

Description

The SCA-005C is a high sensitive silicon PIN photodiode for use in low light applications 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-005C is housed in a hermetically sealed 2 pin TO-5 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

- Medical Analytical Instruments
- Optical Power Meters
- Densitometers
- Radiometers
- Optical Spectroscopy



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
- Fast Rise Time
- High Responsivity

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

DEVICE CHARACTERISTICS

characteristics specified at $T_A = 25^\circ\text{C}$

Mechanical Characteristics			
Active Diameter	d	0.10	Inches
Active Area	A	5.1	mm ²

Optical Characteristics			
Spectral Response	λ	320 to 1100	nm
Peak Sensitive Wavelength	λ_p	950	nm

Electrical Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Dark Current	I_D	$V_R = 1 \text{ mV}$ $V_R = 25 \text{ V}$		0.002 0.5	2.0 50	nA
Responsivity	R	$\lambda = 900 \text{ nm}$ $\lambda = 830 \text{ nm}$ $\lambda = 632 \text{ nm}$	0.5 0.45 0.25	0.62 0.57 0.35		A/W
Risetime	t_r	$V_R = 25 \text{ V}, R_L = 50 \Omega$		10	20	ns
Capacitance	C_j	$V_R = 25 \text{ V}, f = 1 \text{ MHz}$		10	15	pF
Reverse Breakdown Voltage	V_{BR}	$I_R = 10 \mu\text{A}$	50	100		V
Forward Voltage	V_F	$I_F = 1 \text{ mA}$		0.5	1.0	V
Shunt Resistance	R_{sh}	$V_R = 1 \text{ mV}$	10	200		M Ω
Series Resistance	R_S	$I_F = 10 \text{ mA}$		7.0	15.0	Ω
Noise Equivalent Power	NEP			2×10^{-14}		W/ $\sqrt{\text{Hz}}$

Package Specifications	
<p>Bottom View</p> <p>CATHODE/ CASE - 2</p> <p>1 2</p> <p>ANODE - 1</p>	<p>$\varnothing 0.200$ (5.08)</p> <p>Hole Size: 0.025 (0.64) Annular Ring: 0.015 (0.38)</p>
<p>0.500 (12.70)</p> <p>0.170 (4.32)</p> <p>0.018 (0.47)</p> <p>PIN DIAMETER</p> <p>0.080 (2.03)</p>	<p>$\varnothing 0.355$ (9.02)</p> <p>$\varnothing 0.320$ (8.13)</p> <p>$\varnothing 0.250$ (6.35) WINDOW</p>

