SOLDERING RECOMMENDATIONS FOR CERAMIC STACKED CAPACITORS

The following are general recommendations for soldering of ceramic stacked capacitors. In general, Presidio Components recommends against hand soldering for this type of large ceramic device. However, if hand soldering cannot be avoided, it should be done with care to avoid thermally cracking the parts. Soldering of these parts to the circuit board, if done in a careless manner, is the most likely source of reliability problems.

PREHEATING AND MOUNTING. For reflow soldering, the parts should be preheated to within 50˚C - 60˚C of the reflow temperature, or as close as is practical. A convection-style reflow oven with nitrogen is ideal, but other types of reflow will also work. The heat-up and cool-down rates (dT/dt) should be kept well under 4˚C/sec. and preferably under 2˚C/sec. After soldering, allow the parts to air cool to room temperature before cleaning.

Note: Presidio Components' parts are designed to reliably withstand reflow temperatures of 265˚C maximum. If higher temperature reflow is required, consult factory.

HAND SOLDERING. If hand soldering must be used, preheat the parts as recommended above. A hot-air gun is an ideal tool for preheating. When hand soldering, avoid excessive heat, and keep the tip of the soldering iron as far away from the ceramic as possible.

As an example, for through-hole leaded parts, solder from the backside of the board. This will minimize the risk of thermally cracking the ceramic. After soldering, allow the parts to air cool to room temperature before cleaning.

PRE-TINNING LEADS. The leads do not need to be pre-tinned as they have already been tinned with Sn63 as part of our process.

In addition to the above, the following rules apply:

1. Do not dip stacked capacitors into a solder pot (to pre-tin, for example).
2. Do not touch-up a solder joint with a soldering iron. If touch up is necessary follow preheating and hand soldering recommendations above.
3. Do not deform leads or use excessive force to install parts.

Further, in accordance with Mil-PRF-49470, the following precaution should be followed:

"Precautionary Note: Capacitors covered by this specification sheet are very susceptible to thermal shock damage due to their large ceramic mass. Temperature profiles used should provide adequate temperature rise and cool-down time to prevent damage from thermal shock."

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