

NUC970 SMT Reflow Profile

April. 01, 2015

Nuvoton Technology Corp.

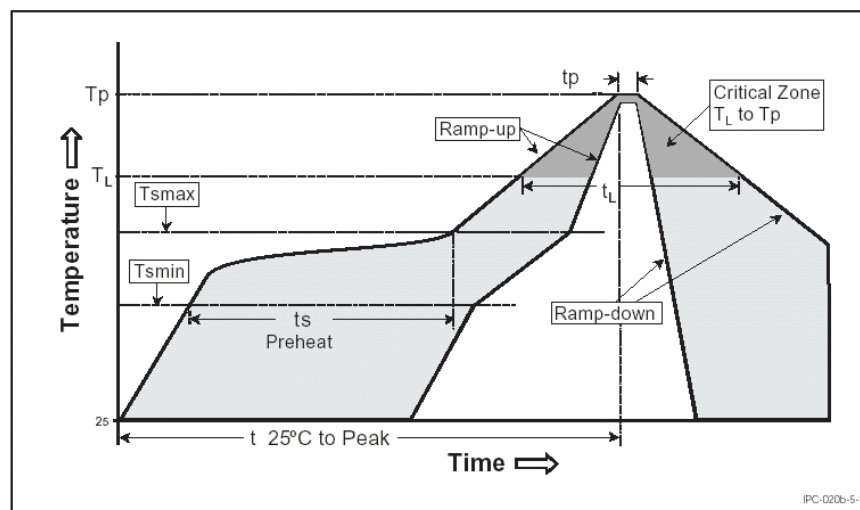


PCB Reflow Issue

A PCB reflow profile depends on the thermal mass of the entire populated board. The actual temperature used in the reflow oven should have below considerations of :

- Solder paste types
- Board density
- Component mass
- Board finished

Profile Setting Consideration

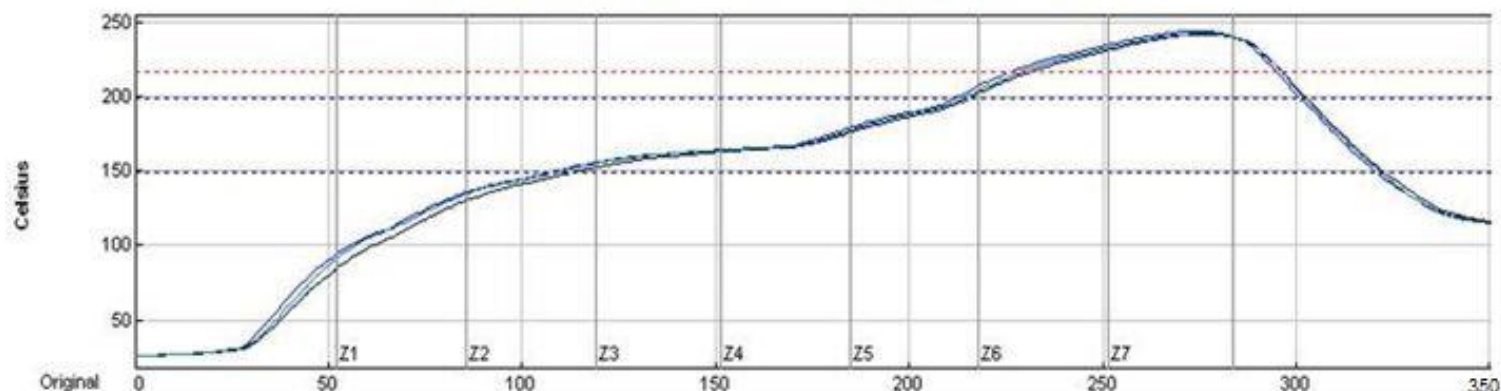


Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body	Small Body	Large Body	Small Body
Average ramp-up rate (T_L to T_p)	< 3°C/second		< 3°C/second	
Preheat				
-Temperature Min (T_{smin})	100°C		150°C	
-Temperature Max (T_{smax})	150°C		200°C	
-Time (min to max) (t_s)	60-120 seconds		60-180 seconds	
Time maintained above:				
-Temperature (T_L)	183°C		217°C	
-Time (t_L)	60-150 seconds		60-150 seconds	
Peak Temperature (T_p)	225+0/-5°C		245+5/-5°C	
Time within 5°C of actual Peak Temperature (t_p)	10-20 seconds		10-30 seconds	
Ramp-down Rate	3°C/second max.		3°C/second max.	
Time 25°C to Peak Temperature	6 minutes max.		8 minutes max.	

Note: 1. All temperatures refer to topside of the package, measured on the package body surface.
2. Depends on other parts on board density and follower solder paste manufacturers's guideline

Profile Suggestion for NUC970 series

Reflow Profile for SiP on board Assembly



Preheat time	150°C—200°C : 105+/-15sec
Dwell time	Over 220°C : 70+5/-10 sec
Peak Temp	240 +10/-5°C
Ramp Up/Down Rate	Up: 3 +0/-2 °C / sec Down: 2 +0/-1°C / sec

PKG Baking and Vacuumed Caution to Level-3 device



Caution
This bag contains
MOISTURE-SENSITIVE DEVICES

LEVEL

3

If blank, see adjacent
bar code label

1. Calculated shelf life in sealed bag: 12 months at $<40^{\circ}\text{C}$ and $<90\%$ relative humidity (RH)
2. Peak package body temperature: Follow JEDEC J-STD-020
3. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must
 - a) Mounted within: 168 hours of factory conditions $<30^{\circ}\text{C}/60\%\text{RH}$,
 - b) Stored at $<10\%$ RH
4. Devices require bake, before mounting, if:
 - a) Humidity indicator Card is $>10\%$ when read at $23 \pm 5^{\circ}\text{C}$,
 - b) 3a or 3b not met
5. If baking is required, devices may be baked for 24 hours at $125 \pm 5^{\circ}\text{C}$

Note: If device containers cannot be subjected to high temperature or shorter bake times are desired.

Reference IPC/JEDEC J-STD-033 for bake procedure

Bag Seal Date : _____

If blank, see adjacent bar code label

Note: Level and body temperature defined by IPC/JEDEC J-STD-020 late version

nuvoTon

