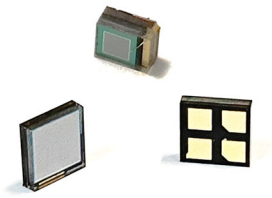
EQR10 Series SiPMs



For a conventional SiPM, the quenching resistors are usually fabricated on the surface, and used to connect all APD cells to trace metal lines. In contrast, NDL SiPM employs intrinsic epitaxial layer as the quenching resistors (EQR), and uses a continuous silicon cap layer as an anode to connect all the APD cells. As a result, the device has more compact structure and simpler fabrication technology, allows larger micro cell density (larger dynamic range) while retaining high photon detection efficiency (PDE).

Features

- Small Cell and Pitch
- High Cell Density and Fill Factor
- Large Dynamic Range and High PDE
- Fast Rise Time and Narrow Pulse Width
- Short Recovery Time and High Time Resolution
- Small Terminal Capacitance and Cost Effective

Applications

- High Energy Physics
- Fluorescence Measurement
- Nuclear Medical Imaging (PET, SPECT, CT)
- Radiation Detection and Imaging
- Optical Spectroscope
- Other Low Level Light Detection

Specifications

Type	EQR10 11-1010C-S	EQR10 11-3030C-S/E
Pitch	10 μm	
Active Area	1.0×1.0 mm^2	3.0×3.0 mm^2
Micro-cell Number	10000	90000
Breakdown Voltage (V_B)	26.4±0.4 V	26.4±0.4 V
Temperature Coefficient for V_B	21 mV/°C	21 mV/°C
Recommend Operation Voltage	V_B+6 V	V_B+6 V
Peak PDE @420nm	32%	32%
Gain	2×10^5	2×10^5
Dark Count Rate (DCR)	500 kHz	6000 kHz
Single Photon Time Resolution (SPTR)	70 ps	200 ps
Terminal Capacitance	7 pF	55 pF

Above parameters are measured at overvoltage 6 V and 20 °C. The devices can operate at 77 K.