CHARACTERISTIC CURVES

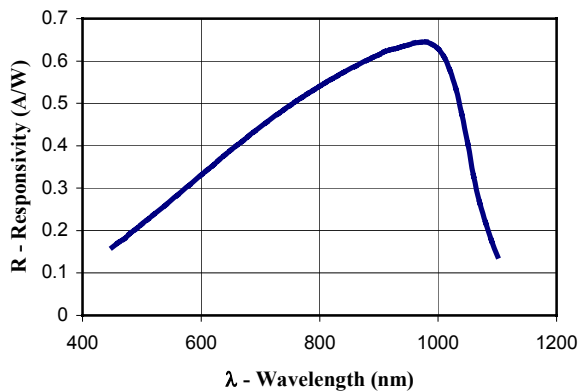


Figure 1 Responsivity vs Wavelength

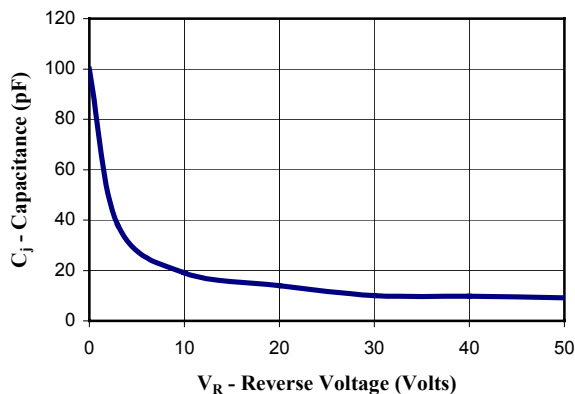


Figure 2 Capacitance vs Reverse Voltage

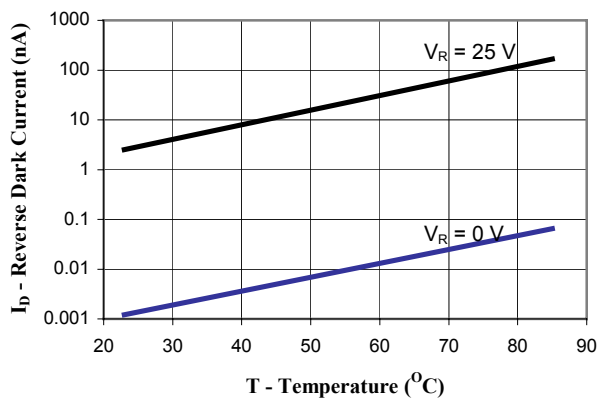


Figure 3. Reverse Current vs Temperature

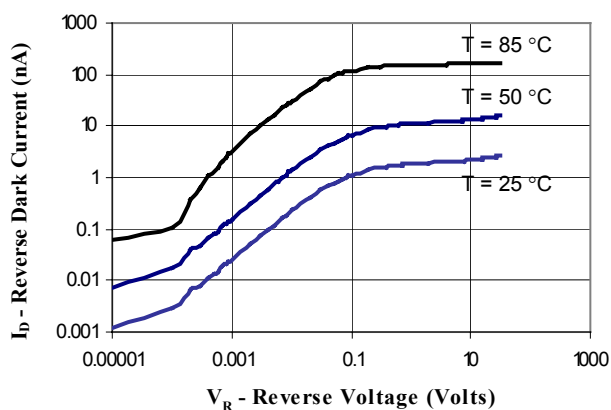


Figure 4. Reverse Current vs Reverse Voltage

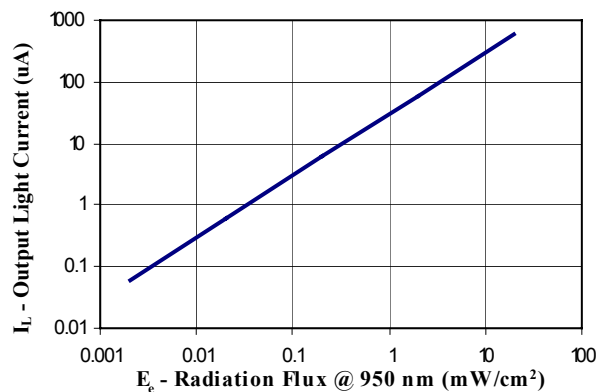


Figure 5. Light Current vs Irradiance @ $\lambda = 950 \text{ nm}$

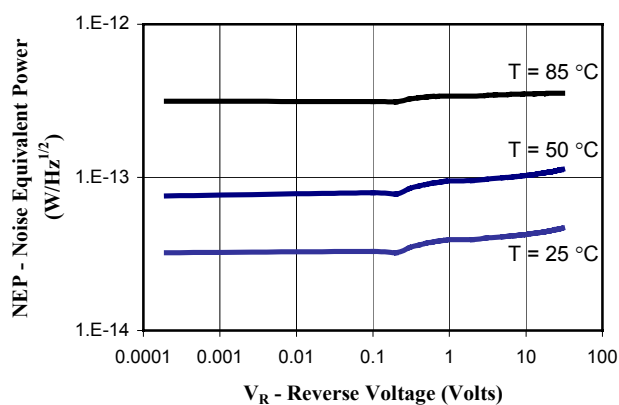


Figure 6 Noise Equivalent Power vs Reverse Voltage

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