

A study for the oxide films of GaAs MOS Diodes

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ABSTRACT

In this thesis, oxide films grown in the fabrication of GaAs MOS diodes have been studied using the thermal oxidation method, the anodic oxidation method, and, for the first time, the mixed method consisting of the previous two methods. The experimental procedures and the growth processes for these three oxidation methods are all explained in detail. The surface structures and the color variations of the oxide films are observed using microscopy. The thicknesses and the profile structures of these films are investigated using an SEM (Scanning electron microscopy), while their refraction indices are analyzed using an ellipsometer . Furthermore, we have used the thermal evaporation method to finish fabricating GaAs MOS's, whose I-V and C-V characteristics are subsequently measured. From the I-V data, it is clearly that using the mixed oxidation method will yield better film characteristics than using either of the other two oxidation method alone.

Keywords : 砷化鎵 ; 二極體 ; 金氧半 ; 氧化層

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