Special Solder Paste SM-388 SACBI-189

Product Description

The lead-free solder paste SM-388 SACBI-189 consists of a mixture of lead-free solders, which melts completely already at 200 °C, and consequently enables much lower temperature profiles than common Tin/Silver/Copper solders. A low melting component (Bi58Sn42) melts already at 139 °C and solves the higher melting component (SAC305) during further heating. The resulting homogeneous solder alloy has a melting range between 188 and 192 °C. The physical properties of the resulting lead-free alloy a not completely determined until now. Because this Special Solder Paste is a quite new invention, the customer has to check the use of SM-388 SACBI-189 for each application. No warranty can be extended especially concerning the reliability of the solder joints.

The lead-free no clean solder paste SM-388 SACBI-189 is based on an established flux for lead-free solders with high temperature resistant synthetic resins. Residuals are brighter and clearer compared to common solder pastes. SM-388 SACBI-189 fulfills the requirements of class REL0 of standards J-STD-004, J-STD-005 and DIN EN 61190-1-1. The used no clean flux contains additives as high boiling solvents, corrosion inhibitors, thixotropic agents and temperature resistant resins. These additives give the paste rheological properties adequate for SMT applications.

Residuals of the solder solder paste SM-388 SACBI-189 are neither corrosive nor electrically conductive. They are nearly colorless and usable in no clean processes. Due to the composition of the flux they are more resistant against humidity and water, which prevents the formation of typical white powder residuals e.g. after cleaning with water.

- High activity on all substrates, incl. OSP
- High printing speed up to 150 mm/s
- Stable wetting behavior over a wide range of profiles
- Stencil life of up to 8 h under proper process parameters
- Low reflow-profile with low maximum temperatures of 210 – 220 °C
- Very good tack time of up to 16 h
- J-STD-004 Flux classification: REL0
  Very good printing characteristics to 0.4 mm pitch with type 3 powder
- Very good slump characteristics

Physical Properties

Data given for Sn96.5Ag3Cu0.5/Bi58Sn42, metal 87 %, 25 – 45 µm

Viscosity (Brookfield): 600 – 700 Pa·s
IPC-TM-650 2.4.34

Reliability Properties

Data given for Sn96.5Ag3Cu0.5, metal 88 %, 25 – 45 µm

Copper Mirror Corrosion: Class L
J-STD-004, IPC-TM-650, method 2.3.32
Silver Chromate Test: Pass
J-STD-004, IPC-TM-650, method 2.3.33
Solder Balling Test: Pass
J-STD-005,IPC-TM-650, method 2.4.43
Insulation Resistance: 2.0 x 10^8 Ω after 168 h humidity exposure, IPC-TM-650 2.6.3.3

This Special Solder Paste is suitable for applications, which do not permit typically high reflow-temperatures of up to 240 °C.

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Solder paste SM-388 SACBI-189 melts already at peak temperatures of 210 – 220 °C and can be applied by dispending, stencil or screen printing.

Alloy	Powder type	Melting range	Metal content for screen/stencil printing	Metal content for dispensing
Mixture of SnAg3Cu0.5 / Bi58Sn42	T3 25 – 45 µm	188 – 192 °C	87 – 88 %	86 – 87 %

Cleaning

SM-388SACBI-189 solder paste is a no clean formula. The residues do not need to be removed. If cleaning is desired anyhow, automated cleaning with a variety of commercially available agents is recommended.

Packaging

Jars: 250 g and 500 g
Cartridges: 600 g and 1200 g
Syringes: 10 ccm (35 g) and 30 ccm (100 g)
Cassettes: DEK Pro-Flow™ Cassette 750 g

Storage and Shelf Life

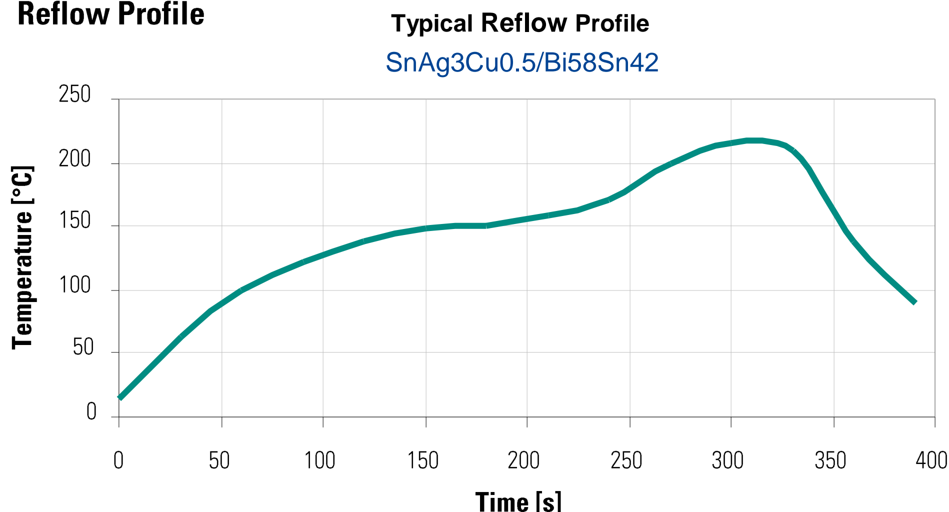
Jars/Cartridges: Max. 6 months in a sealed jar, kept under standard refrigeration between 6 – 16 °C
Syringes: Max. 3 months, kept under standard refrigeration between 6 – 16 °C

Material should be allowed up to room temperature before opening.

Printing Parameters

Squeegee: Stainless Steel
Speed: typically 25 – 50 mm/s, speeds up to 150 mm/s are possible
Stencil/Sieve: Stainless Steel
Environment: Recommended temperature range 21 – 25 °C, RH 35 – 65 %

Reflow Profile



Important information: The above information was put together based on the data available to the producer at the time of print. The technical data contained herein are consistent with the properties of the material but should not be used for the preparation of specifications as it is intended for reference only.

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