EQR20 Series SiPMs

Specifications subject to change without notice

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**

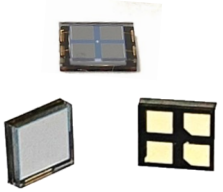
Applications

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

Specifications

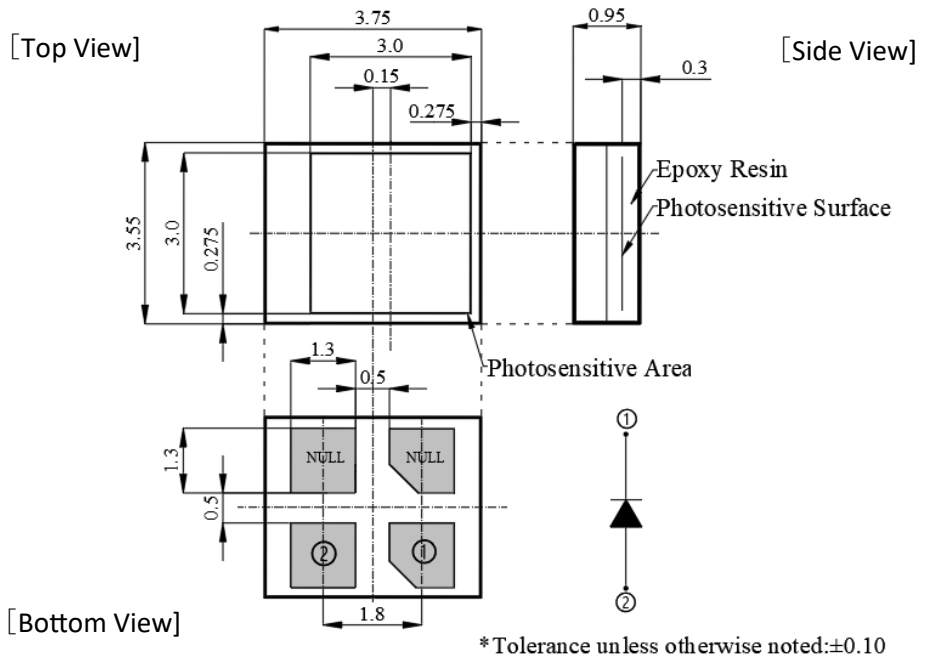
Type	EQR20 11-3030D-S	EQR20 11-6060D-S
Effective Pitch	20 μm	
Element Number	1×1	
Active Area	3.00×3.00 mm^2	6.24×6.24 mm^2
Micro-cell Number	2500 /mm^2	
Typical Breakdown Voltage (V_B)	27.5 V	
Temperature Coefficient for V_B	24 mV / ℃	
Recommended Operation Voltage	V_B + 5 V	
Peak PDE @ 420nm	46 %	
Gain	8.2 × 10^5	
Dark Count Rate（DCR）	150 kHz / mm^2	

Above parameters are measured at their recommended operation voltage and 20 ℃，and they can operate at 77 K.

