# NUC970 SMT Reflow Profile

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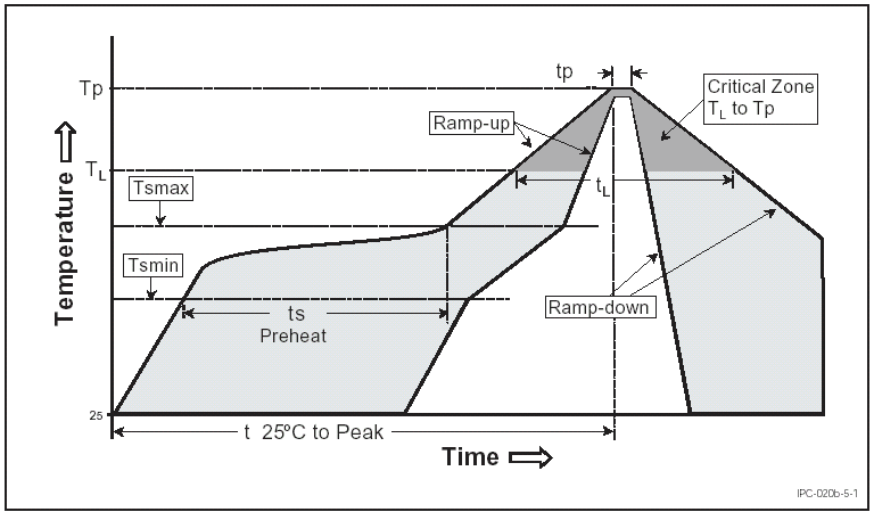
Nuvoton Technology Corp.

# 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

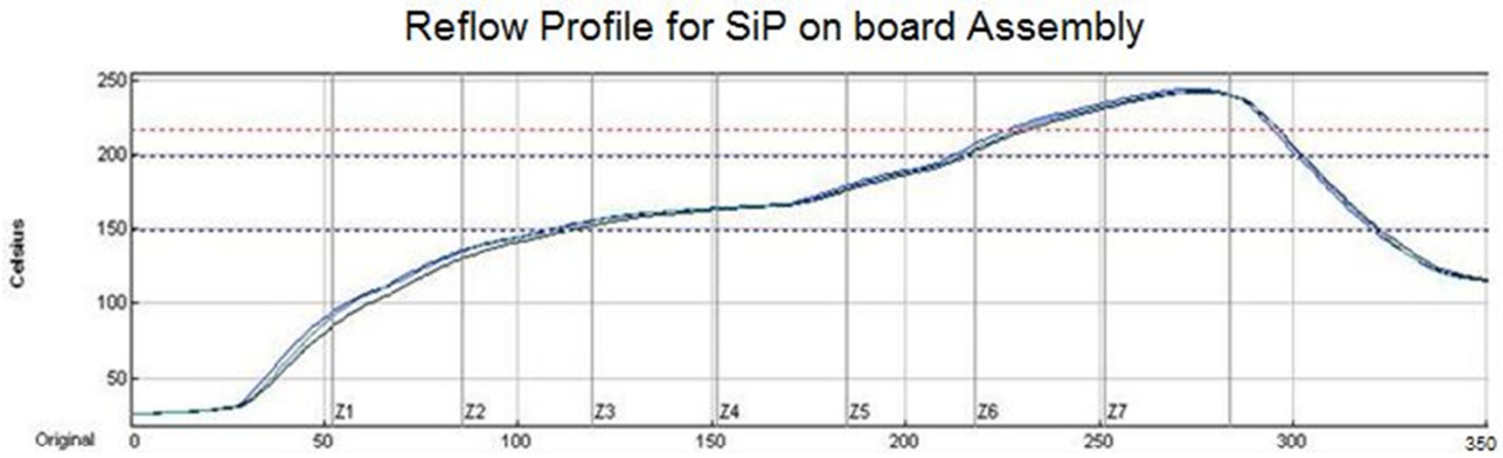
# Profile Setting Consideration




| 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℃/second | | < 3℃/second | |
| Preheat<br>-Temperature Min ($Ts_{min}$)<br>-Temperature Max ($Ts_{max}$)<br>-Time (min to max) (ts) | 100℃<br>150℃<br>60-120 seconds | | 150℃<br>200℃<br>60-180 seconds | |
| Time maintained above:<br>-Temperature ($T_L$)<br>-Time ($t_L$) | 183℃<br>60-150 seconds | | 217℃<br>60-150 seconds | |
| Peak Temperature (Tp) | 225+0/-5℃ | | 245+5/-5℃ | |
| Time within 5℃ of actual Peak Temperature (tp) | 10-20 seconds | | 10-30 seconds | |
| Ramp-down Rate | 3℃/second max. | | 3℃/second max. | |
| Time 25℃ 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 guidelin

# Profile Suggestion for NUC970 series




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