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Title: Fritting contact using SnAu probe

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Abstract:

The contact process utilizing fritting phenomena between SnAu probes and Al electrodes will be reported in this paper. The motivation of the study is to develop a probing method with low contact force on the aluminum electrodes which are widely used for LSI devices. We have developed a probing method utilizing an electric breakdown to replace the conventional mechanical scrubbing motion. In the conventional probing process, hard metals such as Ni or W have been used to mechanically break the surface oxide on Al electrodes. However, in the fritting process, the Al adheres to the probes and the contact and contact failure occurs. In this paper, we propose the use of Sn and its alloy. The properties of low force contact between Al pads and the probes made of Sn, SnAu, Au and Ni probes were investigated. It was found that the amount and the surface condition of Al adhered to the probes were different by the probe materials. Sn and SnAu alloy probes were found to have thinner Al adhesion than Ni probes. SnAu probes were found to be suitable for low voltage fritting contact.