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WS 160 WATER SOLUBLE PASTE **62% Sn 36% Pb 2% Ag**

Description

WS 160 has been formulated to give manufacturers a wide process window with excellent printing and wetting properties.

WS 160 gives bright, smooth and shiny solder joints with residues which are easily removed in warm tap water. (40-65°C)

Other features include;

- Superior wetting and spreading characteristics
- Reduces or eliminates voiding, particularly under BGA's
- Broad print process window
- High resistance to solder balling
- Long stencil life and tack time
- Easily cleaned residues
- Low Foaming

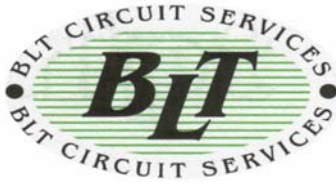
Application

Allow the solder paste to warm up to room temperature (at least 8 hours) before using for the first time. Stir with a spatula for at least 30 seconds to ensure homogenisation of paste. Apply sufficient paste to the stencil to allow a smooth even roll. A bead diameter of ½ to 5/8 inch is normally sufficient. Squeegees should be set at 60° for highest print definition. Pressure should be around about 0.28-0.33kg/sq cm, print speed 20-150mm/sec with 0.0mm snap-off distance (on contact).

Do not store new and used paste in the same container. Once a pot of paste has been opened, replace the internal plug, re-seal and store in a cool place out of direct sunlight. Do not return to fridge. Paste that has not been opened may be kept in the fridge (4°C) for up to 6 months.

Reflow

The **WS 160** paste can be reflowed using any of the two most commonly used profile types i.e. RSS (Ramp-Soak-Spike), and the low voiding profile. Please refer to the Reflow Profile Supplement.



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Cleaning

WS160 is easily cleaned in normal tap water between 40-65°C, and will suit immersion or spray, batch or in-line cleaning. De-ionised water is recommended for the final rinse.

Surface Insulation Resistance Testing

The Surface Insulation resistance Test (SIR) for solder paste was carried out according to J-STD-004 and IPC-TM-650 method 2.6.3.3.

Results

Reference	Property	Pass-Fail Criteria	Result
IPC-TM-650 5.5.1	Quality of control coupons	>1E9 Ω at 96 and 168h	PASS
J-STD-004 3.2.4.5.1	SIR of test coupons	>1E8 Ω at 96 and 168h	PASS
IPC-TM-650 5.5.2	Post-test visual inspection	No dendritic growth Or corrosion	PASS

Conclusions

The results of the qualification tests indicate that the **WS 160 solder** paste complies with the requirements of IPC TM-650 Method 2.6.3.3 for Surface Insulation Resistance (SIR) with two weeks between reflow and cleaning

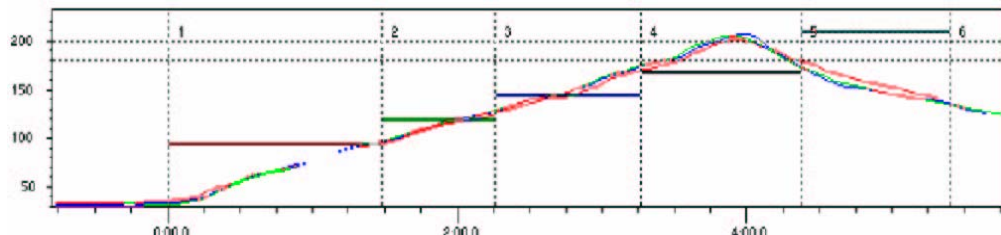
WARRANTY

All reasonable endeavours have been made to ensure that the information contained in this data sheet is accurate, but it is submitted on the express condition that BLT Circuit Services Ltd shall not be under any liability of whatsoever nature, arising, suffered or incurred as a consequence of its use.



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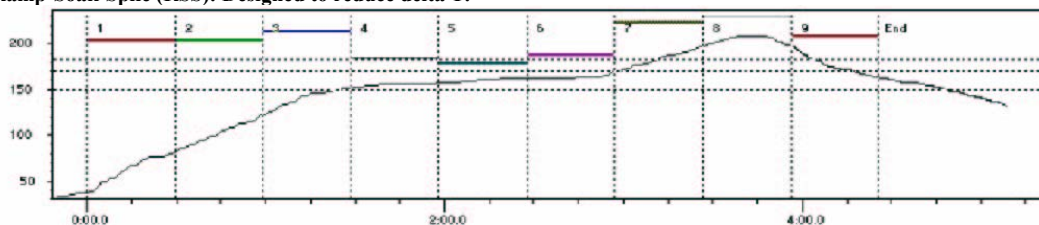
Ramp-to-Spike (RTS): recommended profile



RTS Profile Guidelines

- The typical rate of rise for the RTS profile
- The profile should be a straight line or concave; it should not be convex.
- 2/3 of the profile should be below 150°C.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 60 ± 15 seconds.
- The total profile length should be between 3 ½ - 4 minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.

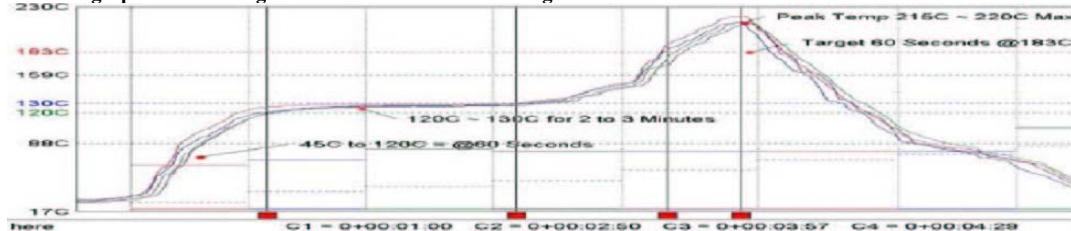
Ramp-Soak-Spike (RSS): Designed to reduce delta T.



RTS Profile Guidelines

- The typical initial rate of rise for the RSS profile is 1.6°C/second.
- Ramp up to 150°C and then soak the assembly for 60 to 90 seconds.
- The soak zone should be controlled between 150-170°C. Above this the paste will lose its activator.
- Proceed to spike immediately once the PCB has reached thermal stability.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 60 ± 15 seconds.
- The total profile length should be between 3½ - 4 minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C/second.

Low-Long-Spike LSP: Designed to eliminate/reduce voiding



LSP Guidelines

- The typical initial rate of rise for the LSP profile is 1.25°C/second.
- Ramp up to 120°C and then soak the assembly for 120 to 180 seconds.
- Proceed to spike immediately after exiting the soak zone.
- Peak temperature is 215°C ± 5°C.
- Time above liquidus is 60 ± 15 seconds.
- The total profile length should be between 4½ - 5 minutes from ambient to peak temperature.
- Cool down should be controlled within 4°C.