Heraeus

Technical Data Sheet

Lead free Solder Paste Series F 640

No Clean Solder Pastes with excellent wetting

1. Description

F 640 Solder Paste series is a state-of-the-art lead free no clean solder paste that promotes wetting and minimises soldering defects. The F 640 flux system is specifically optimised for Sn/Ag/Cu alloy soldering. Extensive testing at customer locations has proven this paste to be capable of defect-free performance in the production environment.
The F 640 Series exhibits minimal slump and has excellent print-after-wait performance.
This formula provides superior performance on a variety of surfaces finishes and leaves behind a clear residue. Reflow can be accomplished in air or nitrogen.

Key Benefits

- Exceptional print to print consistency
- Excellent wetting
- Min. 8 hour tack and work life
- Very good print after wait performance
- SIR 85/85 > 10E10 Ohm
- Constant performance at 30°C for 7days
- Work conditions between 20 and 32°C
- Fulfils Siemens Standard accord. DIN EN 29454 Part 1 (see Test certificate from January 24, 2004)

2. Product Indication

Indication:	F640SAC Series
Alloy:	Sn95.5/Ag4/Cu0.5 (Standard) Sn96.5/Ag3/Cu0.5 (upon request) Other alloys are available on request.

3. Physical Properties

Metal powder:

Particle size:	Type 3 = 25 –45 microns (325/+500 mesh) Other powder sizes upon request.
Shape:	Spherical
Melting Point:	Sn95.5/Ag4/Cu0.5 = 217°C Sn96.5/Ag3/Cu0.5 = 217°C
Composition:	Sn95.5/Ag4/Cu0.5 = F640SA40C5-89M30 Sn96.5/Ag3/Cu0.5 = F640SA30C5-89M30 Other lead free alloys upon request.
Density:	Sn95.5/Ag4/Cu0.5 7,4 g/cc Sn96.5/Ag3/Cu0.5 7,4 g/cc

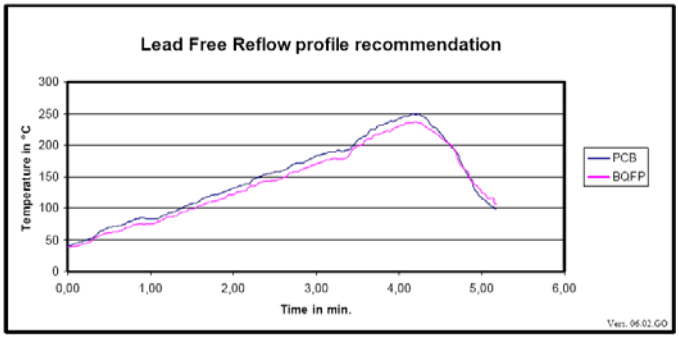
Solder Paste:	
Metal Content:	Standard 89% ± 1%
Viscosity Range:	130 ± 40 Pas Physica CSS 10 s-1
Density:	3,9 ± 0,2 g/ml

4. Performance Properties

Typical Print Thickness:	0,4 – 0,65 mm pitch:	150 microns
	<0,4 mm pitch:	120 microns
Minimum Pitch:	16 mil (400 microns)	
Minimum Pad Width:	8 mil (200 microns, stencil thickness 150microns)	

5. Reflow Parameters (recommendation)

- For optimum results, the paste should be reflowed at a peak temperature of 15-30°C above the melting temperature of the alloy.
- Time above melting temperature should be maintained for 30-90 seconds.
- Heating should be uniform across the substrate and components.
- Reflow can be accomplished with any industry accepted process in air or N_2.



Profile	Peak Temp °C		Time above 219°C		Time to reach :
	BQFP	PCB	BQFP	PCB	219°C
Lead Free	235 +/- 5	250 +/- 5	40 +/- 5	55 +/- 5	235 +/- 15

6. Residue Properties

Flux Activity:	According to J-STD-004	L 0
	DIN EN 61190-1-1 ISO	1.2.2.C
SIR:	J-STD-004 > 1 x 10^8	pass
Copper Mirror:	J-STD-004	pass
Silver Chromate Test Paper:	J-STD-004	pass

7. Recommended Processing Guidelines

After reflow the flux residues may remain on the circuit. They do not need to be cleaned. If desired, the residues can be washed with various Zestron and Vigon cleaning materials.

For cleaning wet with different Zestron and Vigon cleaning materials see separate recommendations.

If the printing interval exceeds 1 hour, remove the paste from the stencil.

The printed solder paste remains tacky for more than 8 hours to allow device insertion. The exact time depends on environmental conditions.

If the printed circuit boards will be stored for more than 6 hours after populating and prior to reflow, it is advisable to store the boards in a tightly closed area. This is especially important if the humidity exceeds 83%.

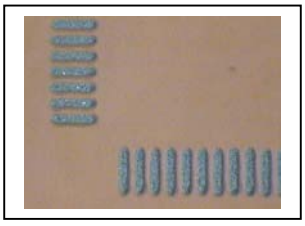
8. Storage

Store the solder paste in tightly-sealed jars and avoid exposure to sunlight and high humidity.

In jars:
Min. 6 months in a refrigerator at 2-10°C (35-50°F)

In syringes:
Min. 3 months in a refrigerator at 2-10°C (35-50°F)
Store syringes tip down!

Paste is qualified at Siemens Corporate Technology Berlin.
Print and Reflow conditions see technical information.



Pitch 0.4 on Cu substrate

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