Joinbon
PASSION FOR LIGHT DETECTION

Single Photon Detector

Low noise and easy to use

HIGHLIGHT FEATURES

- High sensitivity
- Significantly reduced dark count rate
- Low crosstalk, low afterpulse probability
- Excellent single photon counting capability
- High reliable metal package
- Low operating voltage

APPLICATIONS

- Fluorescence analysis
- Flow cytometry
- Scattered light detection
- DNA sequencing
- Laser confocal microscope
- Other low light detection

The Single photon detector employs refrigeration to reduce the temperature of the SiPM, which significantly reduces the noise of the SiPM, especially the dark count rate, which is less than 1/20 of the SiPM as it in the room temperature. There is an internal integrated cooling module, power module, temperature control module, signal acquisition and digitization modules in the Single photon detector, which reduces the noise and keeps the SiPM work stable, therefore it has excellent photon counting capability, make it suitable for dealing with very low light signals at single photon level.

Structural Parameters

Product	JPC-1050-TEC	Unit
Active Area	1mm×1mm	mm
Pixel Pitch	324	--
No. of Pixels	50	μm
Cover Material	glass	--
Cover Refractive Index	1.52@589nm	--
Module Dimensions	35mm×45mm×40mm	mm^3

Performance Parameters

Parameter		Value JPC-1050-TEC	Condition	Unit
Spectral Response Range		250-950	--	nm
Peak Sensitivity Wavelength		420	--	nm
PDE @420nm[2]		35%	Vov=2V	--
Rise Time		8	Vov=1V	ns
Dark Count Rate[4]	Typ.	3.3	@25℃ Vov=1V	kHz/mm^2
	Max.	7		
Crosstalk Probability		0.7%	Vov=1V	--
Afterpulse Probability		0.2%	Vov=1V	--

Electrical Parameters

	JPC-1050-TEC	Unit
Operating Voltage Range	5±0.1	V
Output Type	Analog signal	--
Single Photon Signal Amplitude @Vov=1V	Typ.: 55 Max: 60	mV

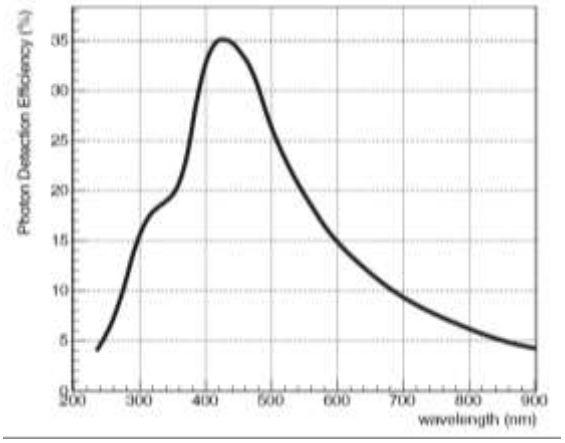
General Parameters

	JPC-1050-TEC	Unit
Storage Temperature Range	-20~+60	℃
Operating Temperature Range	-10~+40	℃

