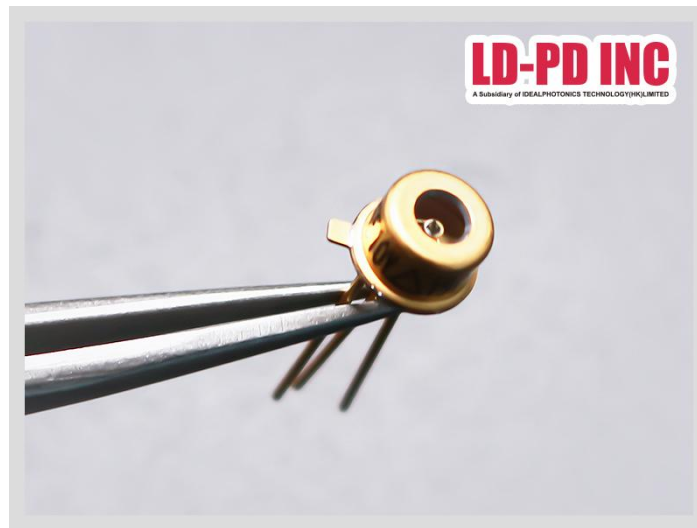


Φ1.8mm 905nm Silicon avalanche photodiode



Description

Si avalanche Photodetector module integrates low-noise APD detector, low-noise broadband transimpedance amplifier, ultra-low noise isolation power supply, high-voltage power supply; isolation power supply ensures that the output signal is not affected by external power supply; APD temperature compensation improves the stability of detection module. Avalanche photodetectors are characterized by high gain, high sensitivity, high bandwidth and low noise.

Features

- Top illumination planar APD
- High operation frequency, High multiplication gain
- Laser range finder, Laser alarming, RADAR, etc. application.

Application

- Optical Fiber Sensing
- Optical Fiber Communication
- Laser Ranging
- Spectrometry

E/O Characteristics

The opto-electronic characteristics (@Tc=22±3°C)

Parameters	Sym.	Test conditions	Min	Typ	Max	Unit
Response Spectrum	λ	—	400~1100			nm
Active diameter	φ	—	1800			μm
Responsivity	Re	$\lambda=905\text{nm}, \varphi_e=1\mu\text{w}, M=100$	50	55		A/W
Response time	Ts	$f=1\text{MHz}, \text{RL}=50\Omega, \lambda=905\text{nm}$		1.0		ns
Dark current	ID	M=100		3.0	8.0	nA
Total capacitance	Ctot	M=100, f=1MHz		8.0		pF
Reverse breakdown voltage	VBR	IR=10uA	120		220	V
Operating voltage temperature coefficient	δ	Tc=-40°C~85°C		1.1		V/°C

The absolute values

Operating voltage	0.95×VBR	Operating temperature	-50 ~ 85°C	Power dissipation	1mW
Forward current	1mA	storage temperature	-55 ~ 100°C	Soldering temperature(time)	260°C(10s)

