



One Complete Turnkey Solution for PEM Qual (Plastic Encapsulated Microcircuit)



PEM QUALIFICATION ADVANTAGES

The usage of PEMs offers many benefits to overcome the challenges of sourcing high reliability or custom component solutions. The PEM Qualification Process validates a device's application performance by screening out unsuitable and unreliable parts through mechanical, environmental and electrical testing, as well as an analysis of the construction of the device through DPA. The advantages of sourcing plastic COTS over a custom ceramic or metal solution include:

- Greater Selection of Components
- Lower Cost of BOM
- SWaP Optimized
- Rapid Procurement

KEY DIFFERENTIATORS

Microcross & Hi-Rel Labs Offer Your One Source Turnkey Solution for PEM Qual:

- Screening / Qualification Testing Done By Microcross
- Destructive Physical Analysis (DPA) and Failure Analysis (FA) Performed by Hi-Rel Labs

Microcross, Inc.

- 45+ Years of Expertise in Up-Screening & Testing Nearly All Types of Electronic Components
- Complete Turnkey Component Modification - Solder Dip, Reball & Mechanically Modify Components
- CSP Capabilities - Microcross can Source Die & Re-Build a Device into a Custom CSP to Pass PEM Qual



Hi-Rel Laboratories, Inc.

- The Premier Authority in DPA
- Specializes in FA & DPA; Adheres to Standard Set by DLA
- Advanced Capability in DPA on Copper Wire Devices Using a Laser Ablation Decapsulation Process

PEM Qualification Process

PEM Qualification services are part of our comprehensive approach to designing for highly demanding environments, which includes general up-screening services. The PEM Qualification flow is based on NASA Documents EEE-INST-002 and PEM-INST-001, which provides three levels of qualification dependent on application risk:

Level 1: High Reliability / Low Risk, 5+ Year Missions

Level 2: Low-to-Moderate Risk, 1 - 5 Year Missions

Level 3: High Risk, 1 - 2 Year Missions

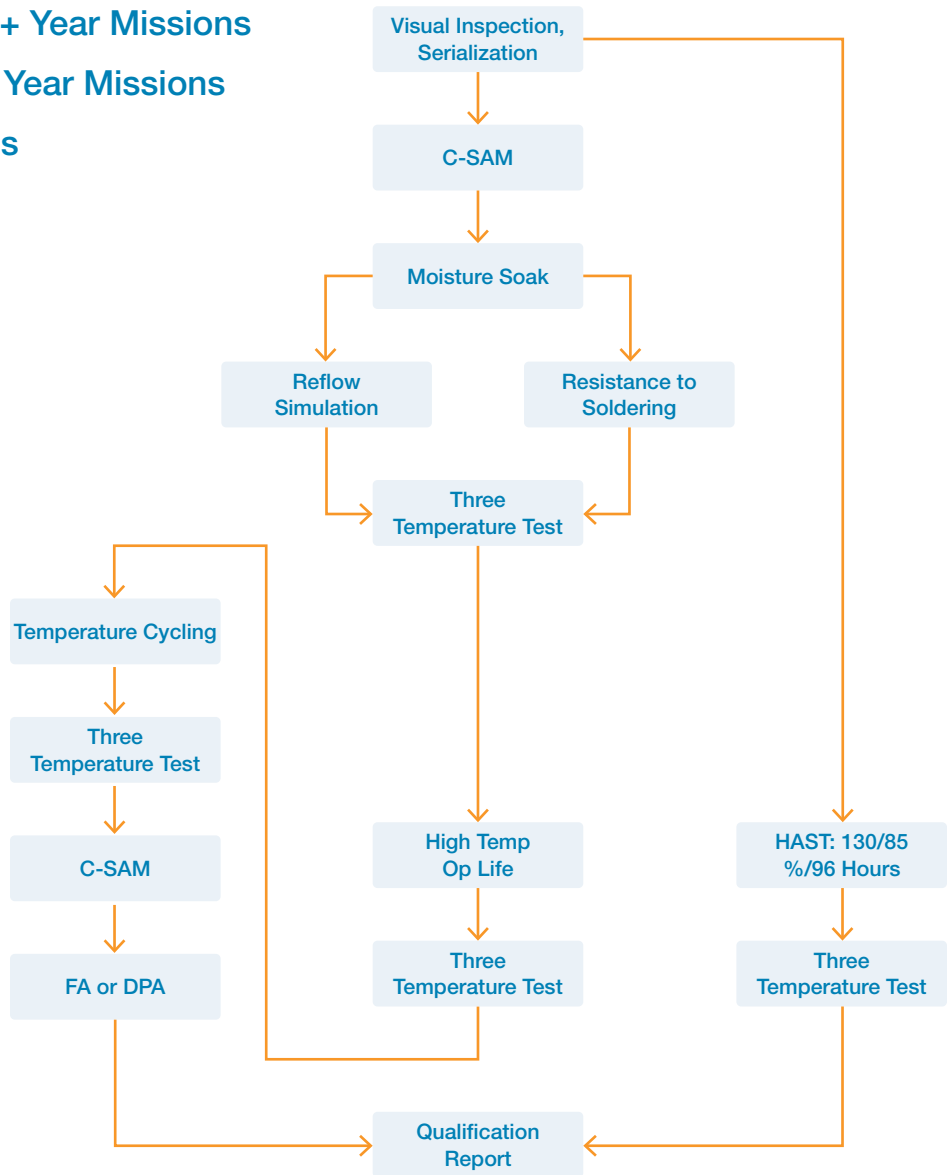
Customization of the qualification process may be specified to suit application needs. The extensive environmental capabilities of Micross including HAST, Temperature Cycle, Dynamic Burn-In and Full Electrical Testing of devices, can be utilized to screen for the reliability of your application demands.

DPA as part of the PEM-Qual is performed by Hi-Rel Labs. A growing concern and challenge in the industry is the usage of Copper Wires in PEMs; manufacturers are now using copper wires on a cost-saving basis at the expense of reliability performance. DPA on copper wire devices presents a challenge due to their susceptibility to traditional chemical etch decapsulation processes. Hi-Rel Labs DPA offers a Laser Ablation Solution to decapsulate parts that preserves the integrity of copper wire bonds to gain accurate data on assembly and construction of PEMs.

One Complete Turnkey Solution for PEM-Qualification

About Micross

Micross is the most complete provider of advanced microelectronic services and component, die and wafer solutions. With the broadest authorized access to die & wafer suppliers, an extensive portfolio of hi-rel power, RF, optoelectronics, memory, data bus, logic, and SMD/5962 qualified products, and the most comprehensive advanced packaging, assembly, modification, upscreening, and test capabilities, Micross is uniquely positioned to provide unparalleled high-reliability solutions, from bare die, to fully packaged devices including hermetic ICs/MCMs, PEMs, ASICs, FPGAs, and PCBs, to complete program life-cycle sustainment. For more than 45 years, Micross has been a trusted source for the aerospace, defense, space, medical, energy, communications, and industrial markets.



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