

PE-CVD를 이용한 45nm이하급 저유전물질
DEMS(Diethoxymethylsilane) 박막증착연구

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**Thin Films Deposition Study Using Plasma Enhanced CVD
with Low Dielectric Materials DEMS(diethoxymethylsilane) below 45nm**

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Abstract : Low-k dielectric materials are an alternative plan to improve the signal propagation delay, crosstalk, dynamic power consumption due to resistance and parasitic capacitance generated the decrease of device size. Now, various materials is studied for the next generation. Diethoxymethylsilane (DEMS) precursor using this study has two ethoxy groups along with one methyl group attached to the silicon atoms. SiCOH thin films were deposited on p-type Si(100) substrate by Plasma Enhanced Chemical Vapor Deposition (PECVD) using DEMS. In this study, we studied the effect of oxygen(O₂) flow rate for DEMS to characteristics of thin films. The characteristics of thin films deposited using DEMS and O₂ evaluated through refractive index, dielectric constant(k), surface roughness, I-V(MIM:Al / SiCOH / Ag), C-V(MIM), deposition rate.

Key Words : Low-k, SiCOH, DEMS, PECVD, dielectric constant