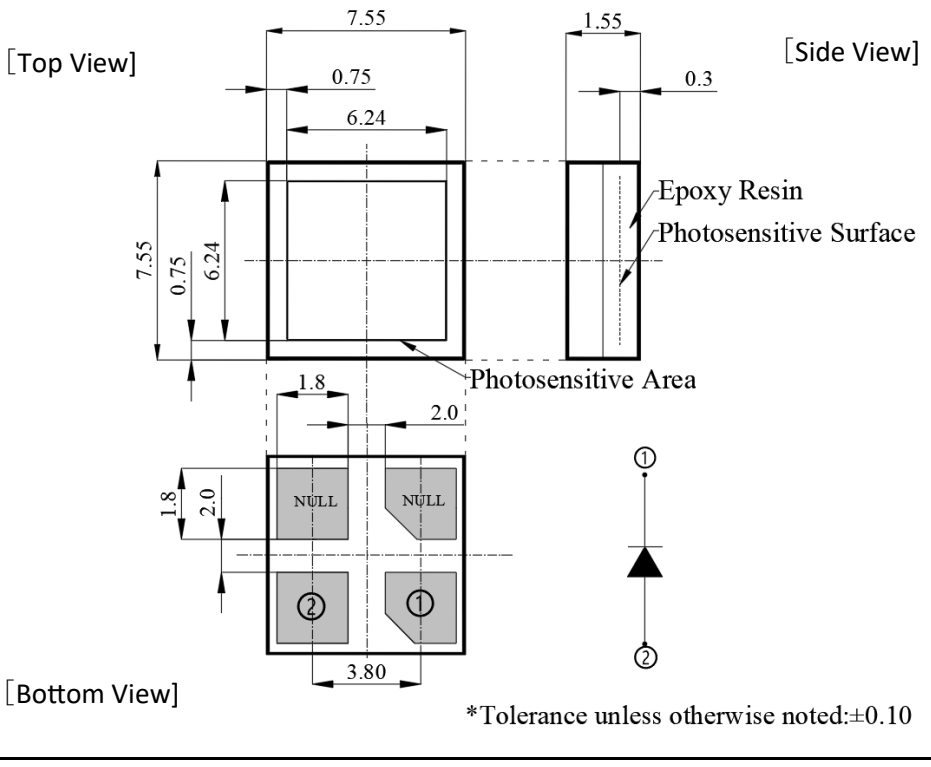


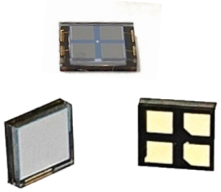
Dimensional outlines (unit: mm)

EQR20 11-3030D-S

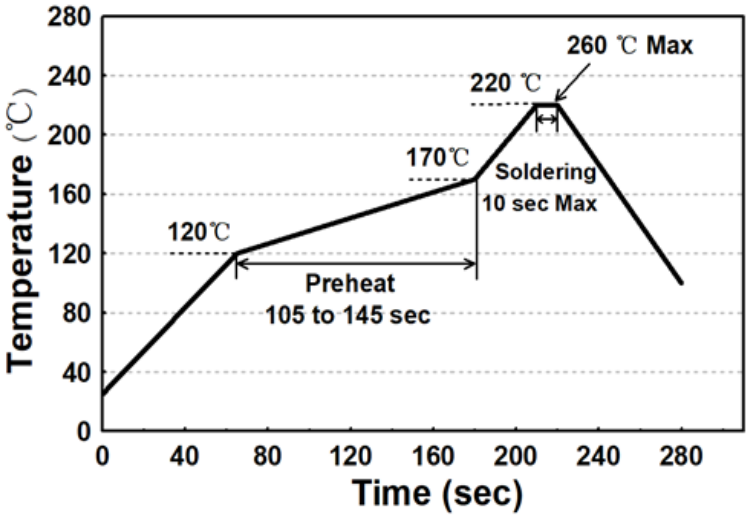


EQR20 11-6060D-S

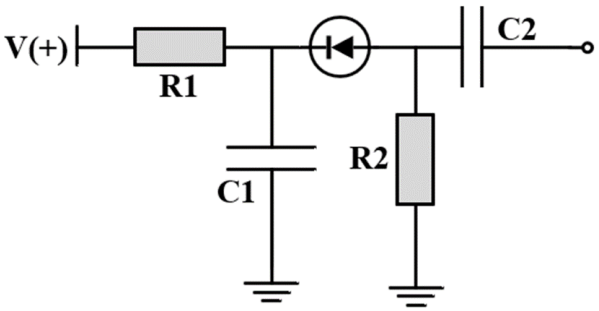




Recommended Solder Reflow Conditions



Basic Connection Diagrams



R1 = 10 kΩ
R2 = 1 kΩ
C1 = 100 nF
C2 = 10 nF