

Time variation of sliding characteristics of small-size slip-ring system for power transmission

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**Abstract** Authors have been investigating the sliding quality and the deterioration process of an electric sliding system of the Au plated slip-ring and Ag-Pd brush, which is used mainly in the chip-mounter. From previous tests, the lifetime is dependent on load current others. However, the deterioration process is almost same independent on long or short lifetime. When the Au and Ni plated layers are worn out, the base material of the ring, bronze is exposed and the surface starts to be oxidized. In this stage the contact resistance rapidly increases and the lifetime is over. The lifetime is decided mainly by the surface wear rate.

In this report, an additional experimental results are presented, which are performed to clarify factors affecting the sliding lifetime. We got interesting results of about 6000 hours life corresponding to 144,000,000 rotations, which is the longest lifetime in our tests. The deterioration process up to the lifetime is same to the previous ones. It suggests that very low wear rate can be realized in a certain condition even in the present sliding system.

**Keyword** electric sliding contact system, Au plated slip-ring, Ag-Pd brush

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