

# 異方性導電樹脂接合部の接合信頼性評価

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## Evaluation of Reliability of a Joint Using Anisotropic Conductive Adhesive

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**概要** 異方性導電フィルムは、液晶ディスプレイ実装分野などでの電氣的接続に広く用いられている接着材料である。異方性導電フィルムによる接合部は、樹脂の収縮によって、パンプ間に圧力を発生させ、これによって導通を確保する。一方で、樹脂の収縮は、半導体チップや基板との接合部をはく離させる推進力となるため、その両者のバランスのとれた設計が必要である。本研究では基板、半導体チップと異方性導電フィルムの界面のはく離試験方法を開発し、異種材界面き裂の応力拡大係数を用いて接合強度の評価を行う手法を提案する。

### Abstract

Anisotropic conductive adhesive film (ACF) is an interconnection material in electronic packages such as connecting a LCD panel on a circuit substrate. It is expected to be a key technology for the chip size packaging. The goal of our work is to provide an optimum design scheme to achieve the best combination of the electrical performance and the mechanical reliability. This study presents an evaluation technology for the delamination at connections using ACF. We utilized the stress intensity factors of an interface crack between jointed dissimilar materials to evaluate the delamination strength of a connection. As the result, the residual stress of an interface between a chip and ACF is higher than that between ACF and substrate. And also we investigated the mode dependence of mechanical test, and found out that an interface crack between ACF and substrate was more affected by mode II rather than mode I at high temperature.

**Key Words:** Anisotropic Conductive Film (ACF), Delamination Test, Stress Intensity Factor, Residual Stress