

Electrical properties of ZnO Thin Film Transistor with changing O₂ Flux grown by R.F magnetron sputtering

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Thin Film Transistor(TFT) are switch in devices composing of active matrix of Flat panel display. The oxide semiconductor have been studied instead of a-si and poly-si materials for thin film transistor(TFTs). Si-based TFTs has limitations of light sensitivity and opaqueness. ZnO as channel layer has II-VI compound semiconductor with a wide direct bandgap of 3.35eV, c-axis(002) crystallinity in low temperature possible. If its semiconductor characteristics can be utilized, it is expected that light-emitting devices operating in the short-wavelength range, from blue to ultraviolet, and high power electronic devices could be realized with ZnO. In this work, ZnO thin films(ZnO) were prepared on glass substrates using RF magnetron sputtering method. we investigated the properties of ZnO films in accordance with changing O₂ flux. O₂ flux was controlled changing of ratio in Ar to O₂. This study indicated that the properties of ZnO Thin Film Transistor can be explane using x-ray diffraction(XRD), I_D-V_D , I_D-V_G . graphs.