

Microelectronic Package & Board Failure Mechanisms and Related Analysis Techniques

This seminar is aimed at the beginner to advanced engineer that is working in the area of failure analysis, microelectronic packaging, board assembly or characterization and anyone directing, developing, designing, or managing others that are working in these areas. The focus is on the analysis equipment and techniques required to understand root cause of failure and characterize microelectronic packaging and assembly processes.

Methods such as CSAM, 2D and 3D X-ray, XRF, 3D Visual Inspection, DSC/TMA used to evaluate plastic packages, underfills, encapsulations, molding compounds and board level interconnects are reviewed in detail. The instructor brings years of experience and real world examples of successful component and board level analysis to the classroom.

Course Outline:

Microelectronic Packaging Overview

Package assembly process flows

Reliability Testing Overview and Methods

From the point of the wafer/die assembly process:

- Wafer and Die failures and causes

- First level interconnect (FLI) (Wire bonds, Flip Chip bumps, etc)

- Die attach and encapsulation (DA, Underfill, Encap, Molding)

- Package substrates/boards

- Second level interconnect (SLI) (Lead types, LGA, BGA, etc)

- Plastic Package failure mechanisms

- Hermetic Package failure mechanisms

- Flip Chip failure mechanisms

- Failure Analysis Equipment, Techniques, and Processes:

- CSAM, 2D and 3D X-ray, XRF, 3D Visual Inspection, DSC/TMA, Leak test, etc.

- Failure Analysis Process Flows

- Future products and developing analysis techniques.

Summary plus Q&A