

# 950-1650nm InGaAs Single-Photon Array

## Detector component



- **Product Description**

The MP-LTD-M-I-9V-4x4 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  $\mu\text{m}$ , and outputs TTL signals in real time.



## ● Product features

Spectral response band: 0.95 ~ 1.65  $\mu\text{m}$ 、 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

## ● Part Number

MP-LTD-M-I-9V-4x4

## ● Application area

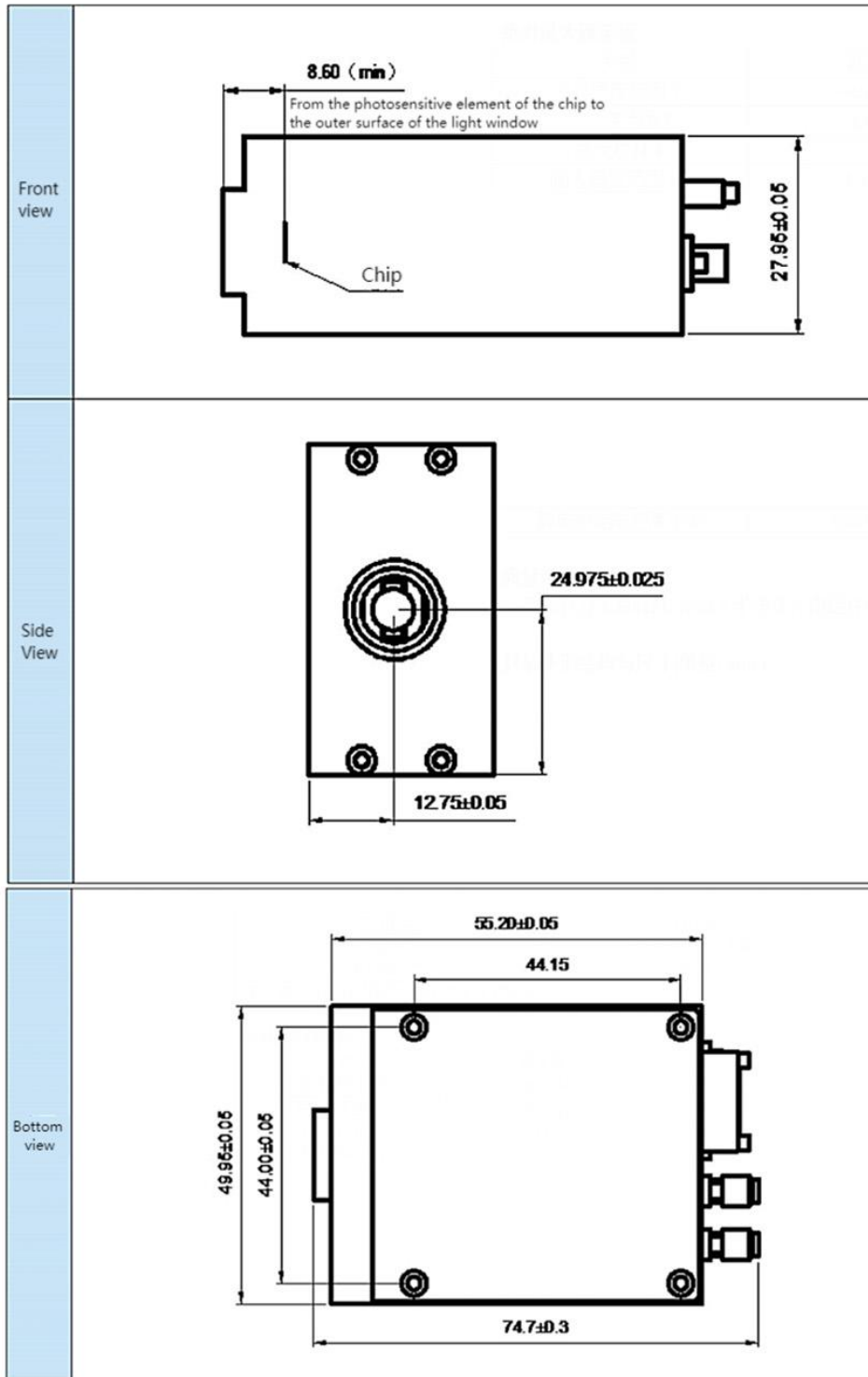
Distance measurement through fog, haze, smoke, etc、 Near-infrared laser alarm、 Long-range laser distance measurement、 Long-range space laser communication

## ● Core parameters

Working Wavelength	Array Size	Pixel Size
0.95 ~ 1.65 $\mu\text{m}$	4x4	100 $\mu\text{m}$ x 100 $\mu\text{m}$



● Dimension Drawing



## ● General Parameters

### Detector array specifications

	Performance Description
Device Type	InGaAsAPD
Array Size	4x4
Pixel Size	100μm x 100μm
Photosensitive Area Size <sup>[1]</sup>	85μm x 85μm
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 150μm.

### Main Performance Indicators ( $T_c=22 \pm 3^\circ\text{C}$ ):

Characteristic Parameters	Parameter Indicators
Working Wavelength[1]	0.95 ~ 1.65μm
Detection Efficiency	≥10% ( 1.57 +0.05μm)
Dark Count Rate	≤10KHz
Time Jitter	≤500ps
Dead Time	100 ~ 1000ns adjustable

Effective Pixel Rate	100%
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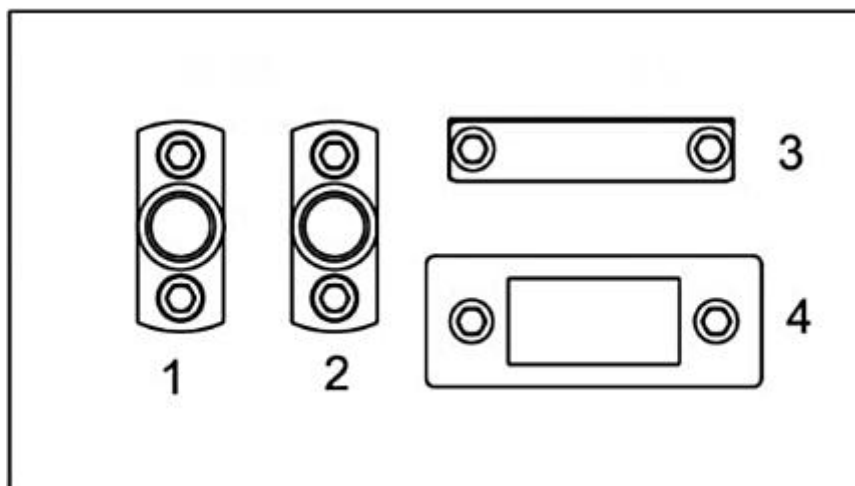
## Absolute Maximum Ratings

Parameters	Rated Value	Unit
Operating Temperature Range ( $T_c$ )	-40 ~ +55	°C
Storage Temperature Range ( $T_{STG}$ )	-40 ~ +70	°C
Maximum Power Dissipation (P)	15	W
Input Bias Voltage Range ( $V_R$ )	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	<b>SSMA-1: Internal synchronization signal output</b>
2	<b>SSMA-2: External synchronization signal input</b>
3	<b>J63A-31: Output signal port and detector working setting input signal port</b>
4	<b>J30J: +5V single power supply input</b>