

Processing of SMD LEDs

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Processing of SMD LEDs

Abstract: This application note provides an overview of handling and processing for CrayoNano's LEDs. These recommendations are best practices based on industry-standard processes. Processes and parameters still need to be tested in the user's procedures.



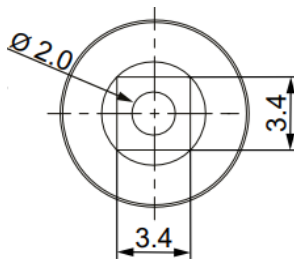
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1. Pick-and-place process

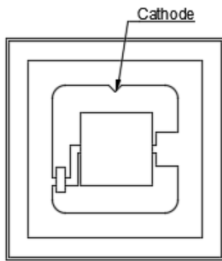
Our SMD Devices are designed for automated pick and place process. CrayoNano's LEDs are covered with quartz glass. Therefore, an appropriate nozzle with a soft rubber tip should be used to grab the LEDs out of the reel. The nozzle tip should be clean and free of any contaminations since it will be in contact with the area over the LED package during the pick-and-place process. We recommend a similar nozzle design as shown below. Please test process compatibility.

Nozzle design

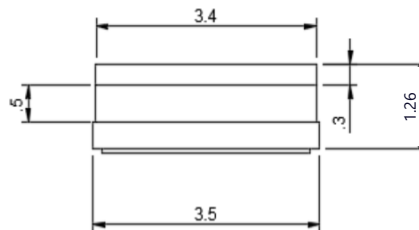


2. Mechanical dimensions (Unit: mm, Tolerance: ± 0.2)

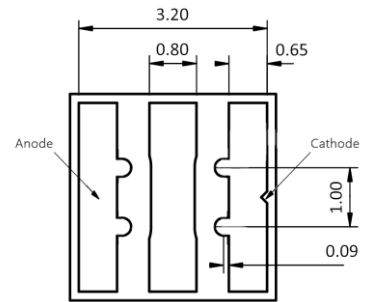
LED frontside view



LED sideview



LED backside view

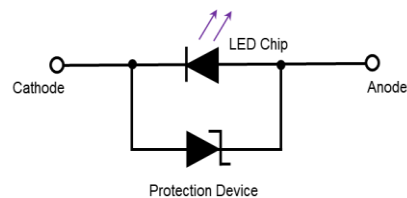


Center pad: Thermal pad

DETAILS:

- Substrate Material: AlN
- Glass Window Material: Quartz
- Electrodes Materials with Au-finish
- Electrodes Thickness: 0.05mm
- Weight: 37 mg