Performance Plots

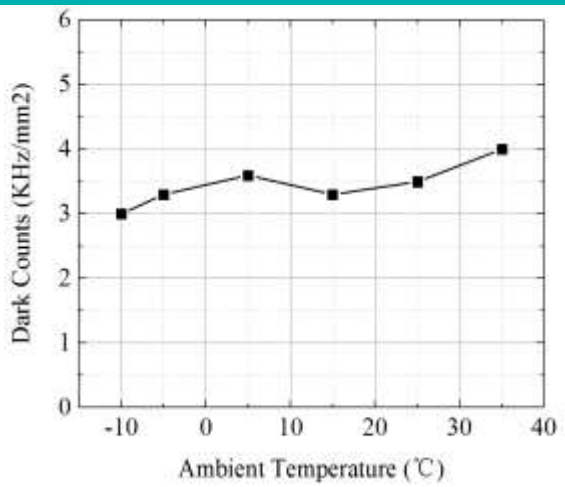
PDE versus Wavelength

JPC-1050-TEC



Dark Count Rate versus Ambient Temperature

JPC-1050-TEC



Connection Diagram

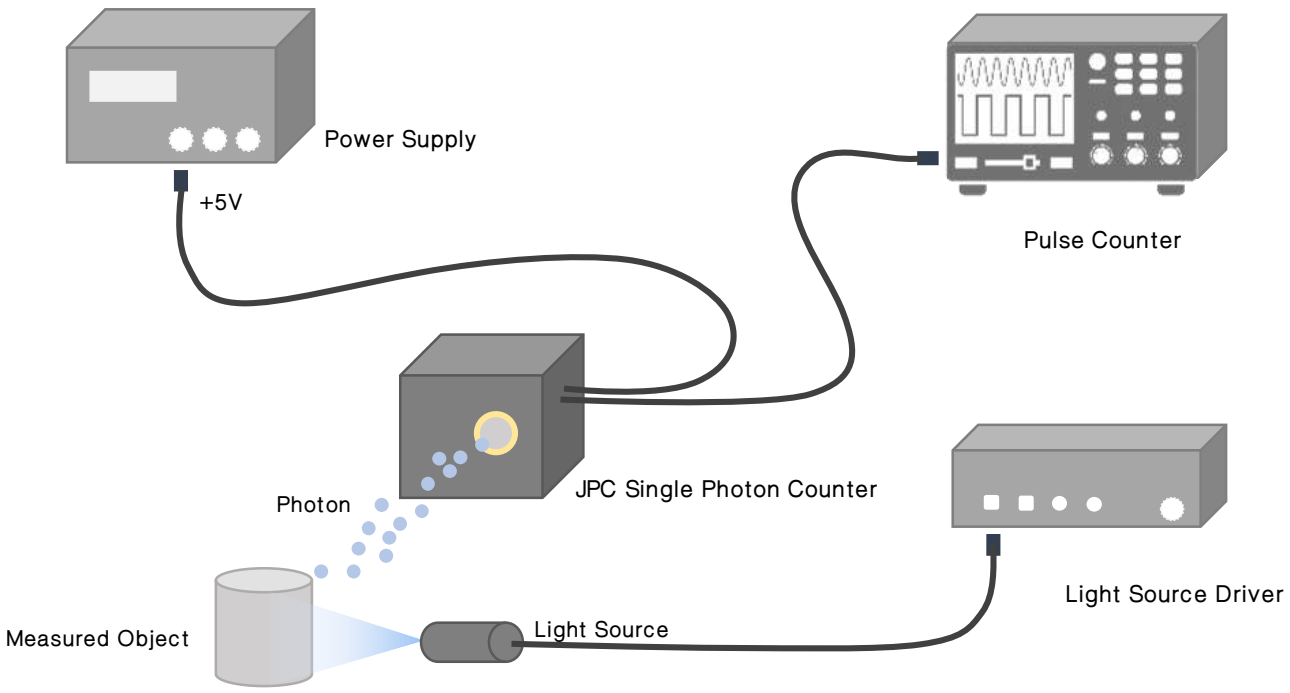


Figure3 Schematic diagram of single photon detector test system connection

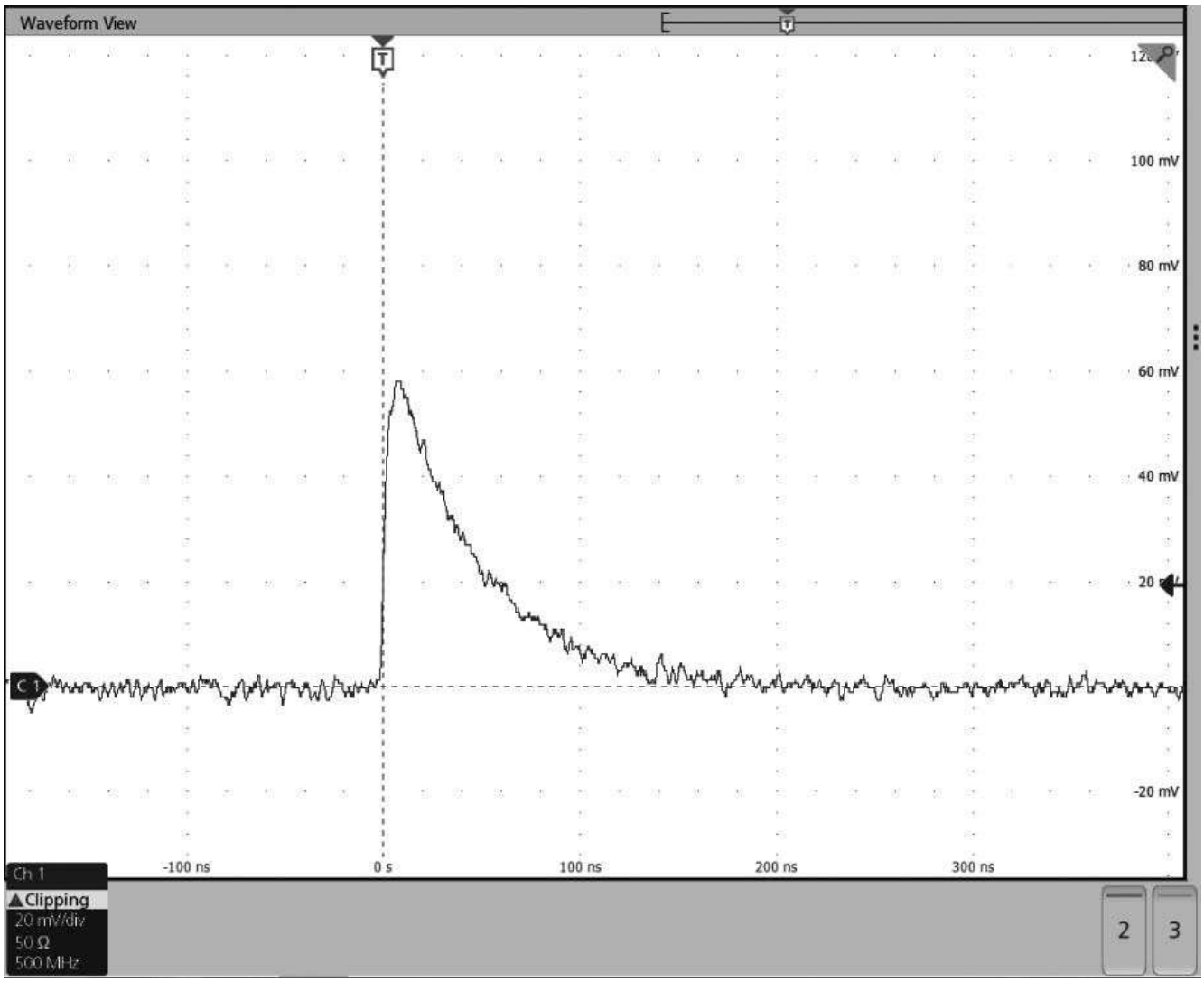
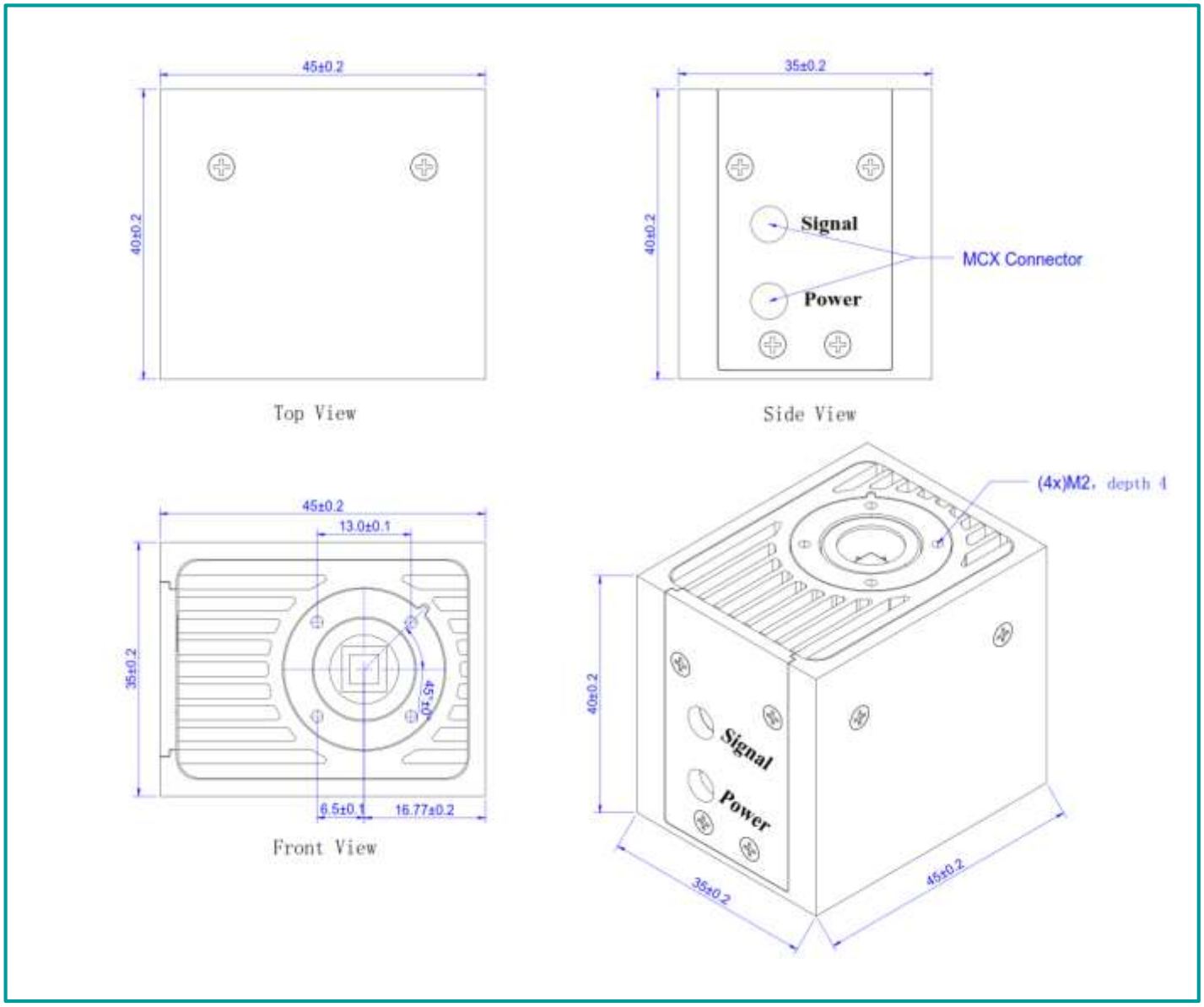


