

**Recommended Reflow Profile  
for Pb-Free Solder Paste  
(9mm x 9mm QFN)**

Profile Specification	Pb-Free Assembly
Temperature minimum ( $T_{smin}$ )	150°C
Temperature maximum ( $T_{smax}$ )	200°C
Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60–120 seconds
Average ramp-up rate ( $T_{smax}$ to $T_p$ )	3°C/second maximum
Liquidous temperature ( $T_L$ )	217°C
Time at liquidous ( $t_L$ )	60–150 seconds
Peak package body temperature ( $T_c$ )	260°C
Time ( $t_p$ ) within 5°C of the peak package body temperature ( $T_c$ )	30 seconds maximum
Average ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/second maximum
Time 25°C to Peak	8 minutes maximum

Table 1: Reflow Profile

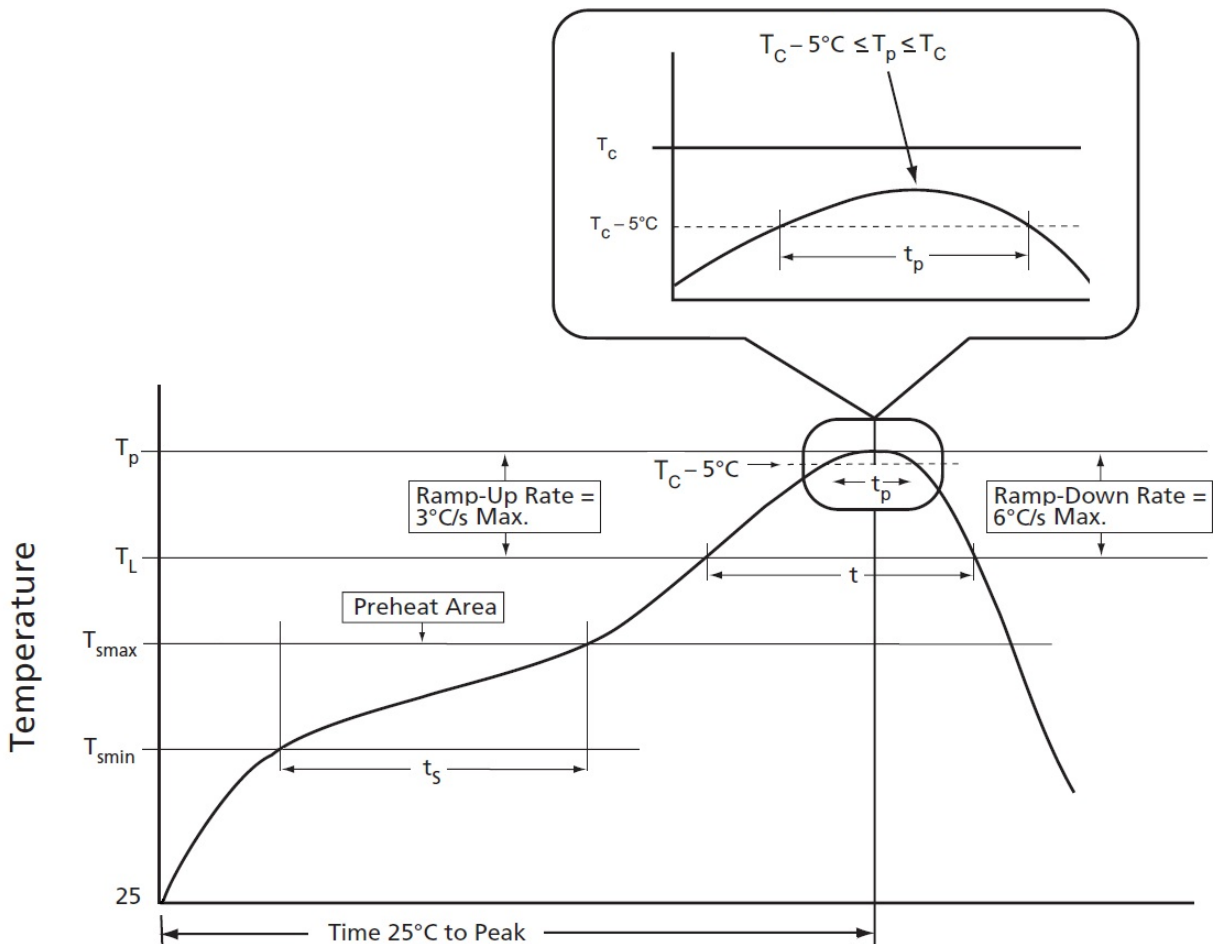


Figure 1: Reflow Diagram

Note:

- 1) All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow.
- 2) Reflow profiles in this document are recommendations only and are not meant to specify board assembly profiles. Actual board assembly profiles should be developed based on specific process needs and board designs and should not exceed the parameters in Table 1.