Product Code: **SE05**

Semiconductor Assembly Technology Improvement

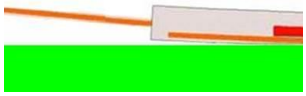
MANUFACTURING INSIGHTS SKILLS TRAINING

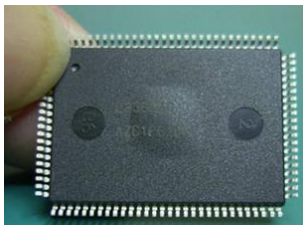
Program: Semiconductor Assembly Engineering Training Series

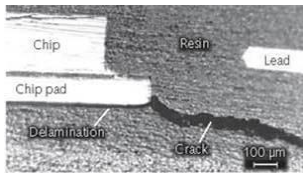
Session Topic: Microelectronic Package Defects Understanding & Prevention

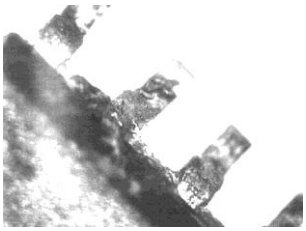
By: William Lee

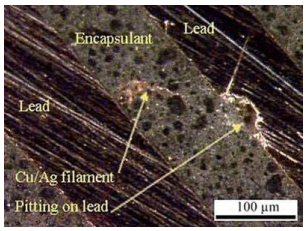
SBL TRAINING PROGRAM

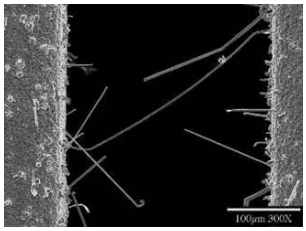












Course Objective

The objective of this patented MIS program is to raise technical competency of technical employees from semiconductor industry for product quality & productivity improvement through understanding of vital manufacturing variables. At the end of the MIS training, participants will realize the importance of technical details study & the introduction of science & engineering procedures to their existing practices for a profitable manufacturing operation.

Session Overview

Package defects can happen in an encapsulated microelectronic device at any stage in manufacturing & assembly processes including die passivation, lead-frame fabrication, chip adhesion, wire bonding encapsulation, and lead forming. The presence of defects can trigger or accelerate the failure mechanisms in the package and result premature and unexpected failures. Defects can be eliminated or minimized through careful control of processing parameters, optimal package design, environmental conditions, and material selection. Identification of the contributing factors is an important step in the process of elimination and prevention of package defects and failures.

This specially design information packed technical training provides an overview of potential defects and failures in a plastic-encapsulated package and discusses defects and types of failures associated with the electronic plastic packages, failure mechanisms, the contributing factors, and precaution.

Benefits

1. Recognize package defects & failure types.
2. Study & identify contributing factors for package defects & failures.
3. Gain a systematic understanding of failures mechanisms, their interactions, their complicating effects on performance of microelectronic packages.

Course Contents

1. Residual Stress & Warpage

Forming of residual stress; mechanical & thermal stresses; moulding stress; stress system, interruption and management; warpage understanding; warpage on symmetrical and asymmetrical package designs.

2. Delamination and Cracking

Degradation of bonding adhesion; popcorning; moisture damage; water effects; building strong adhesion; building crack resistance; wire bond failures.

3. Corrosion Failures

Galvanic corrosion; temperature influence; contaminants exposure; die metallization corrosion; wire bond corrosion; leadframe corrosion.

4. Electrical Migration & Tin Whisker

Electro-migration; electrochemical migration; stress migration, tin whisker.

Course Instructor

William Lee - Malaysian, Materials Engineer with an honorable Bachelor Degree awarded by The Engineering Council of London (EC, UK). He has over 28 years working & teaching experience in manufacturing industry. William possesses strong fundamentals knowledge in technical science & has special talent to communicate and explain to others the principles involved in various engineering fields. His ability to present and link the various engineering disciplines with real industrial use has made many of his course participants to appreciate the significant of technical details study for manufacturing improvement.

Over the years, he has developed a series of patented Manufacturing Insights Skills (MIS) Training programs for various manufacturing industries. He is now a full time contract speaker for a few training organizers as well as professional associations in ASEAN & Australia. William will bring a wealth of teaching experience to this program along with his strong industrial background as a former engineering practitioner in tooling, materials, heat treatment, moulding & metal forming divisions. In addition, William is a versatile trilingual instructor who can instruct technical courses in English, Bahasa Malaysia or Mandarin (or a combination of the languages) to ensure full understanding of his presentation by his trainees from all levels.

Target Participants

This course is specially designed for semiconductor industry. Target audience can be those involved in microelectronic packages design, manufacturing, assembly, testing to final quality inspection. Technical personnel such as designers, quality controllers and R&D researchers, production managers, engineers, technicians, specialists and supervisors or anyone who are keen to improve the reliability & performance of microelectronic packages are encouraged to participate in this information packed technical event.

Administrative Details

1. Should public training not be scheduled for this program we will consider opening an ad hoc public training class if you've minimum guaranteed participants to attend this program.
2. We can bring this program to your premises as in-house training event for your in-house employees only. Interested participating company may contact us for an in-house training proposal.
3. In-house training can be conducted on weekdays or weekends (including public holidays) to meet the scheduling needs of your targeted staff.
4. For in-house training, a list of participants complete with their full name & designation must be presented to training provider one week prior commencement of each program. The total no. of training manual is supplied to the actual no. of turned out attendees only.
5. Substitute is allowed to replace the earlier registered person if he / she is unable to attend the training program (both public and in-house training). Participating company must inform us the details of replacement person.
6. All programs are of SBL (Skim Bantuan Latihan) type. Eligible company (Human Resources Development Fund contributor) must apply through themselves for the rebate of any eligible expenses (including training fees) from Human Resources Development Council. Training provider bears no responsibility for the approval of training grants or any form of rebates between participating company and HRDC.

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