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Visual Inspection per Mil-Std-883 TM 2010

Course Outline (1 DAY)

This course covers the visual inspection criteria for IC monolithic devices based on Mil-STD-883 TM 2010 for both high and low magnification inspection in conjunction with industry accepted best commercial practices for products intended for military applications (Class S and B). High powered visual inspection of silicon ICs is a critical process step that requires a high degree of operator skill and understanding of what to look for and reject as part of the inspection process. Color photographs of actual production defects are reviewed and discussed in detail. The students are exposed to a variety of defects and the instructor explains why the defects are critical to the reliability of the end product.

- Understand what to look for as part of a internal visual inspection (TM 2010) both high and low powered inspection
- Learn how to interpret and apply traditional Mil Spec visual inspection requirements
- Review products/defects "hands-on" in the Classroom as arranged

Internal Visual (Monolithic) TM 2010

Introduction and Review of Terminology
General Inspection Guidelines and Procedures
Magnification Requirements

Visual Inspection Requirements Flowdown
MIL-PRF-38535 MIL-STD-883J TM 2010
Silicon Wafer fab Processes

TM 2010 Inspection Criteria (high mag)
IC Chips, cracks and scratches
Diffusion and passivation layer(s) faults.
Scribing and die defects.
Excessive probe marks
Glassivation defects.
Dielectric isolation
Film resistors defects
Laser trimmed film resistor defects
GaAs airbridge, vias, backside defects
TM 2010 Inspection Criteria (low mag)
Epoxy die attach, fillet criteria, typical problems encountered
Eutectic solder attach
Wirebond defects
Ball bonds, wedge bonds Au and Al
e.g. Excessive squash out, heel cracks, misplaced bonds etc.

Foreign Material Identification and Contamination Control
Summary and Review Q&A Session
Student Certification Test
Student Feedback and Course Critique