NC257-2
Sn62 and Sn63

No Clean Solder Paste

Features:

- Broad Printing Process Window
- Clear Pin–Probe Testable Residue
- Reduces Voiding Under Micro-BGAs
- Low-Tombstoning
- 24 Hour Stencil Life
- 12-14 Hour Tack Time
- No Head-in-Pillow
- Excellent Wetting
- Low Solder Beading

Description:

NC257-2 has been developed to offer extremely broad process windows for printing, wetting and pin-probe testing. The superior wetting ability of NC257-2 results in bright, smooth and shiny solder joints, and it has been specifically formulated to lower solder beading. It also offers very low post process residues, which remain crystal clear and easily probed. This solder paste offers a chemistry developed for use in air reflow, as well as providing slump and humidity tolerances to extend the useable life in facilities where environmental control is not at its optimum.

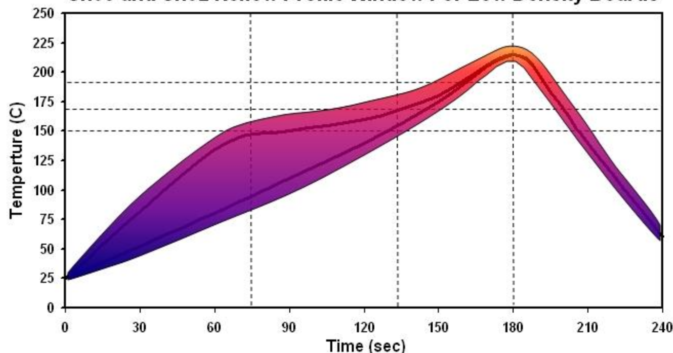
Printing:

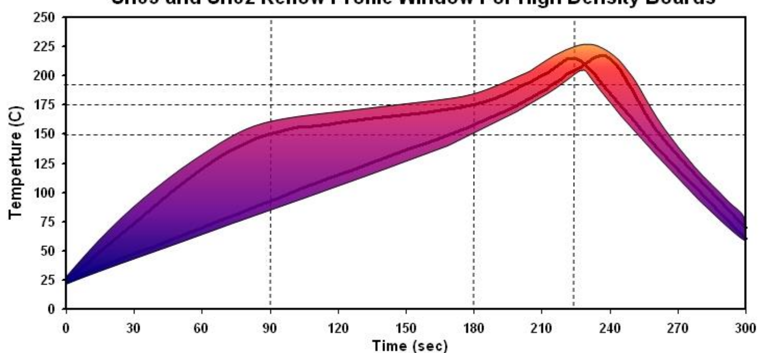
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (½ to ⅝ inch) is normally sufficient to begin)
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties
- NC257-2 provides the necessary tack time and force for today’s high speed placement equipment, which will enhance product performance and reliability

RECOMMENDED INITIAL PRINTER SETTINGS BELOW ARE DEPENDENT ON PCB AND PAD DESIGN			
PARAMETER	*RECOMMENDED INITIAL SETTINGS*	*PARAMETER*	*RECOMMENDED INITIAL SETTINGS*
Squeegee Pressure	0.10-0.30 kg/cm (.6 - 1.7 lbs/In.) of blade	PCB Separation Distance	0.75-2.0 mm (.030-.080”)
Squeegee Speed	25-50 mm/sec (1-2”/sec)	PCB Separation Speed	Slow
Snap-off Distance	On Contact 0.00 mm (0.00”)		

Reflow Profile:

Two unique profile families are depicted below; both can be used in ramp-spike or ramp-soak-spike applications, and they each have similar reflow temperatures. The two profiles differ in where they reach their respective peak temperatures, as well as the time above liquidus (TAL). The shorter profile of the two would apply to smaller assemblies, where as the longer profile would apply to larger assemblies, such as backplanes or high-density boards. The shaded area defines the process window. Oven efficiency, board size/mass, component type and density all influence the final profile for a given assembly. These profiles are starting points, and processing boards with thermal-couples attached is recommended to optimize the process.





RATE OF RISE 1.5-2°C / SEC MAX	*RAMP TO 150°C (302°F)*	*PROGRESS THROUGH 150°C-170°C (302°F-338°F)*	*TO PEAK TEMP 220°C-210°C (428°F-410°F)*	*TIME ABOVE 183°C (381°F)*	*COOLDOWN ≤ 4 °C / SEC*	*PROFILE LENGTH AMBIENT TO COOL DOWN*
Short Profiles	≤ 75 Sec	30-60 Sec	45-75 Sec	30-60 Sec	45± 15 Sec	2.75-3.5 Min
Long Profiles	≤ 90 Sec	60-90 Sec	45-75 Sec	60-90 Sec	45± 15 Sec	4.5-5.0 Min

- THE RECOMMENDED REFLOW PROFILE FOR NC257-2 IS PROVIDED AS A GUIDELINE. OPTIMAL PROFILE MAY DIFFER DUE TO OVEN TYPE, ASSEMBLY LAYOUT, OR OTHER PROCESS VARIABLES. CONTACT AIM TECHNICAL SUPPORT IF YOU REQUIRE ADDITIONAL PROFILING ASSISTANCE.
- THE REFLOW PROFILE FOR THE Sn/Pb PASTES USING A VAPOR PHASE REFLOW OVEN: PEAK TEMPERATURE RANGE I S 230°C – 245°C.

