



Paper 176 – Technology

EXAMINATION OF ANODIZED ALUMINUM FOR SURFACE DEFECTS AFTER THERMAL CYCLES

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ABSTRACT

A major cost in the fabrication of test sockets is the interposer, an interface layer that reroutes one connection to another. The interposer must have high resistivity with low loss, a smooth surface finish, high strength, resistance to chemicals involved in the process, and be extremely thin. Currently, the most common materials used for interposer are plastics, such as Torlon, Semitron, and PEEK. While these satisfy the requirements for test sockets, they do not perform well under higher ambient temperatures. Finding a less expensive, alternative material would be preferable. In this study, anodized aluminum 6061, a potential alternative interposer material, samples were subjected to repeat thermal cycling between 22°C -150°C for over 5,000 cycles. After 500, 1000, 2850, and 5100 cycles, the surfaces of the anodized aluminum were examined for tears or cracks that may result due to the differences in the thermal expansion rates between the aluminum matrix and the oxide layers. Results showed no critical defects that would compromise the oxide layer, and therefore reduce resistivity and its viability as an alternative interposer material.

