaic Regime
- High-Reliability Hermetic Package
- Available in Chip Form
- Spectral Response from 320 to 1100nm

Benefits

- Low Dark Current
- Low Total Capacitance
- Low Cost
- 1 GHz response at 5 Volt bias

Absolute Maximum Ratings			
Parameter	**Symbol**	**Rating**	**Unit**
Operation Temperature	T_{OP}	-50 to +120	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Reverse Voltage	V_R	100	V

Semicoa
333 McCormick Avenue, Costa Mesa, California 92626 714.979.1900, FAX 714.557.4541

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DEVICE CHARACTERISTICS

characteristics specified at T_A = 25°C

Mechanical Characteristics

Active Diameter	d	0.020	Inches
Active Area	A	0.16	mm^2

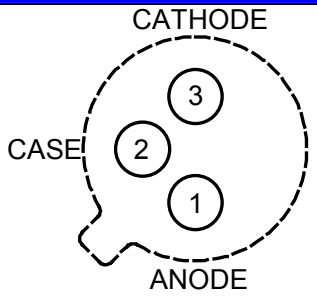
Optical Characteristics

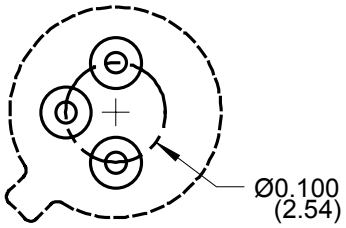
Spectral Response	λ	320 to 1100	nm
Peak Sensitive Wavelength	λ_p	820	nm

Electrical Characteristics

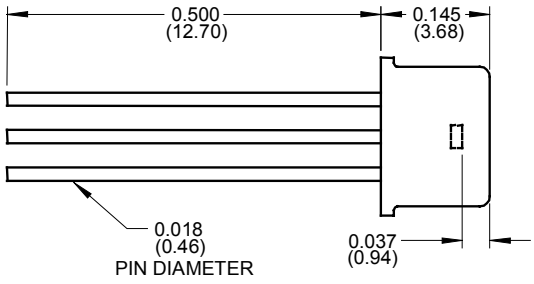
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Dark Current	I_D	V_R = 1 mV V_R = 10 V		0.001 0.01	0.1 1.0	nA
Responsivity	R	λ = 900 nm λ = 830 nm λ = 632 nm	0.2 0.3 0.25	0.25 0.4 0.3		A/W
Risetime	t_r	V_R = 25 V, R_L = 50 Ω		0.35	0.5	ns
Capacitance	C_j	V_R = 25 V, f = 1 MHz		1.5	2	pF
Reverse Breakdown Voltage	V_{BR}	I_R = 10 μA	50	100		V
Forward Voltage	V_F	I_F = 1 mA		0.65	1.00	V
Shunt Resistance	R_{sh}	V_R = 1 mV	1	10		GΩ
Series Resistance	R_S	I_F = 10 mA		6.0	10.0	Ω
Noise Equivalent Power	NEP			$3x10^{-15}$		$W/Hz^{1/2}$

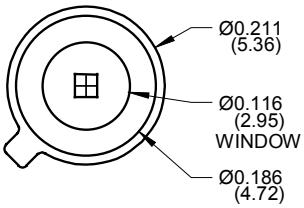
Package Specifications





Hole Size: 0.022 (0.56)
Annular Ring: 0.015 (0.38)





