



LEAD-FREE SOLDER

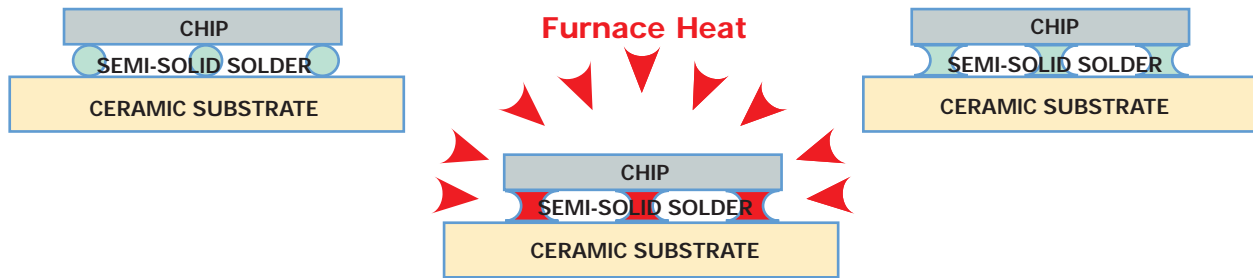


Lead free solders are gaining momentum for both environmental and health related reasons. Many legislative governing bodies have decided to demand the removal of lead from the electronic manufacturing processes. An understanding of the inherent difficulties has driven the deadlines of the new laws back but we are running short for time.

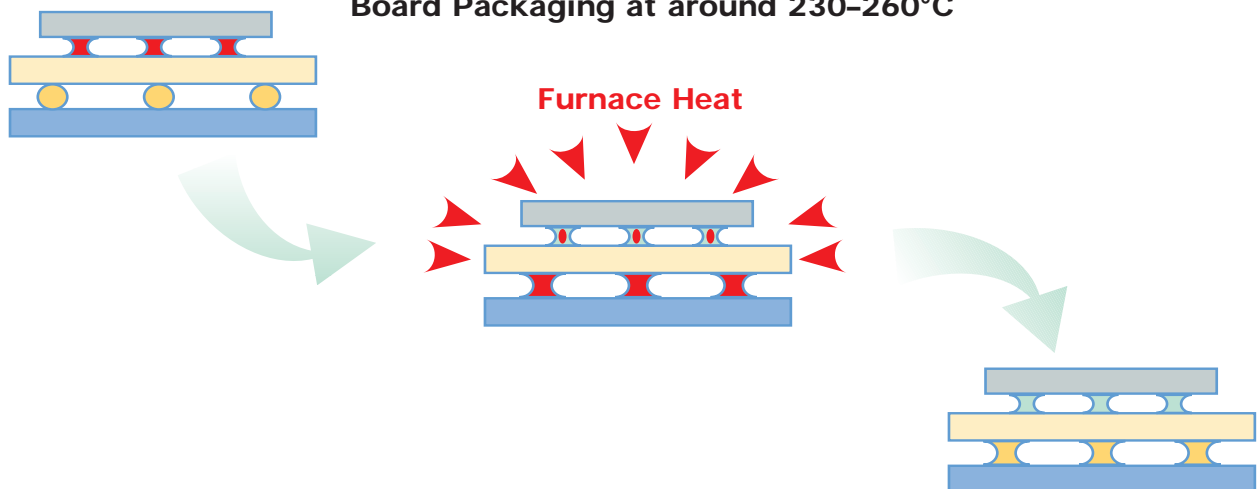
The current Pb based alloys do not have a stand alone replacement but some are emerging as potentially strong candidates. In our efforts to provide solutions to the Pb free factor, SPM has developed some unique techniques for hurdling the gap that remains between a lead and lead free process.

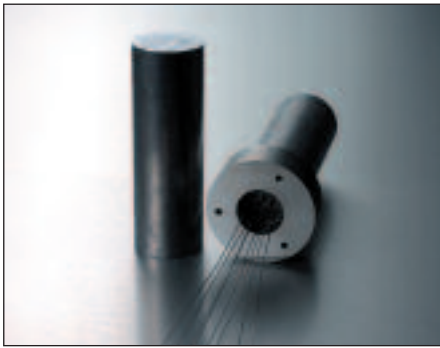
One of the techniques is what we refer to as “Semi Solid Packaging”. As illustrated below, the Pb-free solders used for die attach will contain sufficient high volume fractions of solid intermetallic particles to support and hold the chip in place during board level packaging.

Chip Packaging at around 350°C



Board Packaging at around 230–260°C





SPM has a wide variety of products in stock and are ready to meet your needs. In addition to our inventory we have a dedicated and well versed metallurgical team waiting to assist you. We have compiled a list of some alloys we recommend and welcome all requests for additional information and custom needs.

Lead-free Solders			
Alloy	Melting Temp. (oC)	Preform	Wire
80Au-20Sn	280	Yes	-
88Au-12Ge	356	Yes	-
97Au-3Si	370	Yes	-
87.5Sn-12.5Sb	240-267	Yes	Yes
90Sn-10Cu	227-450	Yes	Yes
85Sn-15Ag	221-345	Yes	Yes
65Sn-25Ag-10Sb	230-273	Yes	Yes
95Sn-5Sb	235-240	Yes	Yes
97.3Bi-2.5Ag-0.2Cu	260	-	Yes
95Sn-3Ag-2Cu	217	Yes	Yes
99.3Sn-0.7Cu	227	Yes	Yes
96.5Sn-3.5Ag	221	Yes	Yes
58Bi-42Sn	138	Yes	Yes
52In-48Sn	118	Yes	Yes

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