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CRITICAL INFORMATION WHEN USING SPINODAL CONTACT MATERIAL

Application of Common Solders

Copper-base alloys react with tin containing solders at elevated temperatures to form intermetallic components. This reaction is dependent on alloy, temperature, time, and type of solder. Nickel plating reduces rate of intermetallic formation but does not eliminate it. For temperatures above 150°C, use high lead solders.

For Temperatures Above 150°C

At these very high temperatures, in order to minimize intermetallic phase formation that can occur with any copper alloy, it is necessary to use high lead solder containing a maximum of 10% tin. Excellent field experience has been obtained with the 10% Sn-88%Pb-2%Ag solder. Laboratory data also shows excellent compatibility of this solder with Spinodal at 225°C. The 10%Sn-90%Pb solder is not recommended for temperatures above 200°C.

For Temperatures up to 150°C

All Tin-Lead solders can be used in this temperature range.

ASTM* ALLOY GRADE	COMPOSITION	SOLIDUS		LIQUIDUS		SUGGESTED TEMP. RANGES OF USE WITH SPINODAL		
		°C	°F	°C	°F	Up to 150° C	150° to 200° C	Above 200° C
	Tin/Lead							
Sn63	63Sn/37Pb	183	361	183	361	▯		
Sn60	60Sn/40Pb	183	361	190	374	▯		
Sn50	60Sn/50Pb	183	361	216	421	▯		
Sn45	45Sn/55Pb	183	361	227	441	▯		
Sn40A	40Sn/60Pb	183	361	238	460	▯		
Sn30A	30Sn/70Pb	183	361	255	491	▯		
Sn25A	25Sn/75Pb	183	361	266	511	▯		
Sn15	15Sn/85Pb	225	437	290	554	▯		
Sn10A	10Sn/90Pb	268	514	302	576	▯	▯	
Sn5	5Sn/95Pb	308	586	312	594	▯	▯	▯
Sn2	2Sn/98Pb	316	601	322	611	▯	▯	▯
	Silver Bearing							
Sn96	96.5Sn/3.5Ag	221	430	224	430	▯		
——	95Sn/5Ag	221	430	241	465	▯		
Sn10B	10Sn/88Pb/2Ag	268	514	299	570	▯	▯	▯
Ag2.5	97.5Sn/2.5Ag	301	580	304	580	▯	▯	▯
	Tin/Antimony							
——	100Sn	232	450	232	450	▯		
Sb5	95Sn/5Sb	233	452	240	464	▯		

*From ASTM Standard B32-83.