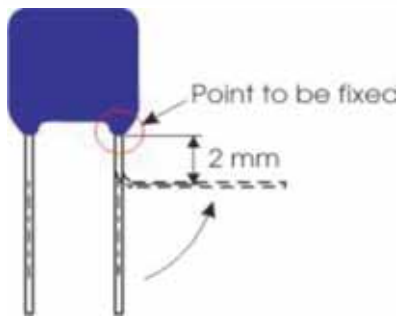


Assembly Recommendations for TH Components



Very often before soldering of through-hole component its leads are being bent. It is important not to damage the component during lead bending. Typical damage produced during bending are cracks in epoxy pants, which can lead to increased humidity sensitivity of component and consequentially to its shorter life time.

- In order to avoid epoxy pants damage it is necessary to :
- fix the most sensitive point (epoxy pants) of component body
 - bend wire at least 2 mm below the end of epoxy pants



Another potential damage of the component which can lead to component failure or shorter life time is thermal shock during manual soldering by soldering iron. This happens in case soldering iron is placed too close to one point of component body and most often it happens if solder joint is too close to varistor body.

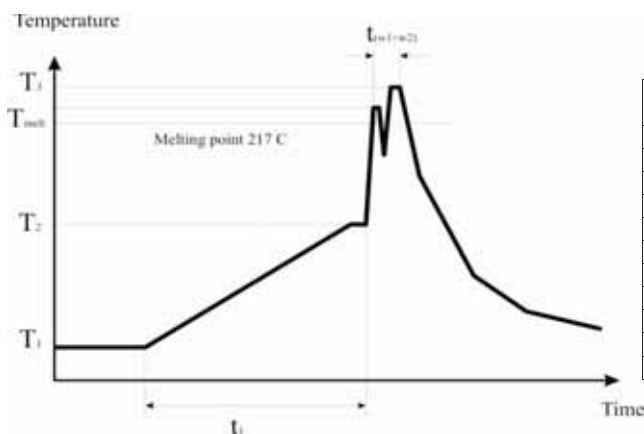
◦ **Resistance to Soldering Heat**

In case of automatic wave soldering it is important to provide sufficient resistance to soldering heat. In order to prevent any potential problems KEKO VARICON decided to introduce its own internal standard for testing of resistance to soldering heat of through-hole components: 300 °C, 10 s.

◦ **Pb-free Wave Soldering Profile Recommendations**

Recommended soldering profiles for all above components are in accordance with JEDEC standard curves (J-STD-020D) and therefore compatible with new Pb-free process.

◦ **Lead-free Wave Soldering Profile**



Pb-free wave soldering profile requirements for soldering heat resistance of components		
Parameters	Symbol	Specification
Preheating temperature gradient		4 °C/s max.
Preheating time	t_1	2 to 5 min
Min. preheating temperature	T_1	130 °C
Max. preheating temperature	T_2	180 °C
Melting temperature /point	T_{melt}	217 °C
Time in wave soldering phase ($w_1 + w_2$)	$t_{w_1+w_2}$	10 s
Max. wave temperature ($w_1 + w_2$)	T_3	265 °C +0/-5 °C
Cooling temperature gradient		6 °C/s max.
Temperature jump from T_2 to $T_{3(w)}$	$T_{3(w)} - T_2$	120 °C max
Time from 25 °C to T_3 (wave temperature)		8 min max.