

The Reality of Reliability of Lead-Free

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What You Will Learn

Numerous North American companies in industries exempt from RoHS are starting to make the transition to Pb-free product. These include automotive, appliance, telecommunications, and military. These applications demand long-life in potentially severe operating environments. Understanding how to predict and ensure quality (can I make Pb-free just as good as SnPb?) and long-term reliability (will it last just as long?) is critical to customer satisfaction and, eventually, the success of your company.

This presentation provides a focused but comprehensive discussion on all potential issues that can arise during the transition to Pb-free. All areas of potential risk are examined. For each reliability concern, a brief description is provided, followed by the current state of industry knowledge and an opportunity for risk mitigation based upon the product design, materials, complexity, volumes, and customer expectations of reliability. A final summary provides the attendees a roadmap for ensuring the reliability of Pb-free product.

Who Should Attend

All personnel involved in the process of transitioning to Pb-free; including procurement, design engineers, reliability and quality personnel, failure analysts, and management involved in new product introduction (NPI) and program support.

Topics Covered

- Introduction
 - Review of RoHS Legislation
 - What has changed?
- Components
 - Robustness
 - Popcorning (PEMs and capacitors)
- Tin Whiskering
 - Background
 - Matte vs. Bright
 - Mechanical Behavior
 - Mitigation (component-level)
 - Mitigation (OEM level)
 - Prediction
- Solderability Platings
 - ENIG failure mechanisms
 - Immersion Tin failure mechanisms
 - Immersion Silver failure mechanisms
 - OSP failure mechanisms
 - Lead-Free HASL
- Printed Board Robustness
 - Tg and Thermal Stability
 - PTH Barrel Cracking
 - Conductive Anodic Filaments
- Solder
 - Copper Dissolution
 - Mixed Solder

- Mechanical Loading
 - Intermetallic Formation
 - Tin Pest
- Reliability
 - Temperature Cycling
 - Vibration
- Metallography of Pb-Free Solder
- Conclusion