

Best Practices in Failure Avoidance

½ or 1 Day Course

ABSTRACT

Companies and organizations involved in the military and avionics market have some of the highest reliability requirements in the electronics industry. However, projects are often constrained in performing the best engineering practices to avoid failures due to a combination of high complexity, low volume, costs, availability and schedule milestones.

This seminar will provide reliability engineers and management a foundation by providing a comprehensive review of the best practices in engineering and reliability assurance with case studies that will provide guidance on the practices most appropriate for a given design, use environment, desired lifetime, and available resources.

OUTLINE

- How to provide an approach for assessing reliability requirements
- How to establish a realistic reliability goal based on market requirements use environment
- Design for Excellence (DfX)
- Design for Manufacturing (DfM)
- Design for Reliability (DfR) for components (passive, logic, power)
- Printed Board (spacings, PTH fatigue, annular ring)
- Interconnects (thermal, mechanical)
- Connectors (design, plating thickness and material)
- Manufacturing and other factors
- Supplier assessment for electronic manufacturer selection
- Components used
- Audit needs and options including application history and qualification testing of item (slice and dice, shake and bake)
- Identifying at-risk suppliers and how to work with them
- For custom designs, establish the criteria for selection of components
- Printed Board (capability, quality control, qualification)
- Circuit Assembly (capability, quality control)
- Qualification by Similarity
- Product Qualification Approaches using:
 - HALT
 - Physics of Failure (PoF)
 - Accelerated Life Testing (ALT)
 - Step Stress Testing
 - Comprehensive failure analysis

Who Should Attend?

This course is intended as an introductory to intermediate level course for board-level designers, component engineers, quality engineers, reliability engineers, and their managers.