

There are several important general soldering considerations for surface mount tantalum capacitors.

- Recommended soldering profiles are designed to insure that the temperature of the internal construction of the capacitors does not exceed +220°C.
- Positioning capacitors near components radiating heat such as power transistors should be avoided.
- Allow for an increase to ESR ratings of 1.25 x catalog limit post PCB assembly.

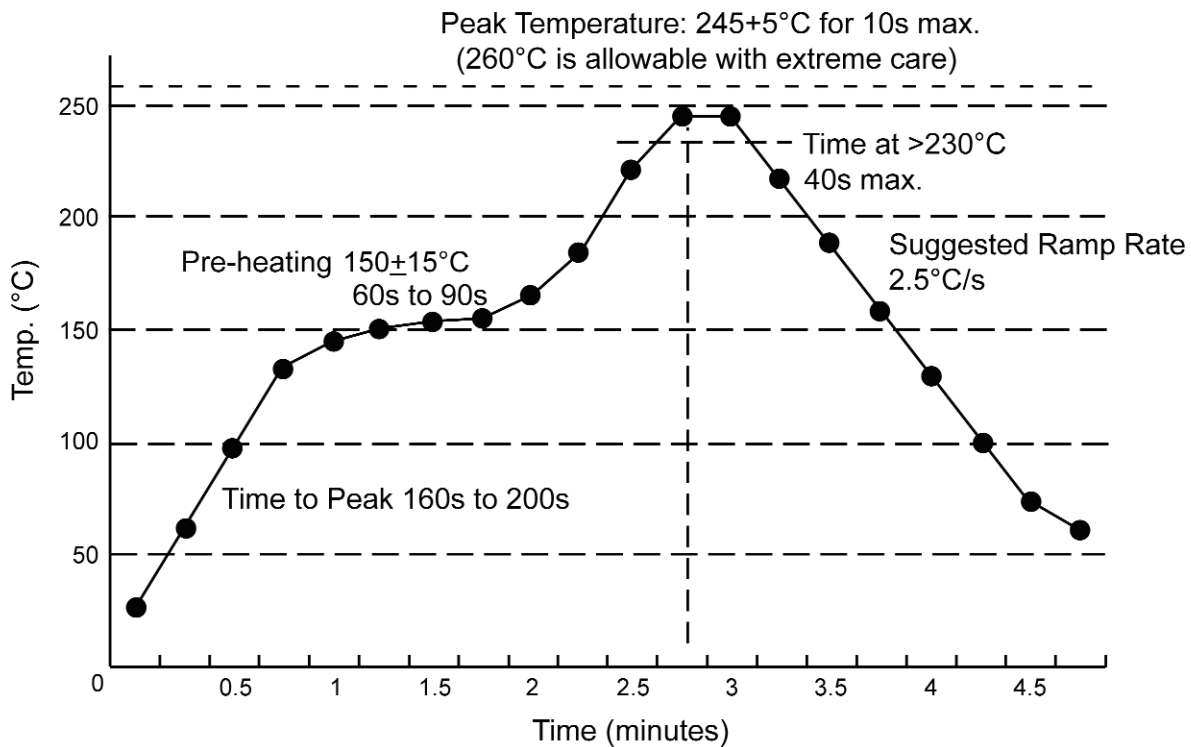
Parts with 90/10 Sn/Pb termination finish

- Peak temperature should not exceed 240°C +/- 15°C / 60-90s
- Recommended ramp rate is less than 2°C/sec.
- The effect of reflow cycles (double sided boards / rework etc.) is cumulative. The total time parts should be subjected to temperatures above +180°C is 60 seconds maximum.

Parts with 100% Sn termination finish (lead-free)

Legislation has been developed worldwide to reduce the lead content and other hazardous substances in electronic products. This will reduce the environmental impact when such products are discarded. Nemco products are lead-free devices which meet RoHS requirements. Optional suffix codes have been added to our part numbering system so either 90/10 Sn/Pb or 100% Sn (lead-free) can be specified. The following general information applies to lead-free surface mount devices.

Recommended Reflow Profile for Pb Free Surface Mount Devices



IR reflow

Pre-heating: 150°C +/- 15°C / 60-90s

Maximum peak temperature: 240°C - 260°C, 250°C max recommended, 10 seconds maximum time at peak.

Ramp rate: 2-3°C/sec.

Maximum time (cumulative) above 230°C 40 seconds.

Cool down should not be forced. 6°C/sec. is recommended.

