

Guidelines for the Use of Scintillators with the J-Series Arrays



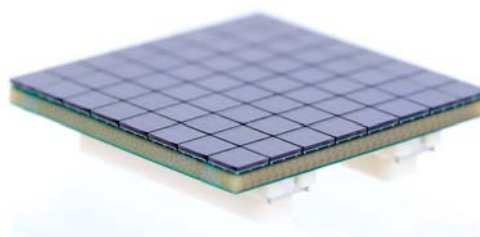
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HANDLING

- Remember that the SiPM is a sensitive optoelectronic device and should always be handled as carefully as possible.
- Physical contact with the sensor should be minimized during assembly and ON Semiconductor recommends the use of automatic assembly directly from reels.
- Contact with the sensitive surface, which is glass, should be avoided. In particular, care should be taken to avoid contact with abrasive materials.
- When unpacking, care should be taken to prevent dropping or misorienting the sensors.
- SiPM sensors are ESD sensitive. The following precautions are recommended:
 - ♦ Ensure that personal grounding, environmental controls and work surfaces are compliant with recommendations in JESD625.
 - ♦ Ensure that all personnel handling these devices are trained according to the recommendations in JESD625.
 - ♦ Devices must be placed in an ESD approved carrier during transport through an uncontrolled area.
- The sensor should be disconnected from the bias supply when not in use.
- The sensors should not be load bearing.

APPLICATION NOTE



SCINTILLATOR COUPLING

The bonding of the TSV components to a scintillator crystal should be a permanent arrangement regardless of the adhesive used. If the scintillator crystal needs to be recoupled multiple times, it is recommended that optical grease is used as the coupling medium.

Remember that the sensor covering is glass, and excessive force should not be used during coupling.

SCINTILLATOR DECOUPLING

If optical grease has been used for the coupling, and the scintillator needs to be removed, the user should carefully slide the scintillator off of the array. The scintillator should never be pulled upwards away from the sensor, as the forces involved are sufficient to weaken the interface bond between the silicon and glass. Please refer to the diagrams in Figures 1 and 2.

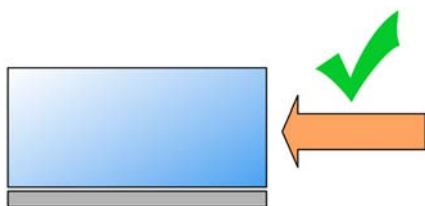


Figure 1. Carefully slide the scintillator off of the sensor using gentle sideways force.

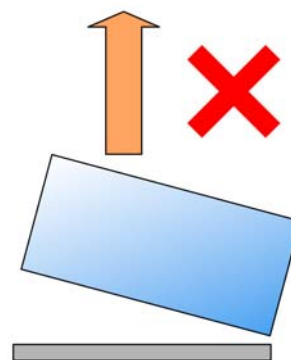
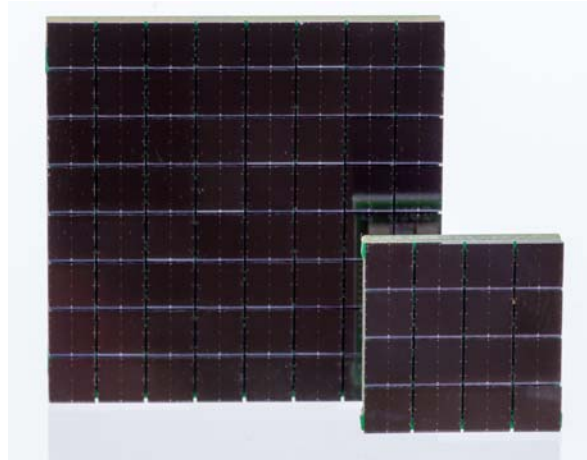



Figure 2. Never remove the scintillator by pulling upwards.

CLEANING

Isopropyl alcohol (propan-2-ol) in concentrated form can be used for cleaning of the J-Series TSV sensors.



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