

## Project Summary:

### Root-Cause Analysis of Voltage Detector

DfR Solutions was asked to perform a root-cause analysis of an amplifier board that had an elevated rate of initial field failures. Initial analysis revealed that voltage detectors were the location of the failure site, and were included in the design to prevent battery drainage when the input voltage is low. Ultimately, poor wetting of the lead foot was found to be likely of causing failure of the voltage detector. Elevated leakage current could also be attributed to exposure to an elevated temperature/humidity environment.

Keywords: poor wetting, lead foot, failure mode, bond pad, intermetallic thickness, temperature humidity bias, elevated leakage current, module, bare board, battery output, input voltage, reference voltage, resistance, interconnection issues, internal voltage drop, insulation resistance, electrical characterization, cross-sectioning, potential failure site, optical micrographs, solder microstructure, solder pull, curve trace, voltage-current behavior