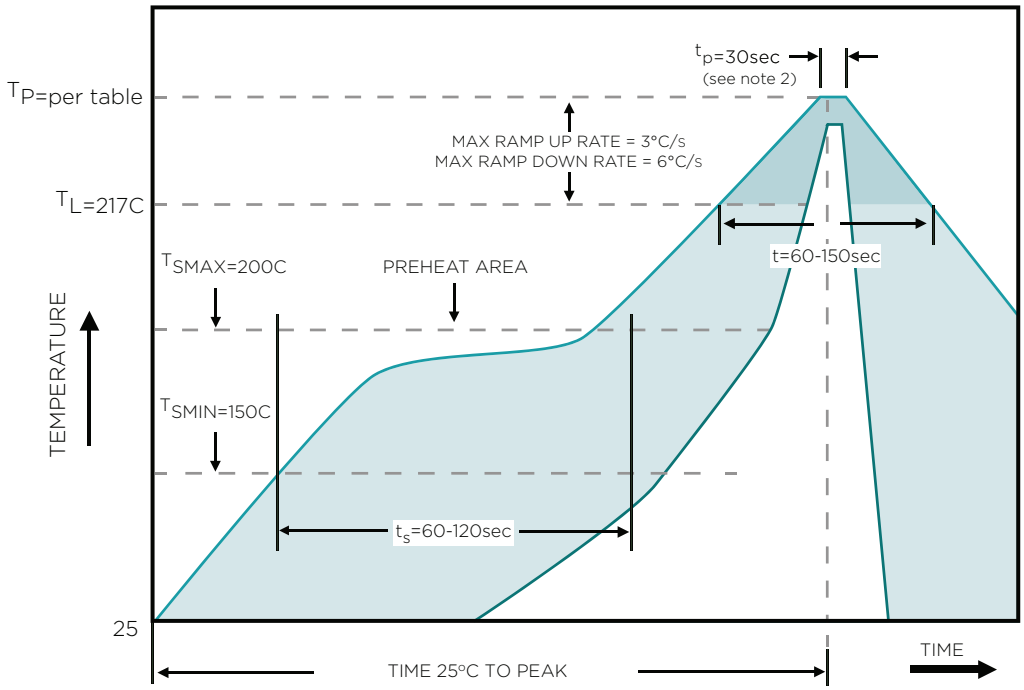
SOLDER REFLOW

PULSE RECOMMENDED Pb-FREE SOLDER REFLOW PROFILE
IR/CONVECTION REFLOW PROFILE (IPC/JEDEC J-STD-020F)



CLASSIFICATION TEMPERATURE (T_c) - Pb-FREE (SAC ALLOYS) PROCESS

Package Thickness	Volume mm3 <350	Volume mm3 350 - 2000	Volume mm3 > 2000
<1.6 mm	260°C	260°C	260°C
1.6 mm - 2.5mm	260°C	250°C	245°C
> 2.5mm	250°C	245°C	245°C

Note 1: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow (e.g., live-bug). If parts are reflowed in other than the normal live bug assembly reflow orientation (i.e., dead-bug), T_p shall be within ± 2 °C of the live bug Tp and still meet the T_c requirements, otherwise, the profile shall be adjusted to achieve the latter. To accurately measure actual peak package body temperatures, refer to JEP140 for recommended thermocouple use.

Note 2: Reflow profiles in this document are for classification/preconditioning 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 this table. For example, if T_p is 260°C and time t_p is 30 seconds, this means the following for the supplier and the user:
For a supplier: The peak temperature must be at least 260°C. The time above 255°C must be at least 30 seconds.
For a user: The peak temperature must not exceed 260°C. The time above 255°C must not exceed 30 seconds.

Note 3: Package "volume" excludes external terminals (e.g., balls, bumps, lands, leads) and/or non-integral heat sinks. Package volume includes the external dimensions of the package body, regardless if it has a cavity or is a passive package style.

Note 4: At the discretion of the device manufacturer, but **not** the board assembler/user, the maximum peak package body temperature (T_p) can exceed the values specified in the table. The use of a higher T_p does not change the classification temperature (T_c).

Note 5: The maximum component temperature reached during reflow depends on package thickness and volume. The use of convection reflow processes reduces the thermal gradients between packages. However, thermal gradients due to differences in thermal mass of SMD packages may still exist.