

Plasma-Enhanced MOCVD 법에 의해 MOCVD-Pt 위에 제조된
 강 유전체 $\text{SrBi}_2\text{Ta}_2\text{O}_9$ 박막의 특성
 (Characteristics of Ferroelectric $\text{SrBi}_2\text{Ta}_2\text{O}_9$ Thin Films Deposited onto MOCVD-Pt
 by Plasma-Enhanced Metalorganic Chemical Vapor Deposition)

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Ferroelectric bismuth-layer $\text{SrBi}_2\text{Ta}_2\text{O}_9$ thin films were prepared on MOCVD-Pt(111)/ SiO_2 /Si substrate by plasma-enhanced metalorganic chemical vapor deposition.

Platinum bottom electrode shows a dense and smooth state after deposition of SBT films and prevents the Bi diffusion into the platinum layer. The c-axis oriented SBT films were crystallized at deposition temperature of 550°C .

The dielectric constant and dissipation factor of SBT films were 310 and 0.08 at an applied frequency of 100kHz, respectively. The remanent polarization $2P_r$ and the coercive field E_c obtained for 180 nm thick $\text{Sr}_{0.9}\text{Bi}_{2.0}\text{Ta}_{2.0}\text{O}_9$ films deposited at 550°C were $15 \mu\text{C}/\text{cm}^2$ and 50 kV/cm at an applied voltage of 5V, respectively. The leakage current density was about $5.0 \times 10^{-7} \text{ A}/\text{cm}^2$ at 250 kV/cm. The films showed fatigue-free characteristics up to 7.0×10^9 switching cycles under 5 V bipolar pulse.