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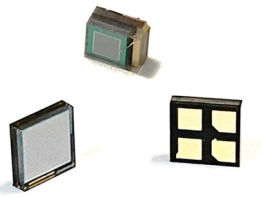
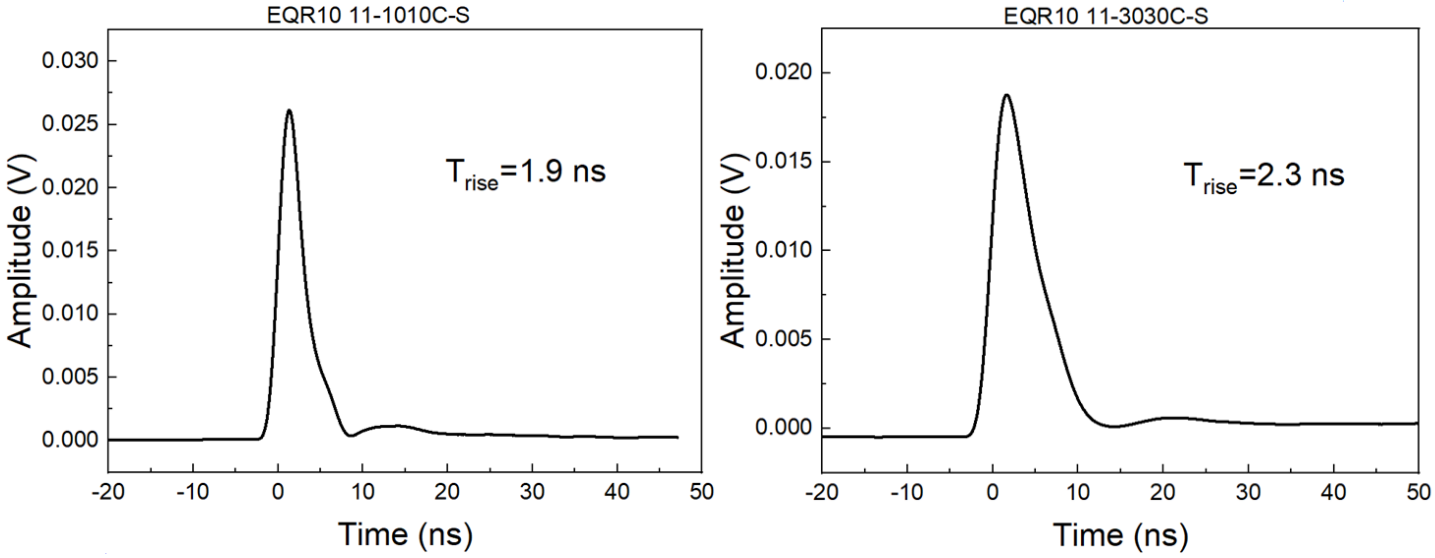
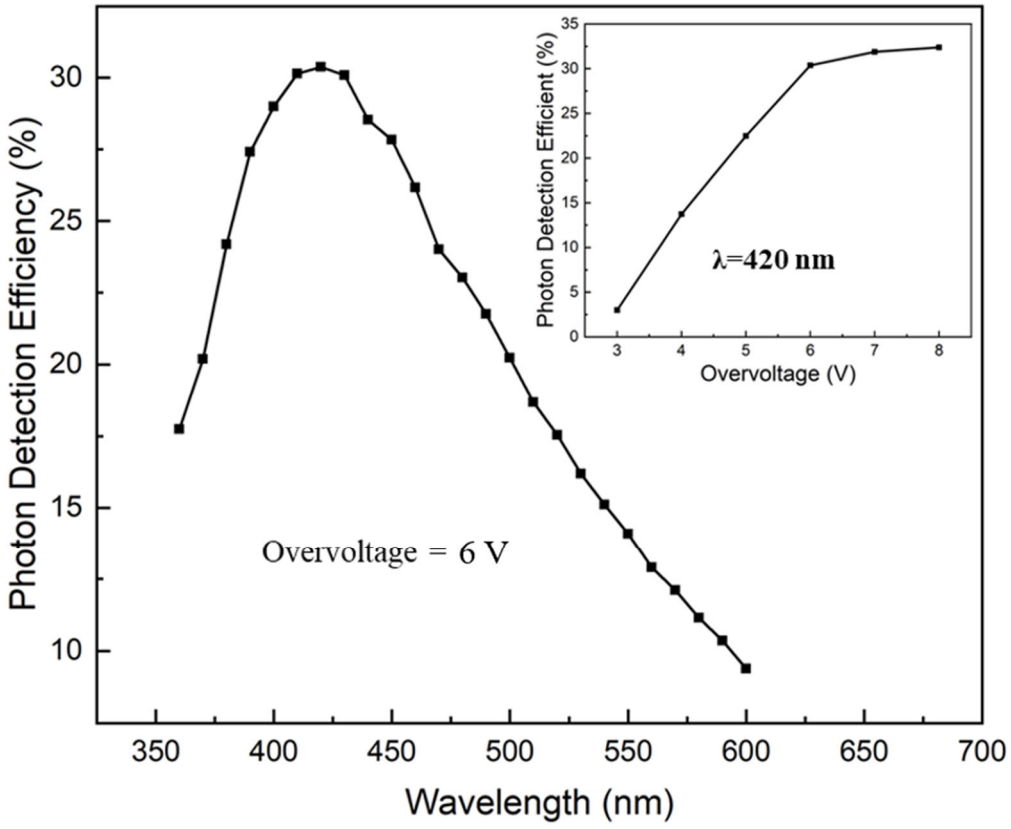
EQR10 Series SiPMs



Characteristics



The single photoelectron pulse (amplified by a 100-time fast amplifier).



The PDE versus overvoltage and wavelength, measured at 20 ℃ containing afterpulse and crosstalk.

