Cold soldering

What can I use to solder a heat sensitive component on to my circuit board?

With the shift to lead free soldering, heat sensitive components will become more of an issue. Components will distort or become permanently damaged if the soldering process exceeds its maximum reflow temperature. Plastics, for example, are susceptible to either degrade or melt at high temperatures. Both these can degrade or destroy the function of the component. As lead-free solders require a higher reflow temperature than tin/lead, a wide variety of components may be unsuitable for use unless component manufacturers have modified these parts to increase their maximum reflow temperature.

There are a few ways to solder components that cannot withstand the higher reflow temperatures:

1. Redesign circuit so that heat sensitive components can be attached using selective soldering or hand soldering after all other components have been attached. These soldering techniques do not heat components to as high a temperatures as SMT but require space around the component.
2. **Use Silver Conductive Epoxy as a cold solder method to avoid redesigning circuit.**
3. As a last resort, the heat sensitive component will have to be changed to a different type, which often requires significant circuit design changes.

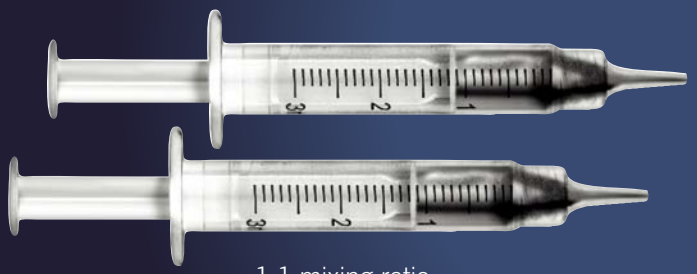
Lead-free solders are different to tin/lead in several ways, the main differences being:

- Higher melting point – typically 30 - 40°C higher
- Inferior wetting properties, mid-chip solder balls
- Higher surface tension – increased risk of tombstoning and bridging

(see page 2 for more on tombstoning and bridging)

All MG products are Pb RoHS COMPLIANT

For low volume production and maintenance, using Silver Conductive Epoxy makes the most economical sense.



1:1 mixing ratio

This two part silver epoxy offers high electrical conductivity and strong conductive bonding. Use in place of traditional soldering on heat sensitive components. Good for repairing defective traces and creating jumpers on boards. Can be used as an effective heat sink adhesive. This Conductive Silver Epoxy comes in two 7g syringes.

Cat. no.	Size	Format
8331-14G	14 grams (0.5 oz)	Dual syringe
8331-454G	454 grams (1 lb.)	Paste

E-mail info@mgchemicals.com
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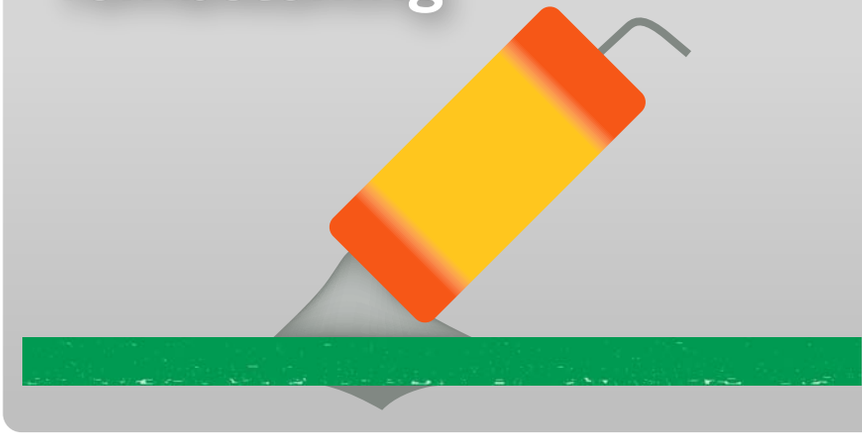
Solder bridge

A solder bridge is a mechanical bridge formed by solder alloy between two component terminals resulting in an electrical short and circuit malfunction. In the reflow soldering process, solder bridges are mostly seen on fine pitch ICs. But in the wave soldering process solder bridges can be seen between terminals on a variety of components with larger pitch or between terminals of two chip components.

Tombstoning



Tombstoning is a term in the chip soldering industry describing a situation wherein a soldering defect causes a chip component to stand up on end (like a tombstone), leaving one end soldered to the board and the other end free. It is caused during the reflow soldering process where non-uniform melting causes an unbalanced force to be applied to the chip from the solder.

source: en.wikipedia.org/wiki/Tombstoning

TYPICAL APPLILCATION

Due to its convenience and safety, Conductive Silver Epoxy lends itself well to quick computer modifications. No soldering wire, solder or heat is required, so hobbyists can make quick and easy adjustments to their setup without any additional equipment.

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