NC257-2 Compatible Products:

- NC Paste Flux, No Clean Tacky Flux
- NC270 VOC Free No Clean Spray Flux
- NC264-5 No Clean flux Spray/Foam
- Glowcore – No Clean Cored Wire
- One-Step Underfill Epoxy 688
- Epoxy 4044 – Chip Bonding Epoxy

Cleaning:

- NC257-2 can be cleaned if necessary with saponified water or an appropriate solvent cleaner.
- Please refer to the AIM cleaner matrix for a list of compatible cleaning materials.

Handling and Storage:

- NC257-2 has a refrigerated shelf life of 9 months at 4°C (40°F) to 12°C (55° F) or 4 months at room temperature.
- Allow the solder paste to warm up completely and naturally to ambient temperature (8 hrs.) prior to breaking the seal for use.
- Mix the product lightly and thoroughly (1-2 mins. max) to ensure even distribution of any separated material.
- Do not store new and used paste in the same container, and reseal any opened containers while not in use.
- Replace the internal plug and cap of the 500 gram jars to ensure the best possible seal.

Physical Properties:

ITEM	*SPECIFICATION*
Appearance	Gray, Smooth, Creamy
Alloy	Sn63 and Sn62
Melting Point	183°C
Particle Size	T3, T4, T5
General Metal Loading	89.5% (T3)
Viscosity	Print/Dispense
Packaging	Available in all industry standard packaging.

Test Data Summary:

CLASSIFICATION			
Product Name	IPC Classification to J-STD- 004	Copper Mirror to J-STD- 004B	Silver Chromate to J-STD- 004B
NC257-2	ROL0	LOW	Pass
POWDER TESTING			
No.	Item	Results	Test Method
1	Powder Size	Type 3 – 45-25 micron Type 4 – 38-20 micron	J-STD- 004B IPC TM 650 2.2.14
3	Powder Shape	Spherical	Microscope
FLUX MEDIUM TESTING			
No.	Item	Results	Test Method
1	Acid Value	150.02 mg KOH/ g flux	J-STD- 004B IPC TM 650 2.3.13
2	Halide Content	<300 ppm	J-STD- 004B IPC TM 650 2.3.35
3	Fluorides Spot Test	No fluoride	J-STD- 004B IPC TM 650 2.3.35.1 J-STD- 004B IPC TM 650 2.3.35.2
4	Corrosivity Test/ Copper Mirror	L	J-STD- 004B IPC TM 650 2.3.32
5	Corrosion Flux	Pass	J-STD- 004B IPC TM 650 2.6.15
6	Halide-Free/Silver Chromate Paper Test	Pass	J-STD- 004B IPC TM 650 2.3.33
7	Surface Insulation Resistance	85° C, 85% RH: Control: Samples: Initial 9.69E+13Ω 3.88E+13Ω 24 hrs 8.60E+09Ω 1.87E+08Ω 96 hrs 7.04E+09Ω 5.29E+08Ω 168 hrs 5.92E+09Ω 1.02E+09Ω - No dendrite growth or corrosion, after a visual inspection – Pass All Criteria	J-STD- 004 IPC TM 650 2.6.3.3
8	Telcordia (Bellcore) SIR	35°C, 85% 4 days Initial: 8.43E+12Ω Final : 8.03E+12Ω Must be > 1.0E+10Ω - pass	GR-78-CORE
9	Telcordia (Bellcore) Electromigration	65°C, 85% 500 hrs Initial: 1.94E+10Ω Final : 2.08E+10Ω R*f*/Ri > 0.01 - pass	GR-78-CORE
10	Compatibility Test	See list of recommended products above	GR-78-CORE
VISCOSITY TESTING			
No.	Item	Results	Test Method
1	T-Bar Spindle Test Method	670 ± 10% kcps	J-STD- 005 IPC TM 650 2.4.34
SOLDER PASTE TESTING			
No.	Item	Results	Test Method
1	Tack Test	32.8 gf	J-STD- 005 IPC TM 650 2.4.44
2	Tack Test	94.8 gf	JIS Z 3284 Annex 9
3	Solder Ball Test	Pass	J-STD- 005 IPC TM 650 2.4.43
4	Wetting Test	Pass	J-STD- 005 IPC TM 650 2.4.45
5	Paste Shelf Life	4°C (39°F) = 9 months	AIM TM 125-11
6	Solder Paste Slump Test	Pass	J-STD- 005 IPC TM 650 2.4.35

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AIM IS ISO9001:2008 & ISO14001:2004 CERTIFIED

The information contained herein is based on data considered accurate and is offered at no charge. Product information is based upon the assumption of proper handling and operating conditions. All information pertaining to solder paste is produced with 45-micron powder. Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated. Please refer to http://www.aimsolder.com/Home/TermsConditions.aspx to review AIM's terms and conditions.