

QS518

Solder Profile and Stencil Design

Application Note

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1. Overview

This document describes the stencil design and solder profiles for QS518 QFN package devices from Quorum Systems.

2. Stencil Design

Stainless steel stencils are recommended for solder paste application. A stencil thickness of 0.125 mm - 0.150 mm (0.005" - 0.006") is recommended for screening. For improved paste release, the aperture walls should be trapezoidal and the corners rounded. Solder paste should be printed on the PCB thermal land by designing an array of smaller openings that sum up to ~50% of the LPCC thermal pad area (see illustration below). The shape of the smaller stencil openings is optional.

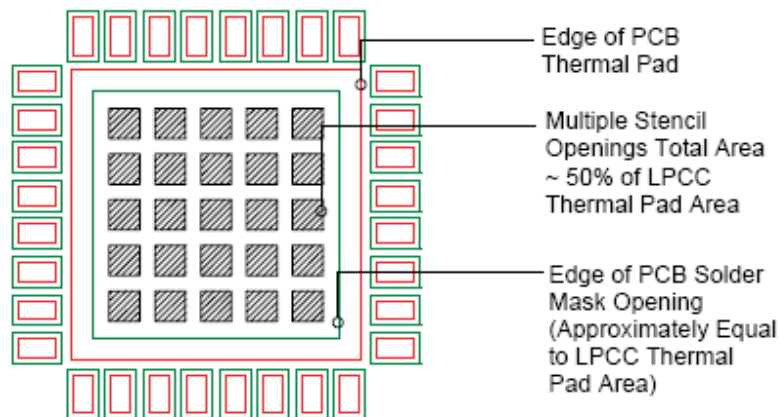


Figure 1 Stencil Design

3. Solder Paste

No-clean paste is recommended for assembling the LPCC to the PCB, due to its low standoff and small pad openings. Upon receipt from the supplier, solder paste shall be stored and handled according to the paste manufacturer's recommendations.

4. Reflow Profile

The LPCC packages are attached to the PCB by infrared or convection mass reflow techniques as part of standard SMT processing. Thermal profiling of the convection / IR reflow machine is required for each product design.

- For 63Sn/37Pb solder, the reflow temperature shall not exceed 240°C with time above liquidus temperature (183°C) of 45 seconds minimum.
- For Pb-free solder, the reflow temperature shall not exceed 260°C with time above liquidus temperature (217°C) of 45 seconds minimum.
- Standard CDA atmosphere is acceptable but the use of nitrogen is recommended.
- The airflow may need to be reduced in some cases to prevent lightweight parts from shifting or being blown off

and the temperature adjusted accordingly to maintain the reflow profile. • Do not exceed the maximum motherboard temperature recommended by the supplier.

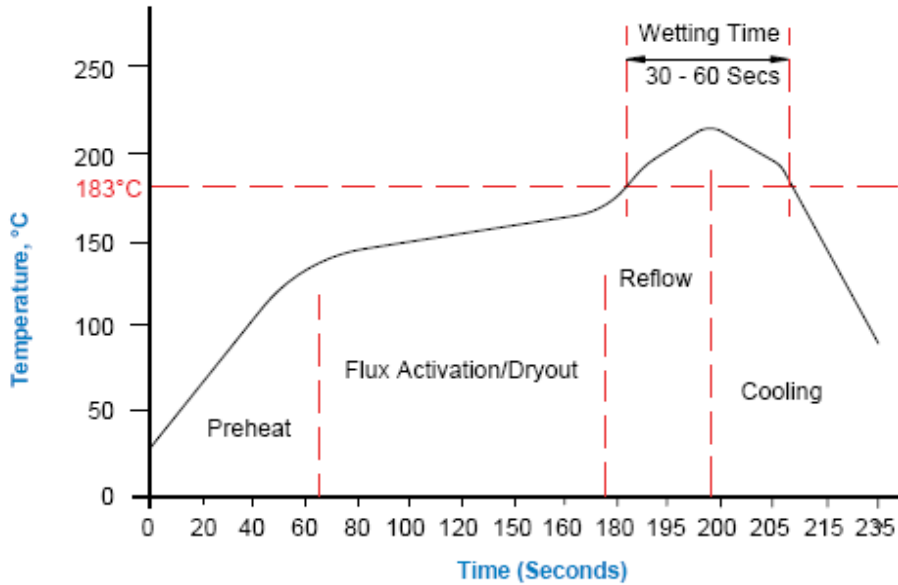


Figure 2 Eutectic Solder Reflow Profile

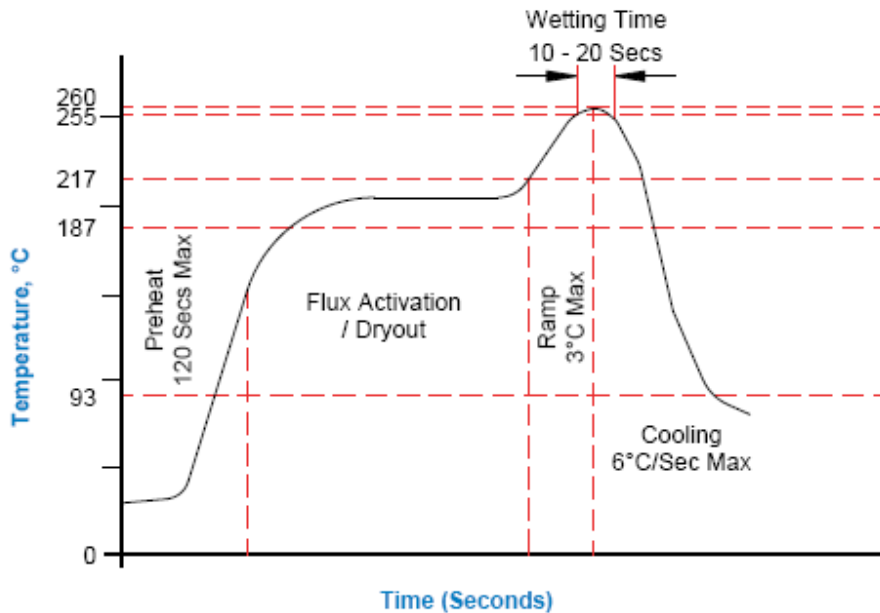


Figure 3 Pb-free Solder Reflow Profile

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