Advanced Anti-Diffusion Coating Technology

Test failures occur when solder is transferred to spring probe contact points. When electric current flows, it initiates a metallurgical phenomenon commonly called metal migration and/or solid state diffusion. Multiple layers of oxidized Sn and organic debris contaminate the probe and at the same time the gold plating migrates onto the device leads. C-Res increases for two basic reasons:

1) Surface oxides and organic contaminants create a barrier between the gold plated contact and the device lead.
2) Gold plating at the contacts points is depleted due to metal migration, which eventually exposes Nickel as the contact medium.

Anti-Diffusion coating technology was developed to reduce Sn diffusion by creating an enhanced diffusion barrier within the plated coating. By reducing metal migration, contact points remain sharp and the contact plating remains intact for a longer period of time. The need for cleaning is minimized, and mean time between cleaning cycles is extended.

In addition, the Anti-Diffusion process enhances hardness and mechanical wear resistance of the contact plating. The combination of these features significantly extends probe life in production test.

Anti-Diffusion can be applied as a Au based coating, or as a Pd based coating.

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