

The Maximum Fluidity Length of Solidifying Sn-Cu-Ag-Ni Solder Alloys

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Abstract

During wave soldering, it is important that a solder is able to flow easily to fill joints and to drain to leave tidy fillets. The maximum fluidity length (L_f) is a simple measure of the flow behaviour of solidifying alloys, defined as the distance a cooling and solidifying alloy can flow in a constant cross-section before the developing microstructure arrests flow. This paper explores the influence of alloy composition on L_f in Sn-rich Sn-Cu-Ag-Ni alloys with compositions relevant to wave soldering. Significant differences in L_f are measured among candidate lead-free solder alloys, which are discussed with respect to the phase diagrams and the mode of solidification.

The paper is available below. (issued around December 2007)
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