NC257-2
SAC305

Solder plus Support

HALOGEN FREE

Lead-Free No Clean Solder Paste

Features:

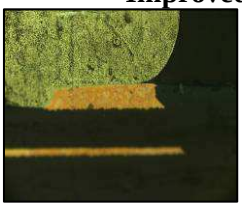
- RoHS Compliant
- Broad Printing Process Window
- Clear Pin–Probe Testable Residue
- Reduces Voiding Under Micro-BGAs
- Vapor Phase Compatible
- Low-Tombstoning
- 24 Hour Stencil Life
- Low Solder Beading
- Excellent Wetting
- No Head-in-Pillow
- 12-14 Hour Tack Time
- General Metal Load 88.5%

Description:

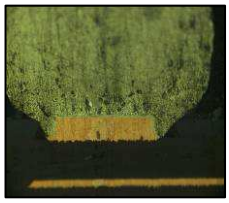
NC257-2 has been developed to offer extremely broad process windows for printing, wetting and pin-probe testing. The superior wetting ability of NC257-2 results in bright, smooth and shiny solder joints, and it has been specifically formulated to lower solder beading. It also offers very low post process residues, which remain crystal clear and easily probed even at the elevated temperatures required for today's lead-free alloys. 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.

Comparisons:

Improved Wetting Performance



Competitor A



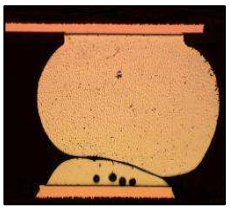
AIM NC257-2

Via Void Reduction Properties

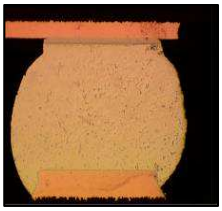
Competitor I

AIM 257-2

Head-in-Pillow Solder Joint Elimination



Competitor A



AIM 257-2

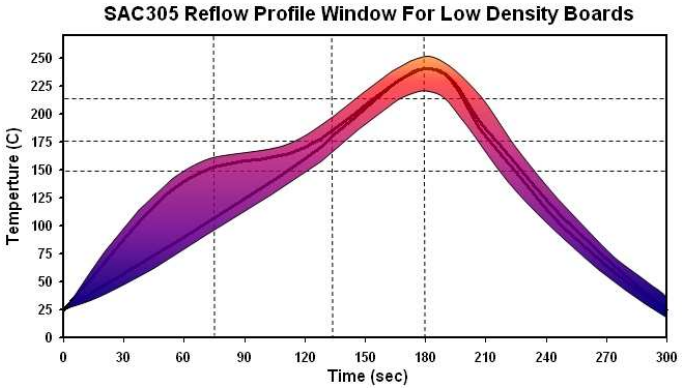
Printing:

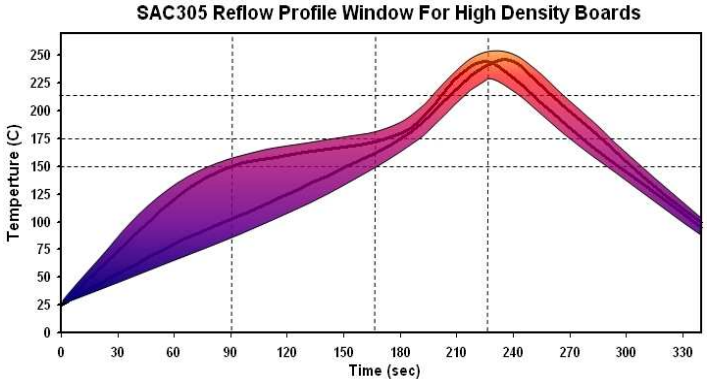
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (½ to ⅝ inch) is normally sufficient to begin).
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties.
- NC257-2 provides the necessary tack time and force for today's high speed placement equipment, which will enhance product performance and reliability.
- Cleaning of your stencil will vary by application; however, it can be accomplished using AIM 200AX-10 stencil cleaner.

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	12-150 mm/sec (.5-6"/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 2°C / SEC MAX	*RAMP TO 150°C (302°F)*	*PROGRESS THROUGH 150°C-175°C (302°F-347°F)*	*TO PEAK TEMP 230°C-245°C (445°F-474°F)*	*TIME ABOVE 217°C (425°F)*	*COOLDOWN ≤ 4 °C / SEC*	*PROFILE LENGTH AMBIENT TO PEAK*
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 SnAgCu PASTES USING A VAPOR PHASE REFLOW OVEN: PEAK TEMPERATURE RANGE IS 230°C – 245°C.

Compatible Products:

- AIM Lead-Free Electropure Solder Bar
- NC Paste Flux, No-Clean Tacky Flux
- NC270WR VOC-Free No-Clean Spray Flux
- NC264-5 No-Clean Flux Spray/Foam
- Glowcore No-Clean Cored Wire
- One-Step Underfill FF35
- Epoxy 4044 Chip Bonding Epoxy
- 200AX Stencil Cleaner

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 is best used within 1 year at 4° C-12° C (40° F-55° F) or 6 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	SAC305
Melting Point	217° - 218°C
Particle Size	T3, T4, T5
Metal Loading	88.5% (T3)
Viscosity	Print/Dispense Versions Available
Packaging	Available in all industry standard packaging.

Test Data Summary:

CLASSIFICATION			
Product Name	IPC Flux Classification to J-STD- 004	Copper Mirror to J-STD-004	Silver Chromate to J-STD-004
NC257-2	ROL0	LOW	DISSOLVE 35% - PASS
POWDER TESTING			
No.	Item	Results	Test Method
1	Powder Size	Type 3 – 45-25 micron, Type 4 – 38-20 micron	J-STD-005 IPC TM 650 2.2.14
2	Powder Shape	Spherical	Microscope
FLUX MEDIUM TESTING			
No.	Item	Results	Test Method
1	Acid Value	150.02 mg KOH/ g flux	J-STD-004 IPC TM 650 2.3.13
2	Halide Content	<300 ppm	J-STD-004 IPC TM 650 2.3.35
3	Fluorides Spot Test	No fluoride	J-STD-004 IPC TM 650 2.3.35.1 J-STD-004 IPC TM 650 2.3.35.2
4	Corrosivity Test/ Copper Mirror	L	J-STD-004 IPC TM 650 2.3.32
5	Corrosion Flux	Pass	J-STD-004 IPC TM 650 2.6.15
6	Halide-Free/Silver Chromate Paper Test	Pass	J-STD-004 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 : 8.30E+12Ω Requirement > 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 > 0.1 - 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 Annez 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 (39ºF) = 1 year	AIM TM 125-11
6	Solder Paste Slump Test	Pass	J-STD-005 IPC TM 650 2.4.35

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