

QS518 Solder Profile and Stencil Design

Application Note



Table of Contents

1.	Overview	. 3
	Stencil Design	
	Solder Paste	
	Reflow Profile	
	Reference	
	Document History	F

Spreaduritin Confidential



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.

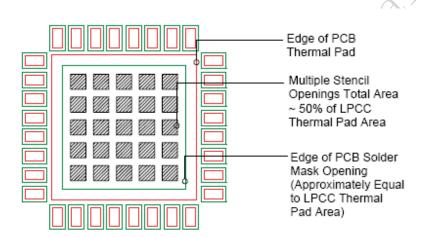


Figure 1 Stencil Design

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.

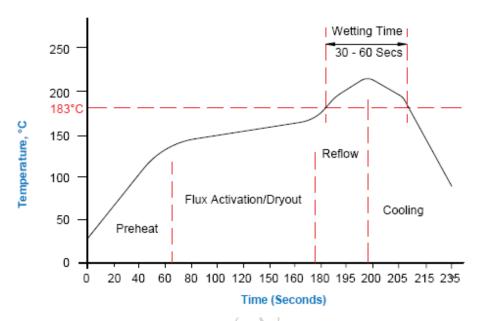


Figure 2 Eutectic Solder Reflow Profile

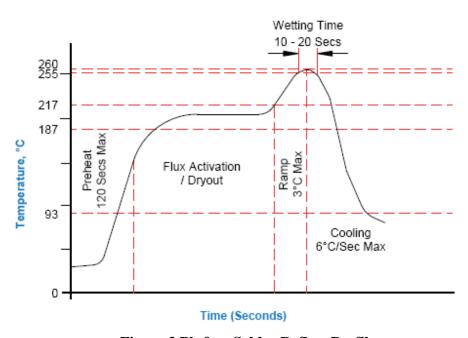


Figure 3 Pb-free Solder Reflow Profile



5. Reference

http://www.asat.com/products/data/appsnotes/lpcc_apps_0406.pdf

SPreadtrill

6. Document History

Rev	Date	Changes
1.0	2-Sep-2008	Initial Release
		Δ.
		O. Y
		* 0
		\ \(\sum_{j} \)
		X
		\(\frac{1}{2}\)
		A O'



Contact Information



Headquarters
Spreadtrum Center, Building No.1,
Lane 2288, Zuchongzhi Rd., Shanghai 201203, P.R. China
Phone +86-21-50802727

Spreadtrum Communications USA 5960 Cornerstone Court W., Suite 200 San Diego, CA 92121-3780, USA Phone: +1-858-546-0895

http://www.spreadtrum.com

© 2008, Spreadtrum Communications, Inc. All Rights Reserved.

Information in this document is provided in connection with Spreadtrum Communications products. These materials are provided by Spreadtrum Communications as a service to its customers and may be used for informational purposes only. Spreadtrum Communications assumes no responsibility for errors or omissions in these materials. Spreadtrum Communications may make changes to specifications and product descriptions at any time, without notice. Spreadtrum Communications makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Spreadtrum Communications' Terms and Conditions of Sale for such products, Spreadtrum Communications assumes no liability whatsoever.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF SPREADTRUM COMMUNICATIONS PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. SPREADTRUM COMMUNICATIONS FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SPREADTRUM COMMUNICATIONS SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

Spreadtrum Communications products are not intended for use in medical, lifesaving or life sustaining applications. Spreadtrum Communications customers using or selling Spreadtrum Communications products for use in such applications do so at their own risk and agree to fully indemnify Spreadtrum Communications for any damages resulting from such improper use or sale. "Spreadtrum Communications" and the Spreadtrum Communications wave symbol are trademarks of Spreadtrum Communications, Inc. Product names or services listed in this publication are for identification purposes only, and may be trademarks of third parties. Third-party brands and names are the property of their respective owners.

Additional information, posted at www.spreadtrum.com, is incorporated by reference.