

## In-situ 도핑된 다결정 3C-SiC 박막의 전기적 특성

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### Electrical characteristics of In-situ doped polycrystalline 3C-SiC thin films

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**Abstract** : In-situ doped polycrystalline 3C-SiC thin films were deposited by APCVD at 1200°C using HMDS(hexamethyldisilane:  $\text{Si}_2(\text{CH}_3)_6$ ) as Si and C precursor, and 0 ~ 100 sccm  $\text{N}_2$  as the dopant source gas. The peak of SiC is appeared in polycrystalline 3C-SiC thin films grown on  $\text{SiO}_2/\text{Si}$  substrates in XRD(X-ray diffraction) and FT-IR(Fourier transform infrared spectroscopy) analyses. The resistivity of polycrystalline 3C-SiC thin films decreased from 8.35  $\Omega \cdot \text{cm}$  with  $\text{N}_2$  of 0 sccm to 0.014  $\Omega \cdot \text{cm}$  with 100 sccm. The carrier concentration of poly 3C-SiC films increased with doping from  $3.0819 \times 10^{17}$  to  $2.2994 \times 10^{19} \text{ cm}^{-3}$  and their electronic mobilities increased from 2.433 to 29.299  $\text{cm}^2/\text{V} \cdot \text{S}$ , respectively.

**Key Words** : Polycrystalline 3C-SiC, HMDS, APCVD