Rev. 3.1

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CHARACTERISTIC CURVES

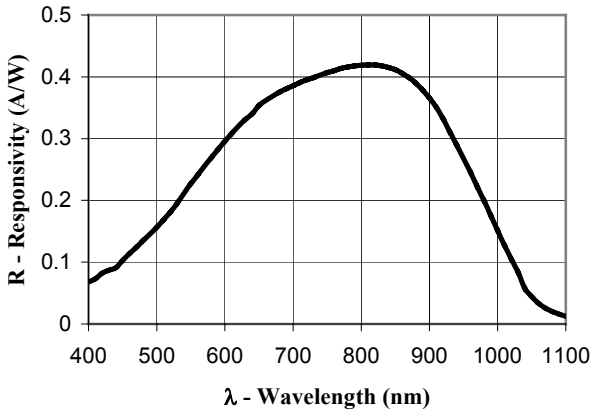

Figure 1 Responsivity vs Wavelength

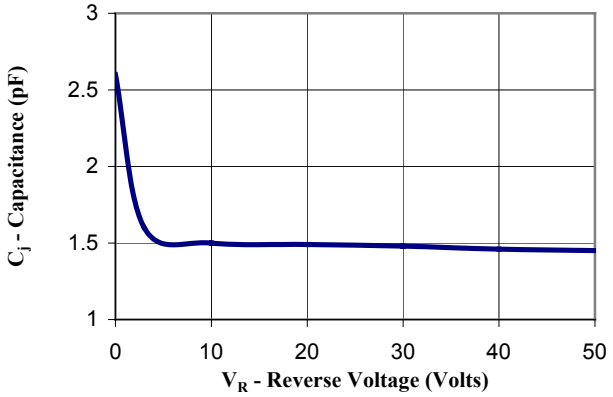

Figure 2 Capacitance vs Reverse Voltage

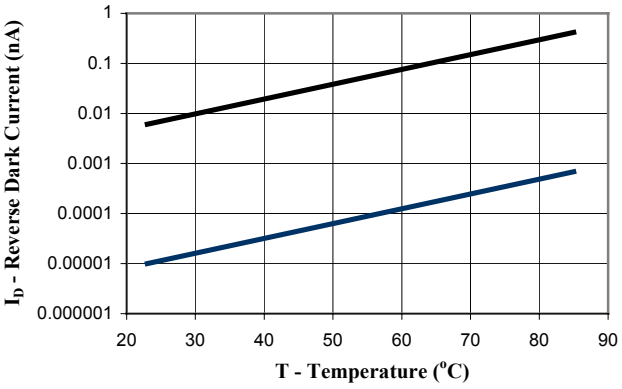

Figure 3. Reverse Current vs Temperature

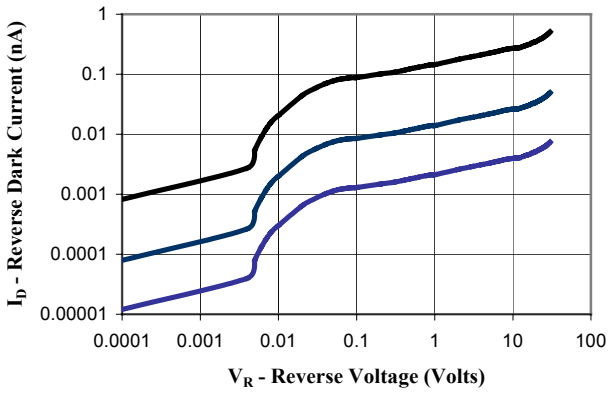

Figure 4. Reverse Current vs Reverse Voltage

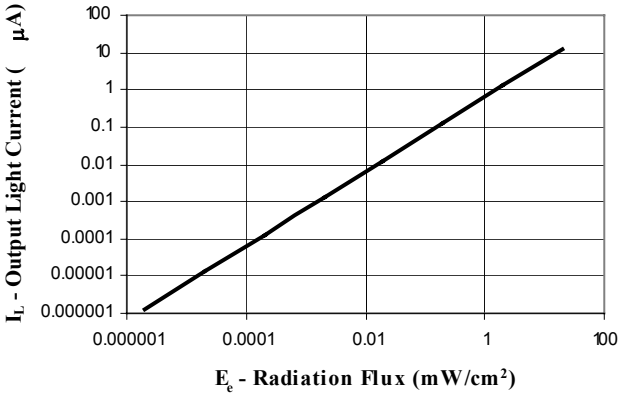

Figure 5. Light Current vs Irradiance @ λ = 950 nm

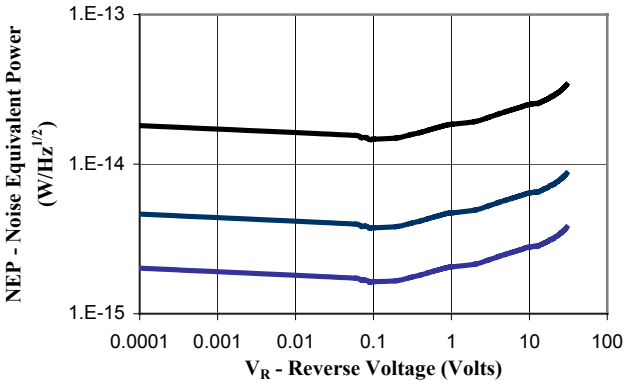

Figure 6 Noise Equivalent Power vs Reverse Voltage

Specifications are subject to change without notice. Please consult the website or factory for current information.

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