The typical characteristic curve

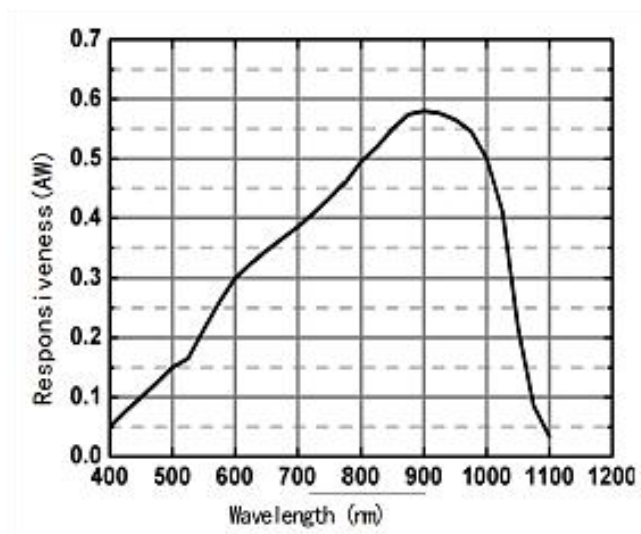


Figure1. Responsivity vs. Wavelength at 0v

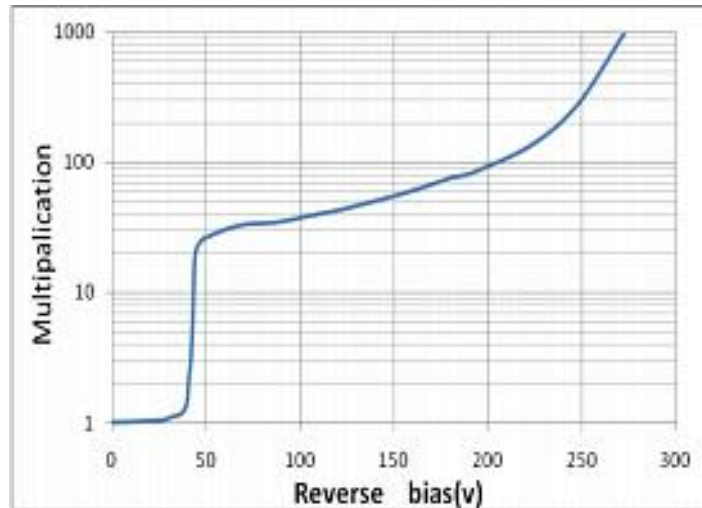


Figure2. Gain vs. UR/UBR

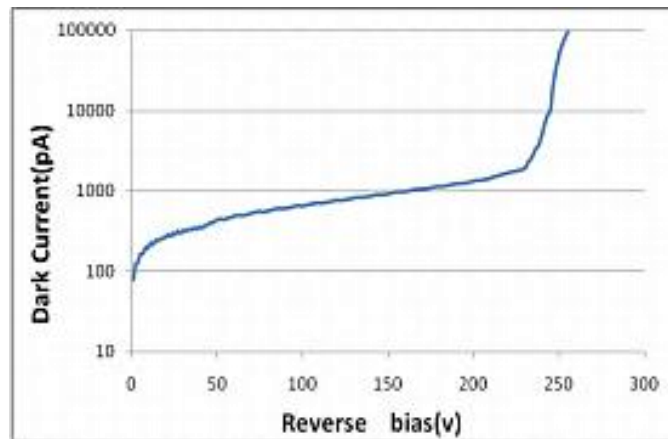


Figure3. Dark Current vs. UR/UBR

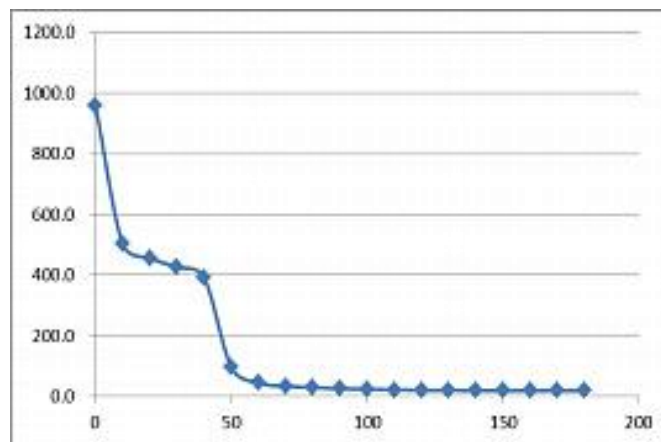


Figure4. Capacitance vs. Operating voltage

The application electric circuit

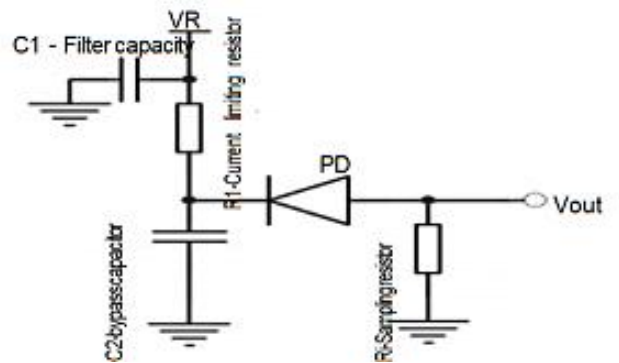


Figure5. Equivalent Circuit Diagram

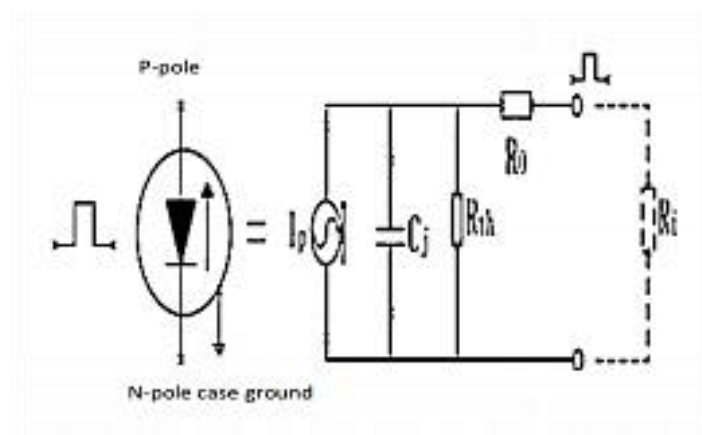


Figure6. optical Drawing

Note :

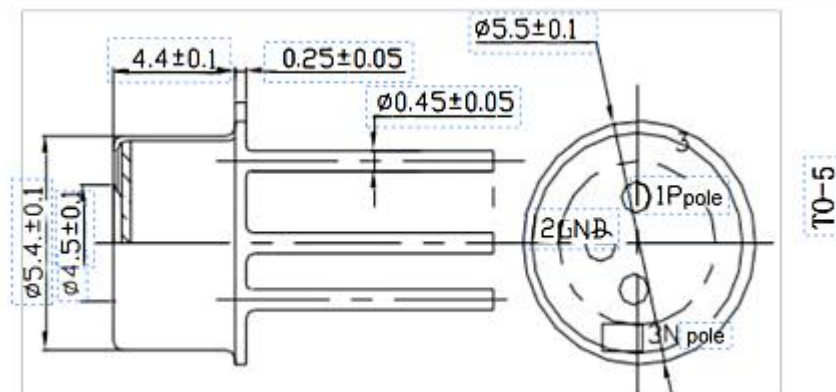
C1 - filter capacitor, mainly to filter out the noise of the bias working voltage VR;

C2 - bypass capacitor, mainly to provide a ground loop for the AC signal;

R1 - current limiting resistor, mainly to protect the detector from being damaged when the bias working voltage VR is too high;

Ri-sampling resistor, which converts the photocurrent into a voltage signal.

Dimensions and Pin definitions



The cautions

1. The suitable ESD protecting measures are recommend in storage, transporting and using.