Technical Datasheet

F 823 Series Lead Free Solder Pastes

Low Odour Halide Free No-clean Solder Pastes

1. Describtion

The solder pastes of the F 823 series are ready-to-use, homogeneous mixtures with low odour characteristics, consisting of metal powder, binders, solvents, fluxes and thixotropic agents.
Very high Surface insulation resistance of the flux residues.
The solder pastes of the F 823 series are insensitive to humidity and temperature.
The solder pastes are especially optimised to solder Tin Silver alloys and Tin Silver Copper alloys. The solder pastes of the F 823 series are especially suitable for soldering under nitrogen or soldering in the vacuum.

Key Benefits

- Excellent wetting
- Applecable for vacuum soldering
- Exceptional print to print consistency
- 8 hour tack and work life
- Good print after wait performance

2. Product indication

Indication:	F823SA35-89M20 F823SA35-89M30 F823SA40C5-86D30* *Dispense version Other alloys available upon request.
Alloys:	Sn96,5/Ag3,5 = SA 35 Sn95,5/Ag4,0/Cu0,5 = SA40C5

3. Physical properties:

Metal powder:

Particle size:	F823SA35-89M20 25-75µm F823SA35-89M30 25-45µm F823SA40C5-86D30 25-45µm Other powder size upon request
Shape:	Spherical
Melting Point:	Sn95,5/Ag4/Cu0,5 =217℃ Sn96,5/Ag3,5 =221℃
Composition:	Sn96,5/Ag3,5 = F823SA35-89M20 Sn96,5/Ag3,5 = F823SA35-89M30 Sn95,5/Ag4,0/Cu0,5 = F823SA40C5-86D30
Density:	Sn95,5/Ag4/Cu0,5 = 7,4 g/cc Sn96,5/Ag3,5 = 7,4 g/cc

Solder Paste:

Metal Content:	Standard 89,0% ± 0,5% F 823SA40C5-86D3 = 86% ± 0,5% Dispense version

Density:	4,0 g/cc + 0,3 g/cc Not Dispense version

4. Performance Parameters

Printing:

Metalmask/Thickness:	< 200 µm (< 8 mil)
Min. Pitch:	20 mil = 500 µm (Powder 25-75 µm) 16 mil = 400 µm (Powder 25-45 µm) (Stencil thickness : 150 µm)
Min. Pad Width:	10 mil = 250 µm (Powder 25-75 µm) 8 mil = 250 µm (Powder 25-45 µm))
Print speed:	20-50 mm/s
Print after wait:	min. 30 minutes

The above data are for information only. Final results depend on different process parameters at the customer.

5. Reflow Parameters (recommendation)

- For optimum results, the paste should be reflowed at a peak temperature of 15-30 ℃ 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.

6. Residue properties

Flux Activity:	According to J-STD-004	Klasse L0
	DIN EN 29454-1	1.2.3.C
SIR:	85℃/85 r.H./100 V DC/500 h	Pass
	>1,0 E 09 Ohm	
Copper Mirror:		Pass
Silver Chromate Test Paper:		Pass

7. Recommended Processing Guidelines

- The flux residues may remain on the circuit. They do not need to be cleaned. If desired, the residues can be washed with
- Ensure that the paste has reached room temperature before opening, to prevent condensation
- For dispensing: depending on the nozzle-shape the nozzle diameter should be down to 0,3-0,4mm. Coneshaped

diverse Zestron and Vigon cleaning materials -see separate application recommendations.

- Stir well prior to use.

nozzle preferred

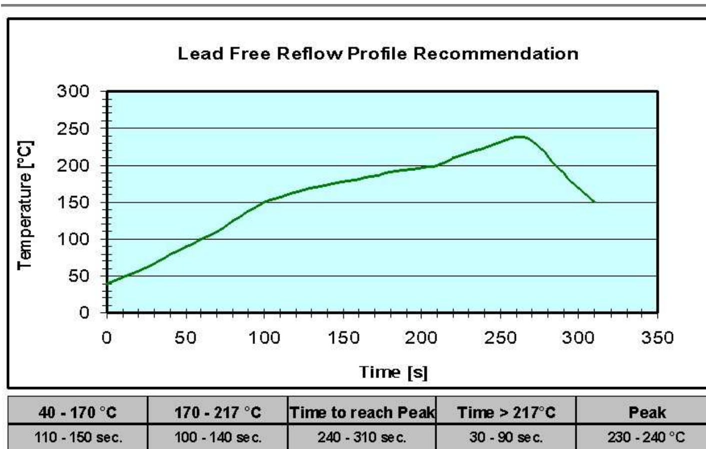
- The printed solder paste remains tacky up to 8 h, to allow device insertion. The exact time depends on the environmental conditions

8. Storage

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

In jars
Min. 6 month in a refrigerator at 2-10℃ (35-50℉)

In syringes:
Min. 3 month in a refrigerator at 2-10℃ (35-50℉)
Store syringes vertically, tip down!



40 - 170 °C	170 - 217 °C	Time to reach Peak	Time > 217°C	Peak
110 - 150 sec.	100 - 140 sec.	240 - 310 sec.	30 - 90 sec.	230 - 240 °C

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

Production Locations

Europe

W. C. Heraeus GmbH
Contact Materials Division
Hanau, Germany
Phone: +49 6181 35 5265
cmdinfo@heraeus.com

W. C. Heraeus GmbH
Contact Materials Division
Potsdam, Germany
Phone: +49 331 74616 00
juergen.schulze@heraeus.com

America

Heraeus Incorporated
Contact Materials Division
West Conshohocken, PA, USA
Phone: +1 610 825 6050
customerservice.hcd@heraeus.com

www.heraeus-cmd.com

Asia

Heraeus Ltd.
Contact Materials Division
On Lok Tsuen, Fanling, Hong Kong
Phone: +852 2675 1200
cm.hlh@heraeus.com

Heraeus Materials Technology Shanghai
Contact Materials Division
Shanghai, P.R.C.
Phone: +86 21 3357 5688
hmts@heraeus.com