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Introduction to Microelectronics Packaging

1 DAY

This course is intended for individuals unfamiliar with microelectronics packaging technology. The instructor begins by broadly describes packaging terminology and reviews the myriad of acronyms used throughout the electronics industry, and then breaks down the technology in terms of industry segments, beginning with low volume complex hermetic packages for the military use, and then the latest developments in commercial microelectronics packaging for cell phones and handheld wireless devices. Lots of pictures along with simple explanations will help a new manager or engineer understand the technology drivers and key aspects of microelectronic packaging technology.

Course Outline

Introduction to Microelectronic Packaging

Terminology and Product Definitions

Hybrids, MCMs, Microwave Modules, MEMS, Optoelectronic Devices
SMT (Surface Mount Technology) leaded and leadless packages, BGAs, CSPs

Market Segments

Military, Aerospace, Commercial, Automotive, Medical, Telecommunications...

Technology Drivers

Size, Weight, Power, Cost

IC Wafer Fabrication Technology Overview

Substrate/Board Manufacturing Technologies

Thick and Thin Film Ceramic, LTCC
Printed Circuit Board (PCB) Materials

Fundamentals of Component Attach

Epoxy and Solders

Interconnect technology:

Wirebonding, Flip Chips and 3D Chip Stacking

Typical Low Volume Complex Hermetic Military Process Flow

Hermetic Packaging Processes

High Speed Automated Commercial Processes

Plastic Encapsulation Processes

Course Summary and Student Feedback