

Anti-Tombstoning Solder Paste

Introduction

FCT Assembly offers a variety of anti-tombstoning solder pastes as an option with each of our solder paste fluxes. These solder pastes are an excellent choice to reduce the potential for tombstoning and skewing. They also provide an added benefit of reducing the potential for voiding. The anti-tombstoning solder pastes are made with a blend of solder alloys which gives the solder paste a wider melting range. This slows the melting and freezing rates allowing more time to equalize the wetting forces between solder joints of susceptible components.

Attributes

- Dramatic improvement in tombstoning and skewing.
- Minimizes the potential for voiding.
- Utilizes the same solder paste fluxes as standard versions of the solder pastes.

Anti-Tombstoning Solder Alloy Mixtures (% weight)	Solder Alloy Letter Code	Solder Powder Size Availability (IPC J-STD-005)	Melting Range (°C)	Intended for which solder paste alloy?
90% Sn63/Pb37 + 10% Sn62/Pb36/Ag2	AB	Type 3 or 4	179 to 183	Sn63/Pb37
80% Sn63/Pb37 + 20% Sn62/Pb36/Ag2	T	Type 3 or 4	179 to 183	Sn63/Pb37
90% SAC305 + 10% SN100C	Y	Type 3 or 4	217 to 227	SAC305
80% SAC305 + 20% SN100C		Type 3 or 4	217 to 227	SAC305
90% SAC305 + 10% SN100CV*		Type 3 or 4	217 to 225	SAC305
90% Sn/Ag3.5 + 10% SN100C	W	Type 3	221 to 227	Sn/Ag3.5
90% SN100C* + 10% SAC305	R	Type 3 or 4	217 to 227	SN100C*
90% SN100CV* + 10% SAC305		Type 3 or 4	217 to 225	SN100CV*

- Yellow highlighted mixtures are the most common and are recommended based upon the alloy currently used.
- Other alloy mixtures and sizes of solder powder are available upon request.
- *Alloy from Nihon Superior.

The solder alloy mixture chosen is based upon the solder paste alloy that is currently in use. The solder alloy in the currently used solder paste should be the main (90% or 80%) constituent of the anti-tombstoning solder mixture chosen. For example, if tombstoning is occurring with a Sn63/Pb37 solder paste, then the 90% Sn63/Pb37 + 10% Sn62/Pb36/Ag2 anti-tombstoning mixture is recommended. If tombstoning is occurring with a SAC305 solder paste, then the 90% SAC305 + 10% SN100CV anti-tombstoning mixture is recommended.

Stencil Design

Our stencil partner, BlueRing Stencils can provide several design modifications which are effective at reducing the potential for tombstoning and skewing. In some cases, using a modified stencil design along with an anti-tombstoning solder paste may be required to fully resolve the issue.

Reflow Profile

Reflow profile modifications can help to reduce the potential for tombstoning but are best used along with anti-tombstoning solder pastes to minimize the potential for tombstoning. Addition of extra soak time may help:

- Tin-lead solder pastes - add 15-30 seconds of time between 150 and 170 °C.
- Lead-free solder pastes - add 15-30 seconds of time between 180 and 200 °C.

Other Information

Please refer to the Technical data sheet (TDS) and Safety Data Sheet (SDS) for each solder paste for additional details.

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