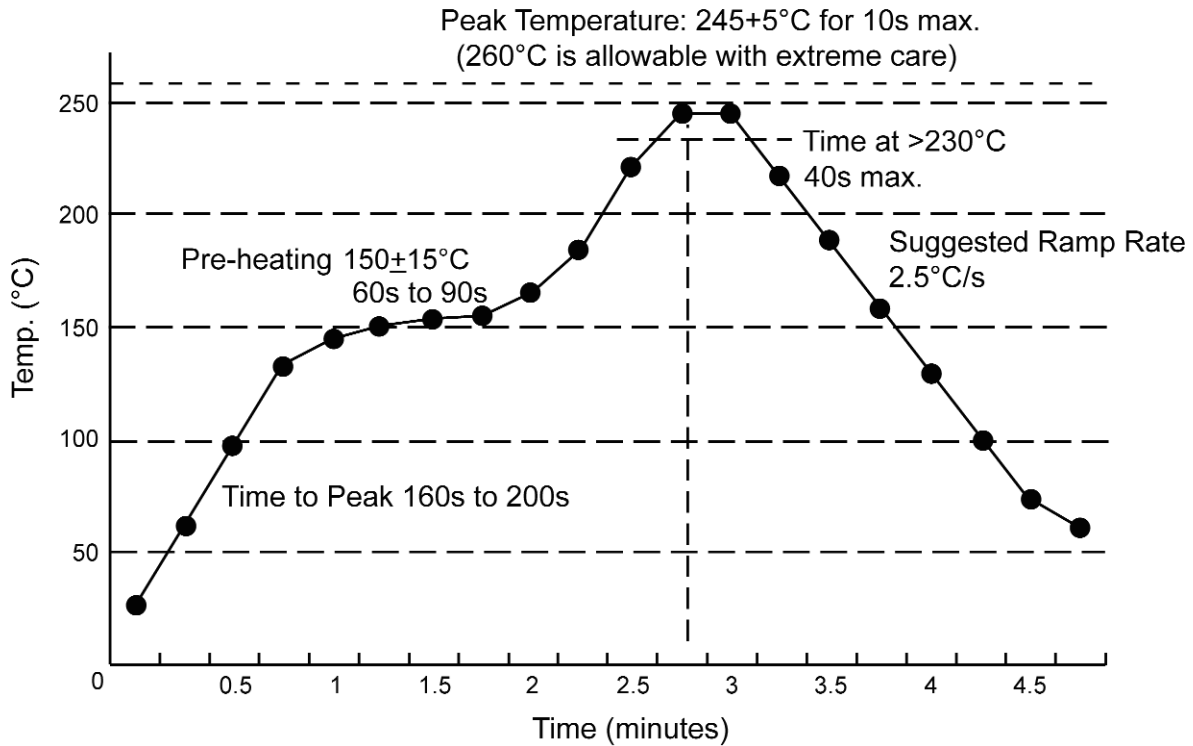


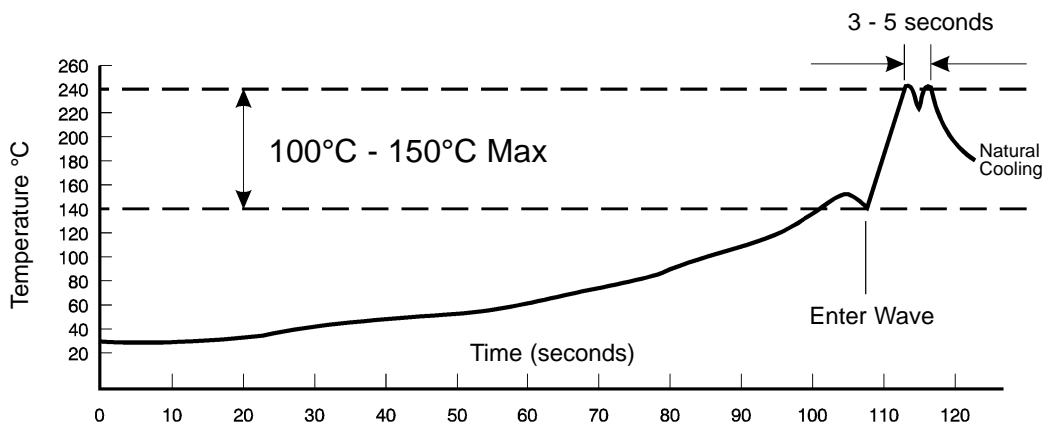
**There are several important general soldering considerations**

- 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.

## Recommended Reflow Profile for Pb Free Surface Mount Devices



## Recommended Wave Soldering Profile for Leaded Dipped Tantalums



## **Surface Mount Tantalum Soldering**

**There are several important general soldering considerations for tantalum capacitors.**

- Soldering temperature and time should be the minimum for a good connection.
- 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.

### **Lead-free RoHS compliant, 100% Sn termination finish**

Legislation is being 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.

### **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, 3 reflow cycles.

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**

**PCT, LSR, MCT and CGT:** Maximum peak temperature: 250°C - 260°C for 3-5 seconds max (250°C max recommended)

**TB:** Maximum peak temperature: 230°C - 250°C for 3-5 seconds max (240°C max recommended)

All other parameters remain 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

Apply heat to pad, not the terminations.

**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**

PCT, LSR, MCT and TB series moisture sensitivity level per IPC/Jedec J-STD-020B is level 1.

CGT series moisture sensitivity level per IPC/Jedec J-STD-020B is level 3.

### **Visual standard**

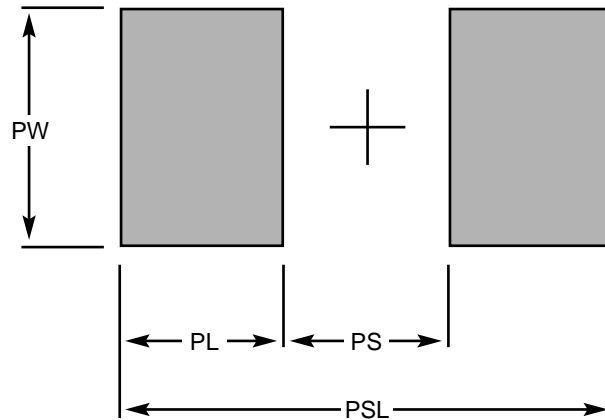
Lead-free solder joints are not as bright as tin-lead pastes and the fillet may not be as large.

### **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.



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