



# NC258 SAC305



## Lead-Free No Clean Solder Paste

### Features:

- *Long Pause-to-Print Capabilities*
- *Enhances Fine Print Definitions*
- *No Head-in-Pillow*
- Excellent Wetting, Even Leadless Devices
- *Reduced Voiding*
- RoHS Compliant

### Description:

NC258 has been developed to offer long pause-to-print capabilities while enhancing fine print definitions. NC258 reduces such defects as voiding and eliminates head-in-pillow. The superior wetting ability of NC258 results in bright, smooth and shiny solder joints. It also offers very low post process residues, which remain crystal clear even at the elevated temperatures required for today's lead-free alloys.

### Printing:

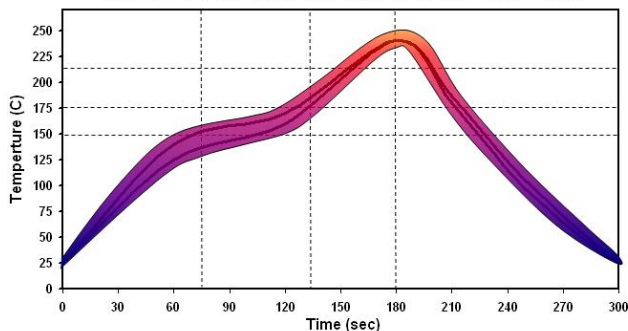
- Apply sufficient paste to the stencil to allow a smooth, even roll during the print cycle (a bead diameter of 12 to 16 mm (1/2 to 5/8 inch) is normally sufficient to begin).
- Apply small amounts of fresh solder paste to the stencil at controlled intervals to maintain paste chemistry and workable properties.
- NC258 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 DJAW-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	0.9 - 1.5 lbs/inch of blade	PCB Separation Distance	0.75-2.0 mm (.030-.080")
Squeegee Speed	0.5 - 6 inches/second	PCB Separation Speed	0.5 - 2 mm/second
Snap-off Distance	On Contact 0.00 mm (0.00")		

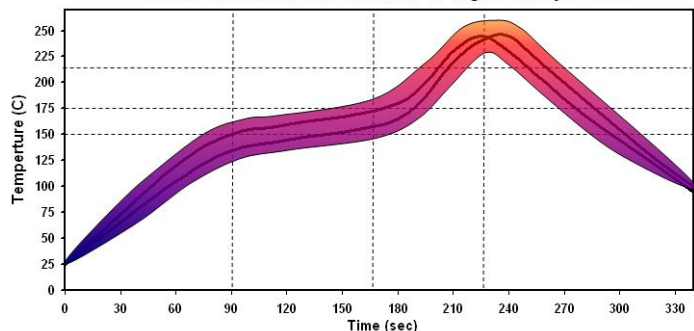
### Reflow Profile:

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.

SAC305 Reflow Profile Window For Low Density Boards



SAC305 Reflow Profile Window For High Density Boards



<i>RATE OF RISE 2°C / SEC MAX</i>	<i>RAMP TO 150°C (302°F)</i>	<i>PROGRESS THROUGH 150°C-175°C (302°F-347°F)</i>	<i>TO PEAK TEMP 230°C-245°C (445°F-474°F)</i>	<i>TIME ABOVE 217°C (425°F)</i>	<i>COOLDOWN ≤ 4 °C / SEC</i>	<i>PROFILE LENGTH AMBIENT TO PEAK</i>
Short Profiles	≤ 60 Sec	15-45 Sec	45-75 Sec	45-60 Sec	45± 15 Sec	2.75-3.75 Min
Long Profiles	≤ 90 Sec	60-90 Sec	45-60 Sec	45-75 Sec	45± 15 Sec	4.0-5.0 Min

- ❖ THE RECOMMENDED REFLOW PROFILE FOR NC258 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:

- NC258 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:

- NC258 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:

<i>ITEM</i>	<i>SPECIFICATION</i>
Appearance	Gray, Smooth, Creamy
Alloy	SAC305
Melting Point	217° -218° C
Particle Size	T3 , T4, T5
Metal Loading	89% (T3), 88.5% (T4, T5)
Viscosity	Print/dispense versions available.
Packaging	Available in all industry standard packaging.

## Test Data Summary:

<b>CLASSIFICATION</b>			
Product Name	IPC Classification to J-STD-004	Copper Mirror to J-STD-004	Silver Chromate to J-STD-004
NC258	REL0	LOW	PASS
<b>POWDER TESTING</b>			
<u>No.</u>	<u>Item</u>	<u>Results</u>	<u>Test Method</u>
1	Powder Size	Type 3 – 45-25 micron Type 4 – 38-20 micron	IPC TM 650 2.2.14
2	Powder Shape	Spherical	Microscope
<b>FLUX MEDIUM TESTING</b>			
<u>No.</u>	<u>Item</u>	<u>Results</u>	<u>Test Method</u>
1	Acid Value	146.8 mg KOH/ g flux	J-STD-004 IPC TM 650 2.3.13
2	Halide Content	Silver Chromate Paper - Pass	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	Low	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	Pass – See AIM Qualification Test Report # NC2580525	J-STD-004 IPC TM 650 2.6.3.7
8	Compatibility Test	See list of recommended products above	GR-78-CORE
9	Oxygen Bomb	Bromine 269 mg/Kg Chlorine <99.9 mg/Kg	EN 14582:2007 SW 9056 SW 5050
<b>VISCOSITY TESTING</b>			
<u>No.</u>	<u>Item</u>	<u>Results</u>	<u>Test Method</u>
1	T-Bar Spindle Test Method	900 ± 10% kcps	J-STD-005 IPC TM 650 2.4.34
<b>SOLDER PASTE TESTING</b>			
<u>No.</u>	<u>Item</u>	<u>Results</u>	<u>Test Method</u>
1	Tack Test	37.9 g	J-STD-005 IPC TM 650 2.4.44
2	Tack Test	94.8 g	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