

Technical Note TN012: Reflow Soldering Profile for SMD Resistors

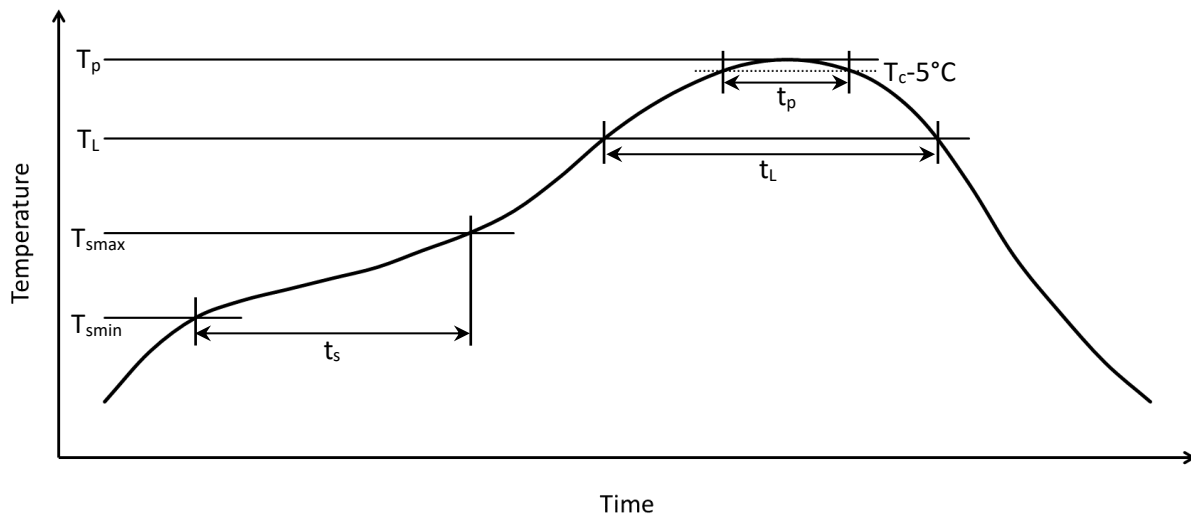
Online Process Recommendations

Guidance on solder processing of resistors is given on the Processing Data tab of each product information page. Among other things this indicates the recommended Pb-free reflow process and moisture sensitivity level (MSL) of the product.

Specifications				
Basic Data	Electrical Data	Compliance Data	Processing Data	Life Cycle Data
Packing	Plastic tape & reel			
Quantity	1500			
Nett Weight Each	0.14g			
Reflow Process	Pre-heat: 30s to 45s at 180°C, Solder: 20s to 40s at 250°C, Peak: 260°C			
MSL	1			
Wave Process	Compatible, 260±5 deg. C, 1 or 2 x 5±1 seconds contact time			
Shelf-life	None defined, but solderability test prior to use is recommended after two years from date of manufacture			

J-STD-020E Based Recommendation

In many cases the reflow process simply references J-STD-020E, and the details of this recommendation are shown below.



Profile Feature		Pb-Free Reflow Recommendation
Preheat / soak min. temperature	T_{smin}	150°C
Preheat / soak max. temperature	T_{smax}	200°C
Preheat / soak duration	t_s	60 to 120s
Ramp-up rate from T_L to T_p		3°C/s max.
Liquidus temperature	T_L	217°C
Duration above liquidus	t_L	60 to 150s
Peak temperature	T_p	≤260°C
Classification temperature	T_c	260°C
Duration within 5°C of classification temperature	t_p	30s
Magnitude of ramp-down rate from T_p to T_L		6°C/s max.
Time from 25°C to peak temperature		8 minutes max.