Environmental Stress Screening (ESS)

1/2 DAY

Environmental Stress Screening (ESS) is a program which subjects products, such as, hybrids and microwave modules to environmental stress in order to precipitate latent defects and screen out failures that may otherwise show up early in the product life cycle. ESS is a dynamic program which changes based on production yield and early life failures.

This course is intended for process engineers, quality engineers, and managers responsible for screening and qualification testing of hybrids and microwave modules.

Course Outline

Review of MIL-PRF-38534 Requirements for Screening and Qualification
  Theory and technical rationale for screening vs. qualification
  Class H vs. Class K screening and qualification requirements
  Clarification of destruct vs. non-destruct test methods

Basic Review of MIL-STD-883 Test Methods (e.g., temp cycle, constant acceleration, burn in etc.)

Element Evaluation Screening
  Microcircuit and semiconductor die level
  Passive elements (e.g. discrete chip resistors, capacitors etc.)
  Substrate evaluation
  Package evaluation
  Polymeric materials (e.g., epoxy, particle getters)

Hybrid Device Screening for Class K and Class H Hybrids
  Pre Cap environmental stress screening
  Required Post Cap environmental stress screening

Review of Typical ESS at the PWB and Black Box Level

Course Summary
Student Examination Test and Review
Student Feedback and Course Critique