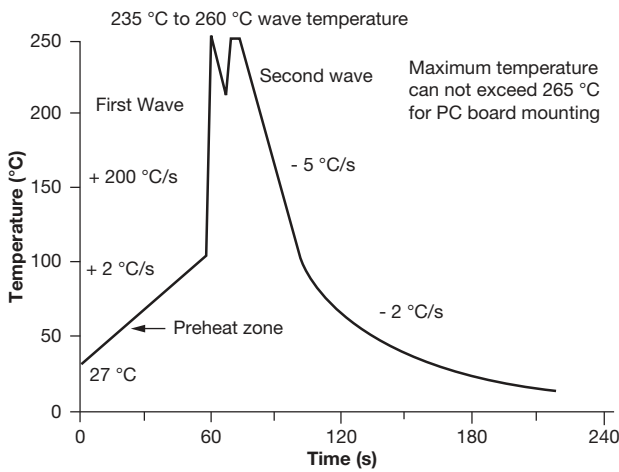




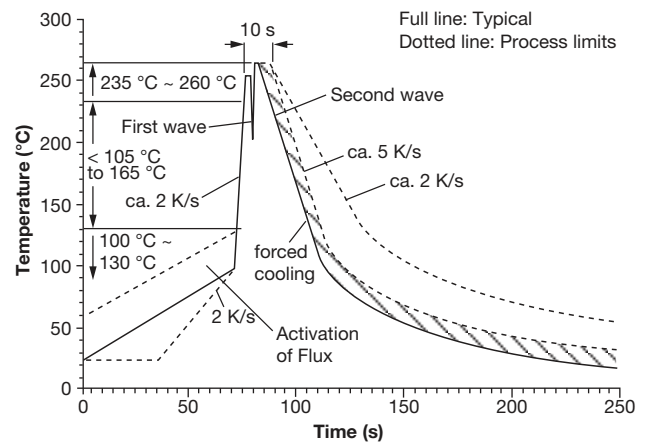
Soldering Process Notes

WAVE SOLDERING (THROUGH HOLE ONLY)

Sn-Pb Wave Soldering Profile



Lead (Pb)-free Wave Soldering Profile



REFLOW PROFILE (SURFACE MOUNT ONLY)

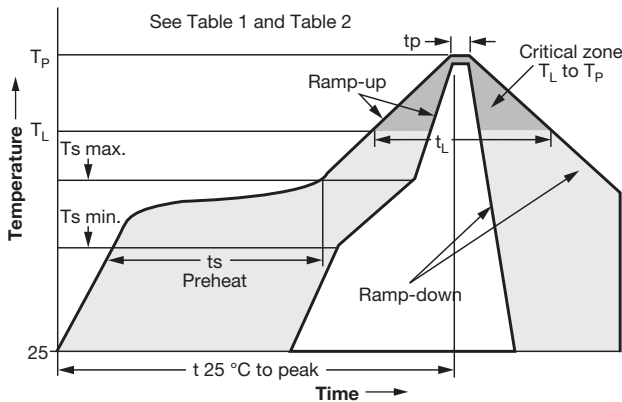


TABLE 1 - Sn-Pb EUTECTIC PROCESS PACKAGE REFLOW TEMPERATURES

PACKAGE THICKNESS	VOLUME mm ³ < 350	VOLUME mm ³ ≥ 350
< 2.5 mm	240 + 0/- 5 °C	225 + 0/- 5 °C
≥ 2.5 mm	225 + 0/- 5 °C	225 + 0/- 5 °C

TABLE 2 - LEAD (Pb)-FREE PROCESS PACKAGE CLASSIFICATION REFLOW TEMPERATURE

PACKAGE THICKNESS	VOLUME mm ³ < 350	VOLUME mm ³ 350 TO 2000	VOLUME mm ³ > 2000
< 1.6 mm	260 + 0 °C ⁽¹⁾	260 + 0 °C ⁽¹⁾	260 + 0 °C ⁽¹⁾
< 1.6 mm to 2.5 mm	260 + 0 °C ⁽¹⁾	250 + 0 °C ⁽¹⁾	245 + 0 °C ⁽¹⁾
≥ 2.5 mm	250 + 0 °C ⁽¹⁾	245 + 0 °C ⁽¹⁾	245 + 0 °C ⁽¹⁾

Note

⁽¹⁾ Tolerance: The device manufacturer/supplier shall assure process compatibility up to and including the stated classification temperature at the rated MSL level.



Soldering Process Notes

CLASSIFICATION REFLOW PROFILE		
PROFILE FEATURE	Sn-Pb EUTECTIC ASSEMBLY	LEAD (Pb)-FREE ASSEMBLY
Average ramp-up rate (Ts max. to TP)	3 °C/s maximum	3 °C/s maximum
Preheat		
- Temperature minimum (Ts min.)	100 °C	150 °C
- Temperature maximum (Ts max.)	150 °C	200 °C
- Time (min. to max.) (ts)	60 s to 120 s	60 s to 180 s
Time maintained above:		
- Temperature (T _L)	183 °C	217 °C
- Time (t _L)	60 s to 150 s	60 s to 150 s
Peak temperature	See table 1	See table 2
Time within 5 °C to actual peak temperature (tp)	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 min maximum	8 min maximum

Note

- All temperatures refer to top side of the package, measured on the package body surface.