

유리기판 위에 Ag 후막의 마이크로웨이브 소결

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Microwave Sintering of Silver Thick Film on Glass Substrate

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Abstract : The silver thick film has been used in many industries such as display, chip, solar cell, automobile, and decoration with conventional heating. The silver thick film is fired with optimal time and temperature. However, decreasing the fabrication time is required due to high production power. Furthermore, there is a problem that silver in electrode is diffused throughout any substrates. For inhibiting the Ag diffusion and long fabrication time we considered a microwave heating. We investigated firing of silver thick film with conventional and microwave heating. The temperature of substrate was measured by thermal paper and the temperature of substrate was under 100 °C. The shrinkage of electrode was measured with optical microscopy and optical profilometry. The shrinkage of electrode heat treated with microwave for 5min was similar to the that fired by the conventional heating for several hours. After firing by two types of heating, the diffusion of silver was determined using a optical microscope. The microstructure of sintered silver thick film was observed by SEM. Based on our results, the microwave heating should be a candidate heating source for the fabrication electronic devices in terms of saving the tact time and preventing the contamination of substrate.

Key Words : Microwave heating, Silver thick film, Sintering, Shrinkage