Introduction of Die Attach Hybrid Silver Adhesive Technology

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Abstract

The topic of the abstract is Reliability Analysis of sintered silver adhesives looking at Die Shear Strength on Various Metals such as bare Cu, Ag and Au surfaces with Various Die Sizes. Sintering silver adhesive is a promising and proven technology for power electronics packaging. It is becoming an attractive alternative to solder materials and a solution for the Pb free initiative. Over the past couple of years, advanced packaging trend has become more apparent for the demand of new developments in advanced thermal technology solutions. The current sintering silver adhesive, it seems that the requirement is satisfied only for the high thermal conductivity, however, it has some problems with poor die shear strength results and its reliability to satisfy current environmental stress testing. In this study, we investigated the reliability analysis of die shear strength. The study shows the solution in the coefficient of thermal expansion (CTE) mismatch of the different metals along with various die sizes. Reliability tests included initial and high temperature (260℃) storage, thermal cycle, thermal shock. The test level data shows MSL-1. Failure mode analysis used SEM and X-ray data to investigate the sintered silver adhesive.

Keyword: Thermal stress dispersion, Low-E modulus, Hybrid Ag-adhesive, Low temperature and pressure-less cure.