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Microstructure Formation of Solder Alloys During Soldering Using Synchrotron Radiography Imaging

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Electronics manufacturers are pushing the limits in reducing the physical size of circuitry while simultaneously increasing the number of transistors to satisfy Moore's Law. This includes investing in new materials in electronic packages with a focus on high reliability. In this study, a series of solder alloys were manufactured and the microstructure and soldering behavior were investigated in detail using advance characterisation techniques such as in-situ synchrotron X-ray radiography imaging. The collective results of this study demonstrate a detailed understanding of microstructure formations of solder alloys and the mechanisms of microstructure development during the soldering process.