Packaged LED Circuit

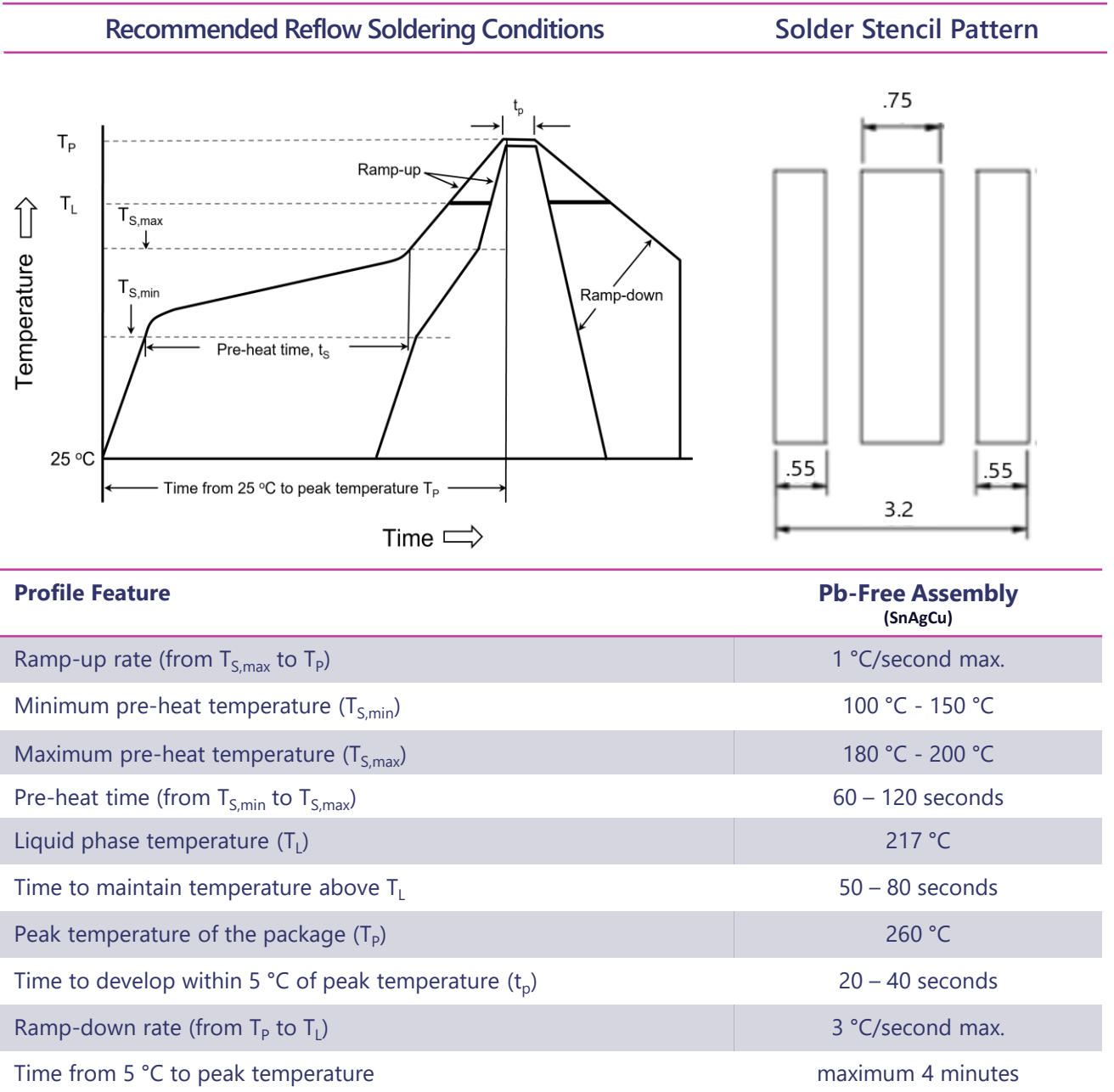


All characteristics shown are for reference only and are not guaranteed.

3. Recommended Soldering Guidelines

Reflow soldering is the recommended method for assembling LEDs on a circuit board.

Product complies with MSL 3 acc. to JEDEC J-STD-020E.



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Recommended Soldering Guidelines

- CrayoNano UV-C LEDs are generally compatible with industry-standard SMT mounting methods.
- We recommend strict adherence to the "Recommended Reflow Soldering Conditions" shown on page 5 for soldering.
- A temperature-controlled convection oven with a Nitrogen atmosphere is recommended for best results.
- Suitable materials for reflow compatibility should be tested; examples of possible materials are printed circuit board (PCB) or metal-core PCB.
- After opening the Aluminium ESD protective bag, LEDs should be soldered within 24 hours.
- We do not recommend reflow-soldering UV-C packages more than once or re-working already-mounted UV-C LED packages as this increases the risk of damaging the LEDs.
- Please ensure that the surface the UV-C LEDs are mounted on is flat to ensure optimal LED adhesion and soldering quality.
- We do not recommend applying pressure or force on top of the UV-C LEDs while they are hot or are being reflow-soldered.
- Appropriate non-metallic nozzles that will not scratch the top surface of the UV-C LEDs need to be properly selected to avoid damage during the pick-and-place process.
- Manual mounting of the UV-C LEDs using a soldering iron or hot plate is not recommended.

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