*Solid State and Technology, Vol. 16, No 2 (2008) 240-246*
*ISSN 0128-7389*
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# EFFECTS OF THERMAL AGING ON INTERMETALLIC COMPOUNDS AND VOIDS FORMATION IN AuAl WIRE BONDING

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## ABSTRACT
There are several issues related to the mechanical and electrical wirebond failure during wirebonding process. Major factors are associated with AuAl intermetallic system. AuAl intermetallic compounds (IMC) can easily form at room temperature and can be accelerated with the elevated temperature. In this paper, pattern of intermetallic compounds growth and potential degradation due to voids in thermosonic ball bonding were studied on AuAl intermetallic compounds. The thermosonic ball bonding process used 99.99% gold wire and aluminized pad of Si chip. Results after HTS at 150ºC for 500 hours demonstrated that voids were generated around the diffusion layer because of the Kirkendall effect and severe voids was clearly exhibited after thermal aging at 150ºC for 1000 hours. Prolong aging time can lead to bonding failure associate with Kirkendall voids.

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