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無電解銀めっきによる導電性微粒子の作製

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Preparation of Conductive Particles by Using Electroless Silver Plating

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Abstract

Connection reliability between LSI and electronics device is increasingly important with the miniaturization of electronics device. In general, solder is widely applied to connect between IC chips and the circuits. In this case, contact reliability between IC chips and electrode is the key technology. However, solder can not applied to the chip on the glass (COG) bonding, because the thermal stress on the glass substrate causes the crack during the soldering step. Therefore, solder-less process such as the conductive paste, conductive particles, and bumps has been applied to solve these problems. In this paper, we investigate the properties of the deposited film and the bath stability of the electroless silver plating process. The deposition rate gradually decreased with the reaction time since Co(II)–amine complex ions are readily self oxidized under the air atmosphere, and the bath life was shortened. Bath life was improved by the operating conditions, especially, the prevention of Co(II) oxidation under the nitrogen atmosphere. Furthermore, the preparation of the silver conductive particle was investigated. As the result, the uniformity film on the particle was obtained under the optimized pre-treatment process.

Key Words: *Electroless Silver Plating, Conductive Particles, Co(II) Complex Salt, Bath Stability*