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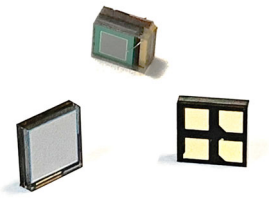
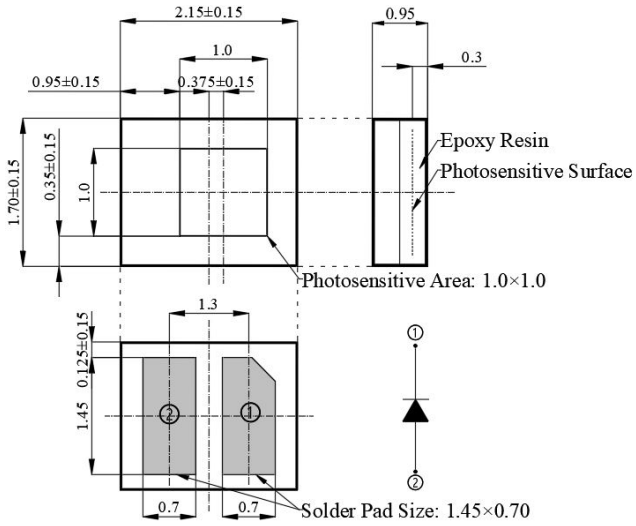
EQR10 Series SiPMs



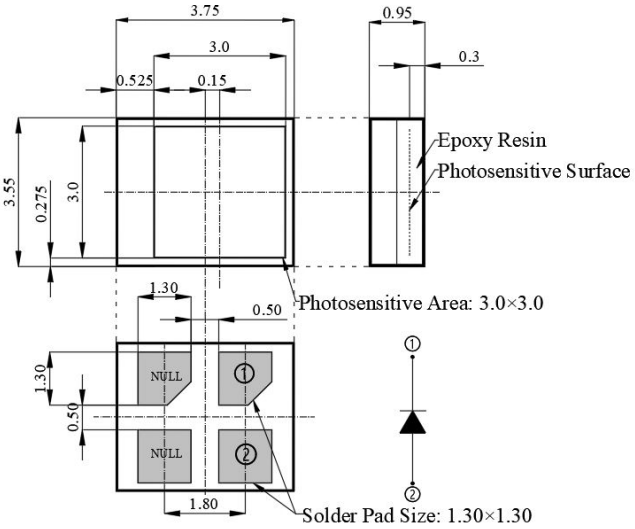
Dimensional outlines (unit: mm)

EQR10 11-1010C-S



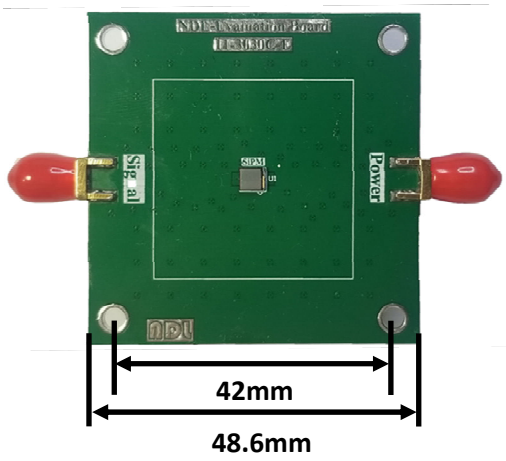
*Tolerance unless otherwise noted:±0.10

EQR10 11-3030C-S

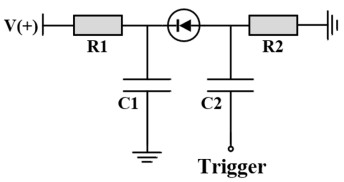


*Tolerance unless otherwise noted:±0.10

EQR10 11-3030C-E



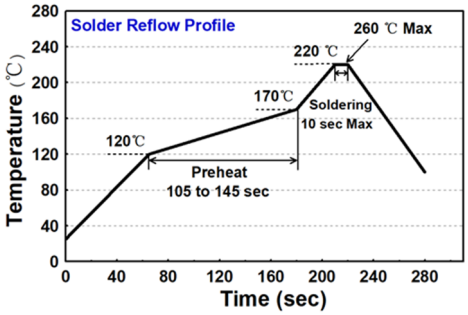
Remark



R1-2=10 kΩ; C1=100 nF, C2=10 nF.

Power port : supply operation voltage

Signal port : output signal of the corresponding anode



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