Wave soldering

Maximum peak temperature: 250°C - 260°C for 3-5 seconds max

Other parameters remains the same as for IR reflow.

Hand soldering

Soldering iron tip diameter: select to fit application

Maximum tip temperature: +370°C

Maximum exposure time: 3 seconds

Recommended solder alloy for reflow: SnAgCu

lead-free (100% Sn) termination finish is compatible with all common lead-free solder pastes including SnCu, SnCuAgBi, etc.

Recommended solder alloy for wave soldering: SnCu

Recommended solder alloy for hand soldering: SnAgCu

Forward compatibility

Parts with Sn/Pb can be used in a lead-free process depending on the solder and solder temperature. Solders with Bi are not compatible.

Backward compatibility

Lead-free parts (100% Sn termination finish) can be used in a Sn/Pb process. The 100% Sn (Tin) termination finish is compatible with existing Sn/Pb solder pastes / systems in use today.

RoHS

Nemco lead-free product complies with EU Directive 2002/95/EC on the Restriction of Hazardous Substances requirements.

JEDEC Standard JESD97

Nemco lead-free surface mount devices are in accordance with category e3 terminations.

MSL

Moisture sensitivity level per IPC/Jedec J-STD-020B is level 1.

Visual standard

Lead-free solder joints are not as bright as tin-lead pastes and the fillet may not be as large.

Resin color

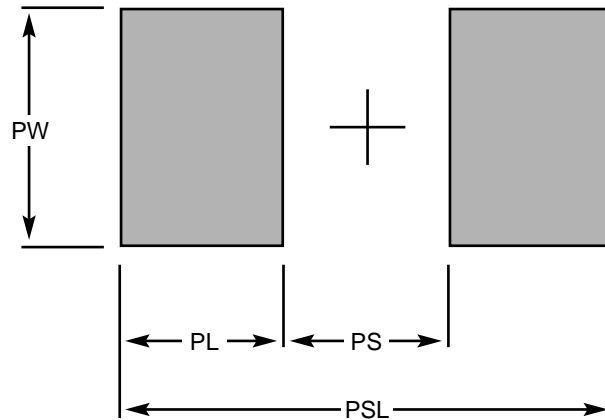
The encapsulant resin color may darken due to the increase in temperature required for the paste.

Self alignment

lead-free solder pastes do not allow the same self alignment as lead containing systems, Standard mounting pads are acceptable, but machine set up may need to be modified.

Reliability

1% per 1,000 hours at 85°C, Vr with 0.1Ω / V series impedance, 60% confidence level.



Nemco Series	Case Size	EIA IECQ	Pad Dimensions mm (inches)				
			Pad Layout	PSL	PL	PS	PW
PCT and LSR	A (1206)	3216-18	□□	3.8 (0.150)	1.4 (0.055)	1.0 (0.039)	1.8 (0.071)
	B	3528-21	□□	4.0 (0.157)	1.4 (0.055)	1.2 (0.047)	2.8 (0.110)
	C	6032-28	□ □	6.5 (0.256)	2.0 (0.079)	2.5 (0.098)	2.8 (0.110)
	D	7343-31	□ □	8.0 (0.315)	2.0 (0.079)	4.0 (0.157)	3.0 (0.118)
	H	7343-43	□ □	8.0 (0.315)	2.0 (0.079)	4.0 (0.157)	3.0 (0.118)
	Z	7361-38	□ □	8.0 (0.315)	2.0 (0.079)	4.0 (0.157)	3.7 (0.146)
	XL (0805)	2012-12	□□	2.7 (0.106)	1.0 (0.039)	0.8 (0.031)	1.6 (0.063)
	AL (1206)	3216-12	□□	3.8 (0.150)	1.4 (0.055)	1.0 (0.039)	1.8 (0.071)
	BL	3528-12	□□	4.0 (0.157)	1.4 (0.055)	1.2 (0.047)	2.8 (0.110)
	CL	6032-15	□ □	6.5 (0.256)	2.0 (0.079)	2.5 (0.098)	2.8 (0.110)
MCT	DL	7343-20	□ □	8.0 (0.315)	2.0 (0.079)	4.0 (0.157)	3.0 (0.118)
	P (0402)	1005-07	□□	2.2 (0.087)	0.9 (0.039)	0.4 (0.016)	0.7 (0.028)
	R (0603)	1608-10	□□	2.8 (0.110)	1.1 (0.043)	0.6 (0.024)	1.0 (0.039)