knowles
DLI•Novacap•Syfer•Voltronics

Recommended Mounting Methods for Single Layer Capacitors

DLI's Single Layer Capacitors can withstand up to 400°C temperature. Their nickel/gold termination (standard gold thickness is 100 micro inches minimum) is process compatible with most currently used hybrid and MIC production techniques. The temperature ramp up should not exceed 4°C/Second. Dielectric Laboratories recommends:

DIE ATTACHMENT

a) Eutectics

1. AuSn (80/20), melting point at 280°C
   AuGe (88/12), melting point at 356°C
   Indium alloy solders, melting points vary with alloy composition.
2. Preheat die to 125°C. Die attachment should be performed in an inert atmosphere.
3. Use either paste or pre-forms. (1 mil thick and ½ the area of the capacitor is usually sufficient)
4. Gently scrub the die into the paste or pre-form while supplying full heat to melt the paste or pre-form. Allow to cool gradually.

b) Conductive Epoxy

1. Apply the conductive epoxy on the substrate. Recommend DuPont 5504 silver filled or similar.
2. Gently place die onto the epoxy dot. Care should be taken to use only enough epoxy to achieve a good electrical connection without shorting the capacitor.
3. Cure epoxy as per manufacturer's specification.

c) Sn62 Solder

1. The Sn62 melting point is 179°C.
2. Preheat die to 125°C.
3. Tin area on the substrate (paste or preform).
4. Gently place die onto the pre-tin. Note that the small amount of silver present in the solder helps to prevent forming inter-metallic compounds. The nickel barrier on the capacitor will form an excellent joint should the gold be leached away.
5. Apply sufficient heat to reflow the solder. If a soldering iron is used, it should have a temperature controlled tip to prevent overheating. Place the soldering iron tip on the micro strip and move towards the capacitor as the solder begins to reflow. *Do not allow the tip to make direct contact with the capacitor!*

For gap-caps, it is recommended that both pads be bonded simultaneously and that the pre-heat, soldering or curing and post-heat temperatures be controlled.

Note: Follow the manufacturers' guidelines for die bonders.

WIRE BONDING

1. Thermo compression, thermo sonic and wedge bonding may all be used with excellent results.
2. Use .0007" to .001" diameter gold wire.
3. Follow the manufacturers' guidelines (for equipment and wire) to achieve best bonding results. Some experimentation may be necessary.

Dielectric Laboratories Inc.
2777 Route 20 East, Cazenovia, NY 13035
Phone: (315) 655-8710 **Fax:** (315) 655-8179
Email: DLISales@knowles.com **Web:** http://www.knowlescapacitors.com
Quality Systems ISO 9001, AS9100 and Environmental System ISO 14001 Certified