

스크린 프린팅법으로 제작한 BSCT 후막의 구조적 특성과 유전적 특성

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Structural and dielectric properties of the BSCT thick films fabricated by the screen printing method

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Abstract : The barium strontium calcium titanate powders were prepared by sol-gel method. Ferroelectric ($\text{Ba}_{0.54}\text{Sr}_{0.36}\text{Ca}_{0.1}$) TiO_3 (BSCT) thick films were fabricated by the screen-printing method on alumina substrate. And we investigated the structural and dielectric properties of BSCT thick films with the variation of sintering temperature. As a result of thermal analysis, BSCT polycrystalline perovskite phase was formed at around 660°C. The results of X-ray diffraction analysis were showed a cubic perovskite structure without presence of the second phase in all BSCT thick films. The average grain size and the thickness of the specimen sintered at 1450°C were about 1.6 μm and 45 μm , respectively. The relative dielectric constant increased and the dielectric loss decreased with increasing the sintering temperature, the values of the BSCT thick films sintered at 1450°C were 5641 and 0.4% at 1kHz, respectively.

Key Words : sol-gel, screen-printing, thick films, ferroelectric, dielectric constant