Technical Data Sheet
No Clean Pin Probe Testable Solder Paste
NC257 SN100C®

Features:

- Broad Printing Process Window
- Clear Pin–Probe Testable Residue
- Reduces Voiding Under Micro-BGAs
- Excellent Wetting, Even Leadless Devices
- 24 Hour Stencil Life
- 12-14 Hour Tack Time

Description:

NC257 has been developed to offer extremely broad process windows for printing, wetting and pin-probe testing. The superior wetting ability of NC257 results in bright, smooth and shiny solder joints. It also offers very low post process residues, which remain crystal clear and easily probed even at the elevated temperatures required for today's lead-free alloys. This alloy 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.

Handling and Storage:

- NC257 has a refrigerated shelf life of 6 months at 4°C (40° F).
- 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.

Paste Application:

- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of ½ to 5/8 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 provides the necessary tack time and force for today's high speed placement equipment, which will enhance product performance and reliability.
- Cleaning of your stencil will vary by application; however, it can be accomplished using AIM 200AX-10 stencil cleaner.

Cleaning:

- NC257 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.

Manufacturing and Distribution Worldwide
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AIM IS ISO9001:2000 CERTIFIED

Printing:

- Snap-off distance = on contact (0.00”)
- PCB Separation Distance = .030-.080”
- PCB Separation Speed = Slow
- Squeegee Pressure =.6 -1.2 lbs/ In. of blade
- Squeegee Stroke Speed .5 - 6 In./Sec

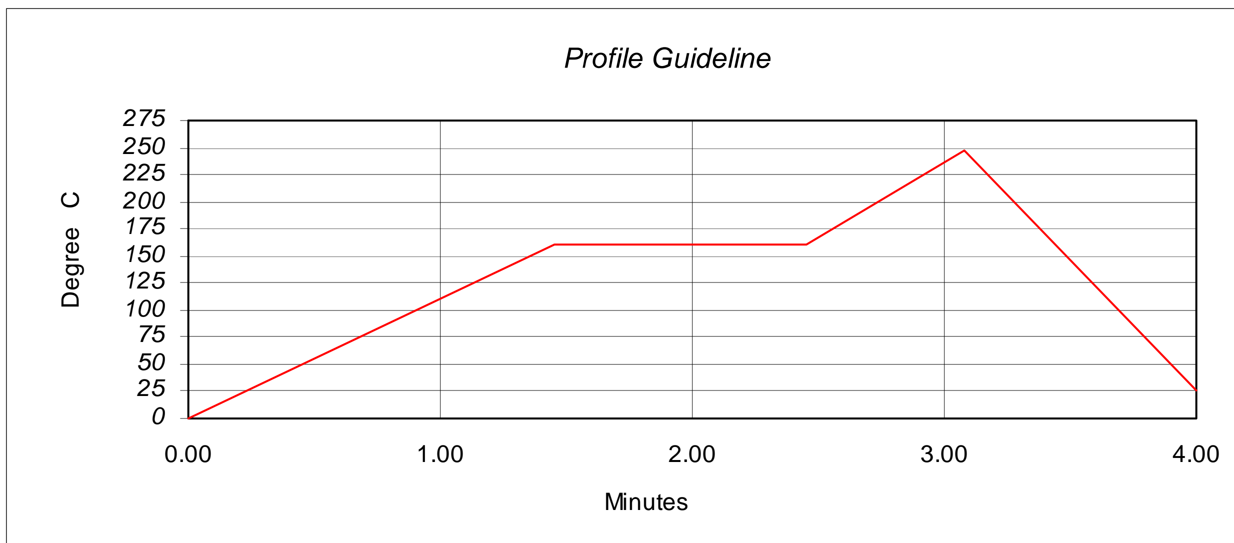
  *dependent on PCB and pad design

Specification:

ITEM	*SPECIFICATION*
Appearance	Gray, Smooth, Creamy
Alloy	SN100C®
Melting Point	227° C
Particle Size	T3, T4, T5 avalaible
Powder Shape	Spherical
Viscosity	Print/Dispense
Flux Type	REL0

Paste Tech Tips: Problems and Possible Causes:

- Bridging - Excessive solder, pad component solder ability, alignment
- Solder Balls - low Preheat temperature, oxidized or excess paste, too rapid initial ramp up
- Tomb Stoning - excessive delta temperature, rapid heat rate, component to pad mismatch, paste registration
- Discolored Joints - excessive peak temperature, board paste component contamination, excessive soak time
- Dull Grainy Joint - too hot or cold peak temp., excessive soak, too long or too short overall profile, too slow cool down
- Disturbed Joint - board was jarred during molten stage
- Solder Beads - excessive solder volume, excessive placement pressure
- Amber/Charred Residue - excessive peak temperature, excessive time above liquidus (TAL)
- Non Wetting - contaminated pad/component, too short TAL, too long soak, soak temperature too high
- De-Wetting – excessive TAL, too high peak temperature



❖ THE RECOMMENDED REFLOW PROFILE FOR NC257 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.

