

Root Cause Analysis of SMT RF Inductors, Exhibiting Resonance Failures

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When it comes to passive components (Resistors, Capacitors, Inductors), performance, degradation, failure mechanisms and various process issues are well understood. High performance Mil grade RF components pose additional challenges in construction assembly, test and “at frequency” performance characteristics.

This presentation will review an example of a surface mount RF Inductor which failed in assembly test exhibiting at frequency resonance issues. Known good (performed in-circuit) newer date lot code samples contained in stores were available to perform electrical and construction comparisons to failing inductors.

Topics Covered, Review-

1. Failure mode and failure history
2. Optical and x-ray microscopy results
3. Electrical parameters measurements using specified “test” frequencies
4. Review root cause analysis findings, Conclusions and recommendations