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Gallium oxide films deposition by RF magnetron sputtering; a detailed analysis on the effects of deposition pressure and sputtering power and annealing

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n-Si substrates using Ga2O3 target by radio frequency magnetron sputtering (RFMS) at substrate effects of deposition pressure and growth power on crystalline structure, morphology, I. X-ray diffraction results showed that amorphous phase was observed in all the as-deposited thin ed conversion to poly-crystal beta-Ga2O3 phase after annealing process. When the deposition de to 3D columnar growth mode was observed from the SEM images. Annealing clearly showed observed as the growth pressure increases. Annealing caused to obtain similar transmittance values rved in the absorption edges and the energy band gap values decrease with increasing growth sulted in the increase refractive index.

Keywords

Author Keywords: Gallium oxide; Magnetron sputtering; Thin films; Annealing; Wide band gap semiconductors

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