



# Near Infrared Single Photon Detector (Module Type) STRSPD-305



**2023 V1**

For customized projects please Contact us:

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The STRSPD-305 series of near-infrared single photon detectors work in pulse gated mode. Extremely weak light detection module, SPAD based on InGaAs/InP process, can achieve single photon level.

Optical pulse detection and counting, with high detection efficiency, low dark counting rate, low post-pulse probability and other characteristics point. The module is small and beautiful, with a simple and easy-to-use interface. It uses the USB serial port as the host computer data.

The communication interface can also be used directly to detect the output pulse signal and be connected to the system or counter for use. Supports up to 100MHz external trigger frequency.

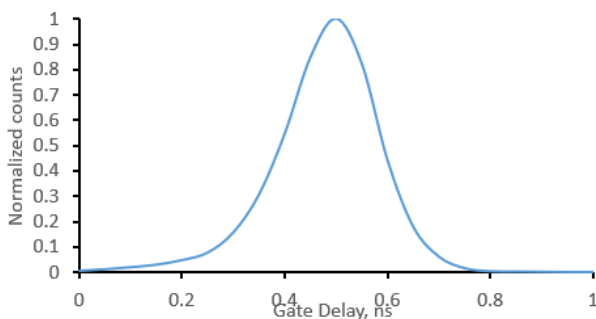


## Product Features

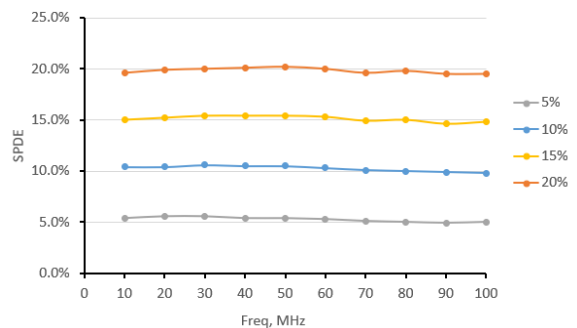
- Modular type, compact and beautiful, stable performance
- Maximum 100MHz gate repetition frequency
- Gate control synchronization output interface
- Extremely low dark count rate and post-pulse probability
- Up to 4 devices can work in cascade

## Application areas

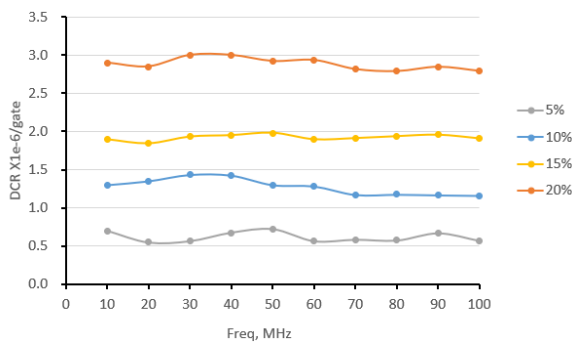
- Quantum optics, quantum secure communication
- Quantum imaging, quantum entanglement
- Photon number calibration of pulse light source
- Laser ranging, lidar (LIDAR)
- Fluorescence spectroscopy, time-resolved single molecule measurements



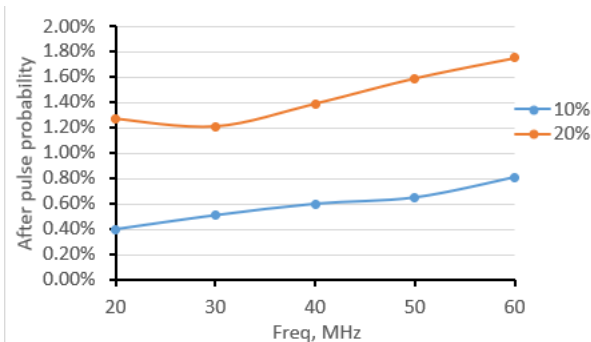
Effective gate width(Gate width = 1ns)



Detection efficiency vs gating frequency (SPDE=10%, 20% @ 1550nm)



Dark count rate vs gate frequency (SPDE=10%, 20% @1550nm)



Postpulse probability vs gating frequency (SPDE=10%, 20% @1550nm)

## Specifications

Technical Parameters	
Detection Wavelength Range	900~1700nm
Trigger Frequency Outside	0.1-100MHz
Gate width	1ns type.
Effective Detection Width[1]	230ps type.
Single Photon Detection Efficiency [2]	5%,10%,15%, 20% optional
Dark Count Rate	≤2e-6/gate @10%SPDE
Postpulse Probability	≤3% @10% SPDE
Cooling Time	≤5min
Other Parameters	
Recommended Operating Temperature [3]	-10~40°C
Extreme Operating Temperature [4]	-20~45°C
Voltage	11.5V~12.5VDC
Power Dissipation	Cooling maximum power consumption <36W
	Stable maximum power consumption <15W
Dimensions(WxDxH)	72.4 x 152x 57.5mm
Net Weight	0.8Kg

Note:

[1]The detection count drops to half of the photon count peak corresponding to the gated to photon relative time width.

[2] Single photon detection efficiency calibrated at 1550nm wavelength at room temperature 25°C.

[3] SPAD cooling works normally, and the photon count fluctuation range does not exceed 20% of the calibrated value.

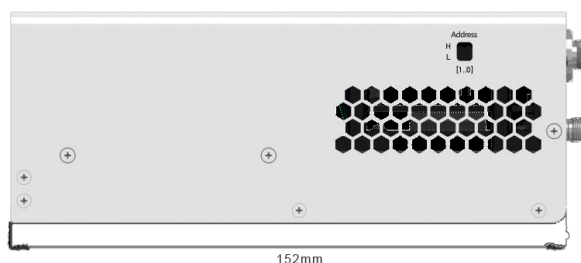
[4] SPAD cooling works normally, and the photon count fluctuation range does not exceed 50% of the calibrated value.

## Interface Definition

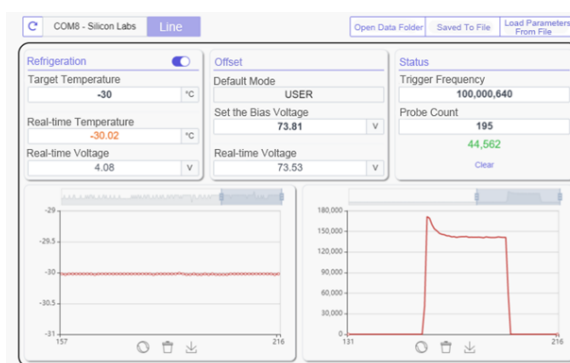
- **PWR/UART** power supply and communication cascade interface
- **USB** USB host computer communication interface
- **Status** status indicator light, red - cooling, green - cooling completed
- **FC/PC** Detection fiber input interface, FC/PC
- **DET OUT** detection output interface, LVCMOS level
- **AUX OUT** synchronization/auxiliary output interface, LVCMOS Level
- **TRIG IN** external gate trigger input interface, AC coupling 50y, 0.1~3.3Vpp input



## Product size (unit: mm)



## Software Interface



## Ordering Information

STRSPD-305: Near-infrared single photon detector (module type)

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