

# **The Causes Behind the Random failure of Electronic Component Leads During In-Plane Vibration Testing**

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Over the period of the last ten years a few leads on larger electronic components have failed during vibration testing. The failures have occurred during the in-plane axis testing of the printed wiring boards. As a consequence of these failures components larger than one inch or 2.54 centimeters on a side have been staked or bonded to the printed wiring board. The failures appeared to be random with respect to the lead location along the edge of the component. This paper investigates the possible causes for the failures based on the random nature of tolerances and manufacturing techniques. If all of the leads were exactly the same the stresses and strains are sufficiently small so that leads should not fail from either direct loads or fatigue type failures in the leads. This paper investigate non-uniformity of the leads and their assembly to the printed wiring boards.