Quantification of Underfill Influence to Chip Packaging Interactions of WLCSP

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Abstract

The underfill selection and its fillet formation influence to the Chip Packaging Interactions(CPI) of WLCSP was investigated through an experimental technique and numerical analysis. For the experimental assessment, thermo-mechanical interactions between die corner and underfill was investigated. Digital image correlation (DIC) technique with optical microscope was utilized to quantify the deformation behavior and strains of cross-sectioned WLCSP die corner subjected to thermal loading from 25˚C to 125˚C. Finite element analysis(FEA) was conducted by simulating the thermal loading applied in the experiments, and validated with experimental results.