RATE OF RISE 2°C / SEC MAX	*RAMP TO 150°C (302°C)*	*PROGRESS THROUGH 150°C-175°C (302°F-347°F)*	*TO PEAK TEMP 240° - 250° C (465° - 483° C)*	*TIME ABOVE 227°C (464°F)*	*COOLDOWN ≤ 4 °C / SEC*	*PROFILE LENGTH 2:30-3:45MM AMBIENT TO PEAK*
	≤ 75 **SECONDS**	30-60 **SECONDS**	45-75 **SECONDS**	30-60 **SECONDS**	45± 15 S**ECONDS**	2.75-3.5 **MINUTES**

*The Reflow Profile for the Sn100C® Pastes using a Vapor Phase Reflow Oven: Peak temperature range is 235°C – 255°C

NC257 SN100C® Compatible Products:

- Electropure Solder Bar
- NC257 Flux Paste, No Clean Tacky Flux
- NC275 VOC Free No Clean Spray Flux
- NC264-5 No Clean flux Spray/Foam
- SAC305 Glowcore – No Clean Cored Wire
- 1 Step Underfill Epoxy 623
- Epoxy 4044 – Chip Bonding Epoxy
- 200AX – Stencil Cleaner

TEST DATA SUMMARY

CLASSIFICATION

Product Name	IPC Classification	Copper Mirror TM 650 2.2.33	Silver Chromate TM 650 2.2.33	Test Characteristics
NC257	REL0	LOW	ABSENCE/PASS	DISSOLVE 35%

POWDER TESTING

No.	Item	Results	Test Method
1	Powder Distribution Aerosizer Volume Distribution	Mode = 31.87 Mean = 32.24 Stdev = 1.156	AIM TM 119P-04.2 IPC TM 650 2.2.14
2	Powder Distribution Aerosizer Number Distribution	Mode = 29.06 Mean = 29.21 Stdev = 1.384	AIM TM 119P-04.2 IPC TM 650 2.2.14
3	Powder Shape	Spherical	Microscope
4	Apparent Powder Density	7.38 g/cm³	ASTM B 212-99

FLUX MEDIUM TESTING

No.	Item	Results	Test Method
1	Acid Value	160.55 +/- 2.26 mg KOH/ g flux	IPC TM 650 2.3.13
2	Halide Content	0.0059 +/- 0.0001 % Cl/g	IPC TM 650 2.3.35
3	Fluorides Spot Test	No fluoride	IPC TM 650 2.3.35.1 IPC TM 650 2.3.35.2
4	Corrosivity Test/ Copper Mirror	L0	IPC TM 650 2.3.32
5	Corrosion Flux	Pass	IPC TM 650 2.6.15
6	Halide-Free/Silver Chromate Paper Test	Pass	IPC TM 650 2.3.33
7	Non-Volatile Residue	22.9 +/- 0.4 %	IPC TM 650 2.3.34
8	Surface Insulation Resistance	85° C, 85% RH 24 hrs = 2.74E+09Ω 168 hrs = 6.03E+09Ω	IPC TM 650 2.6.3.3
9	Bellcore (Telcordia) SIR and Electromigration	SIR: 35°C, 85% 4 days Initial: 8.17E+12Ω Final : 1.45E+13Ω Electromigration: 65°C,85% 500 hrs Initial: 6.16E+11Ω Final : 2.19E+11Ω R*f*/Ri = 0.36	GR-78-CORE

10	Compatibility Test for NC 254 Lead Free Solder Paste, VOC-free NC 270WR Liquid flux and Glow Core Solder Wire	SIR: 85°C, 85% 4 days Initial: 9.83E+12Ω Final : 9.59E+13Ω Electromigration: 85°C,85% 500 hrs Initial: 2.71E+09Ω Final : 6.36E+09Ω R_f/Ri = 2.34	GR-78-CORE
11	Polarization Test	Pass	ASTM G5-94/G3-89
12	Bono Test	Pass	Dr. David Bono Specifications
VISCOSITY TESTING			
No.	Item	Results	Test Method
1	T-Bar Spindle Test Method	Pass	IPC TM 650 2.4.34
2	Spiral Test Method (Malcolm PCU205)	Pass	JIS Z 3284-1994
SOLDER PASTE TESTING			
No.	Item	Results	Test Method
1	Tack Test	31 g	IPC TM 650 2.4.44
2	Tack Test	120 g	JIS Z 3284 Annez 9
3	Solder Ball Test	Pass	IPC TM 650 2.4.43
4	Wetting Test	Pass	IPC TM 650 2.4.45
5	Paste Shelf Life	4°C = 1yr.;22°C = 6mos	AIM TM 125-11
6	Solder Paste Slump Test	Pass	IPC TM 650 2.4.35

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