NC254
SAC305

Solder plus Support

No-Clean Pin Probe Testable Solder Paste

Features:

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

Description:

NC254 has been developed to offer extremely broad process windows for printing, wetting and pin probe testing. The superior wetting ability of NC254 results in bright, smooth, shiny, solder joints. NC254 offers very low post process residues, which remain crystal clear and probable even at the elevated temperatures required for today's lead free alloys. NC254 has shown to reduce or eliminate voiding under micro-BGAs. NC254 also offers high humidity tolerance and a chemistry developed for use in air reflow. Slump and humidity tolerances found in NC254 extend the solder pastes useable life in facilities where environmental control is not at its optimum.

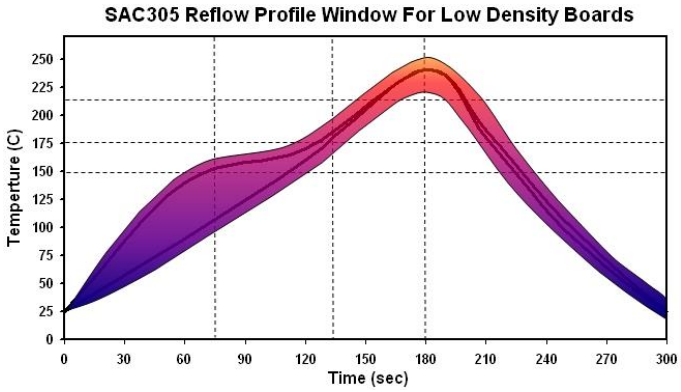
Printing:

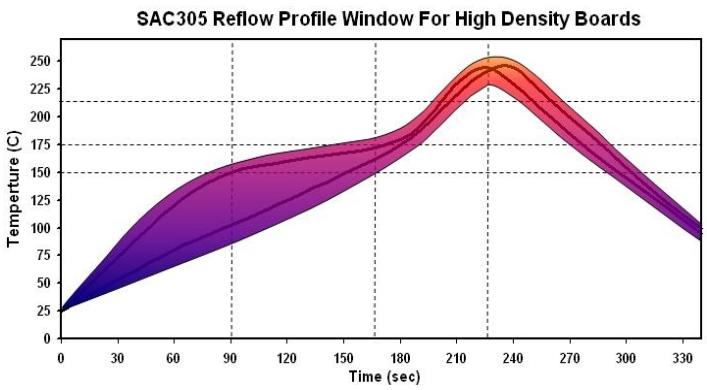
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (½ to ⅝ inch) is normally sufficient to begin).
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties.
- NC254 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.
- Snap-off distance = on contact 0.00 mm (0.00")
- PCB Separation Distance = 0.75-2.0 mm (.030-.080")
- PCB Separation Speed = Slow
- Squeegee Pressure = 0.10-0.30 kg/cm (.6 -1.7 lbs/in.) of blade
- Squeegee Stroke Speed = 25-50 mm/sec. (1-2 in./sec.)

* Note: Recommended initial printer settings above are dependent on PCB and pad design

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 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 NC254 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.

NC254 SAC305 Compatible Products:

- SAC305 Electropure Solder Bar
- NC275 VOC Free No Clean Spray Flux
- NC264-5 No Clean Flux Spray/Foam
- Epoxy 4044 – Chip Bonding Epoxy
- SAC305 Glowcore – No Clean Cored Wire

Cleaning:

- NC254 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:

- NC254 is best used within 9 months at 4° C-12° C (40° F-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	SAC 305
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:

CLASSIFCATION			
Product Name	IPC Classification	Copper Mirror TM 650 2.2.32	Silver Chromate TM 650 2.2.33
NC254	ROL0	LOW	Pass
POWDER TESTING			
No.	Item	Results	Test Method
1	Powder Size	Type 3 – 45-25 micron Type 4 – 38-20 micron	IPC TM 650 2.2.14
2	Powder Shape	Spherical	Microscope
FLUX MEDIUM TESTING			
No.	Item	Results	Test Method
1	Acid Value	113.5+/-7 mg KOH/g flux	IPC TM650 2.3.13
2	Halide Content	0.0059+/-0.0001Cl/g	IPC TM650 2.3.35
3	Fluorides Spot Test	No Fluoride	IPC TM650 2.3.35.1 IPC TM650 2.3.35.2
4	Corrosivity Test/Copper Mirror	L	IPC TM650 2.3.32
5	Corrosion Flux	Pass	IPC TM 60 2.6.15
6	Halide-Free/Silver Chromate Paper Test	Pass	IPC TM650 2.3.33
7	Surface Insulation Resistance (SIR)	85° C, 85% RH: Control: Samples: Initial 4.69E+13Ω 3.54E+13Ω 24 hrs 1.10E+10Ω 8.43E+08Ω 96 hrs 9.62E+09Ω 8.70E+08Ω 168 hrs 7.75E+09Ω 1.18E+09Ω - No dendrite growth or corrosion, after a visual inspection – Pass All Criteria	IPC TM 650 2.6.3.3
8	Telcordia (Bellcore) SIR	35°C, 85% 4 days Initial: 8.34E+12Ω Final : 9.65E+12Ω Requirement > 1.0E+10Ω - Pass	GR-78-CORE
9	Telcordia (Bellcore) Electromigration	65°C, 85% 500 hrs Initial: 3.05E+10Ω Final : 1.57E+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	650 ± 10% kcps (88% metal load) 750 ± 10% kcps (89% metal load)	IPC TM 650 2.4.34
SOLDER PASTE TESTING			
No.	Item	Results	Test Method
1	Tack Test	34.2gf	IPC TM 650 2.4.44
2	Tack Test	N/P	JIS Z 3284 Annex 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 (39°F) = 9 months	AIM TM 125-11
6	Solder Paste Slump Test	Pass	IPC TM 650 2.4.35

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.