Figure 4 Single-photon signal output waveform (note that the oscilloscope should use a 50 Ω input load

Package Drawing

Unit: mm

JPC-1050-TEC package outline



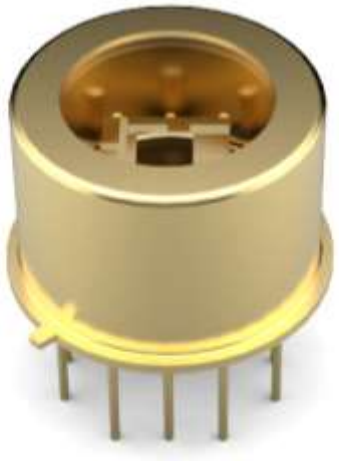
Note:

JPC pressure supply and signal output all use MCX connector, and the corresponding connector is MCX-J connector. For the accuracy of the test result, coaxial shielded wire should be used as the signal output line as much as possible.

Related Products

Thermoelectric Cooling SiPM (JSP-1050-TEC)

The cooling type SiPM uses a thermoelectric cooler to transfer the heat of the SiPM to the metal base, thereby lowering the operating temperature and reducing the dark count rate of the SiPM. A single-photon counter integrates a thermoelectric cooling SiPM, while the thermoelectric cooling SiPM is also sold as a stand-alone product, giving you different options. When used in small quantities, the single-photon counter is more convenient. When you need go to mass production, the thermoelectric cooling SiPM has a better cost advantage, which will be good choice.



- All specifications are subject to change without notice

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