

950-1650nm InGaAs Single-Photon Array Detector component



● Product Description

The MP6514S detector module consists of 4x4 arrayed InGaAs Single-Photon Avalanche Diodes (SPADs), which are interconnected with CMOS main and passive quenching circuit chips. It also includes a voltage inverter module, a cooling module, and a signal control module. In Geiger mode, each pixel of the detector operates independently, detecting weak light signals in the near-infrared range of 0.95~1.65 μm , and outputs TTL signals in real time.

● Part Number

MP6514S

● Product features

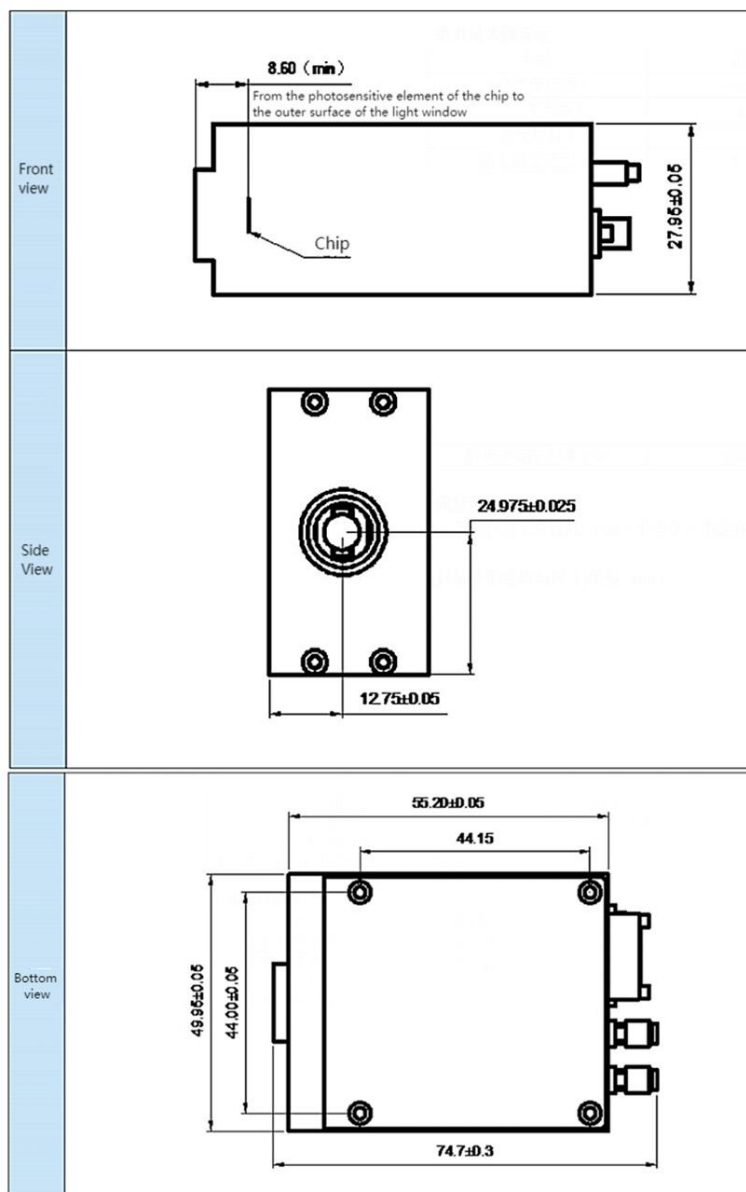
Spectral response band: 0.95 ~ 1.65 μm 、 Metal packaging, light and compact design、 Independent pixel operation、 Pixels can detect weak photon signals、 Dead time and Geiger avalanche signal detection threshold are adjustable

● Application area

Distance measurement through fog, haze, smoke, etc、 Near-infrared laser alarm、 Long-range laser distance measurement、 Long-range space laser communication

Parameters

Dimensional Drawing



Detector array specifications

	Performance Description
Device Type	InGaAsAPD
Array Size	4x4
Pixel Size	100 μ m x 100 μ m
Photosensitive Area Size [1]	85 μ m x 85 μ m
Optical Window	Quartz Optical Window
Distance from Photosensitive Target Surface to Outer Surface of Optical Window	4mm (Optical Window Thickness: 1mm)

Note [1]: The focal length of the integrated micro-lens is 150 μ m.

Main Performance Indicators (Tc=22 +3° C):

Characteristic Parameters	Parameter Indicators
Working Wavelength[1]	0.95 ~ 1.65 μ m
Detection Efficiency	$\geq 10\%$ (1.57 +0.05 μ m)
Dark Count Rate	≤ 10 KHz
Time Jitter	≤ 500 ps
Dead Time	100 ~ 1000ns adjustable
Effective Pixel Rate	100%

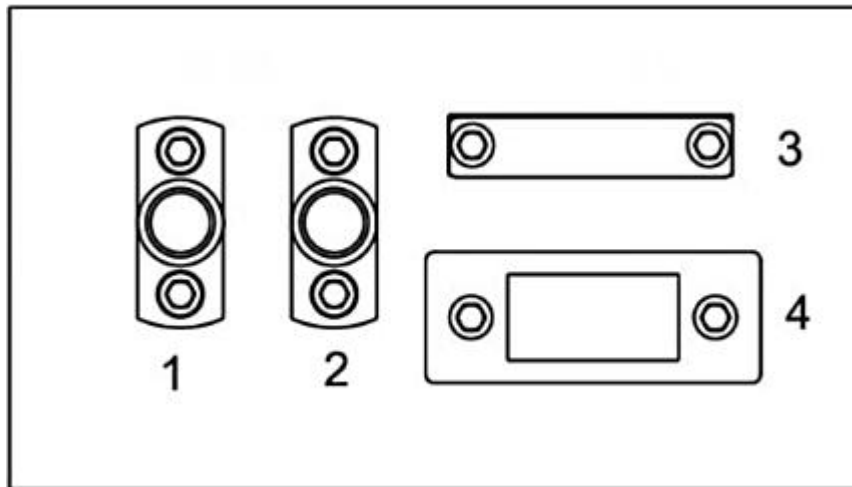
Absolute Maximum Ratings

Parameters	Rated Value	Unit
Operating Temperature Range (Tc)	-40 ~ +55	° C
Storage Temperature Range (TSTG)	-40 ~ +70	° C
Maximum Power Dissipation (P)	15	W
Input Bias Voltage Range (VR)	4.9 ~ 5.5	V
Electrostatic Discharge Sensitivity (ESD)	1000 ~ 2000	V

Quality and Reliability Assurance

The product complies with the relevant requirements of GJB8121-2013 "General Specifications for Semiconductor Photonic Components."

Electrical Interface



- Power Input: +5V
- Data Output Type: TTL
- Control Command Interface: J63A-31
- Power Input Interface Type: J30J
- Data Output Interface Type: J63A-31
- External Trigger Interface: SSMA

Interface Number	Function
1	SSMA-1: Internal synchronization signal output
2	SSMA-2: External synchronization signal input
3	J63A-31: Output signal port and detector working setting input signal port
4	J30J: +5V single power supply input