차세대 비휘발성 메모리에 중간층(Al)의 증착률에 대한 연구

Effect of Middle Al Evaporation Rate on Non-volatile and Organic Bistable Memory

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Organic bistable device (OBD) is an outstanding device for non-volatile memory with the minimum feature of 45nm device design Their electrical bistability is a phenomenon by which a device exhibits two states of different conduction such as low or high resistance at the same applied voltage And also the middle Al evaporation rate is an important parameter that determines electrical bistability However, the mechanism of non-volatile memory effect for OBD is still not clearly elucidated In order to understand the mechanism, we have to investigate the effect of middle Al evaporation rate for non-volatile on bistable electrical property We found that the optimum evaporation rate of middle Al was about 0 1~1 Å/s for obtaining the nonvolatile electrical bistability In addition, we will explain conduction mechanism of middle Al evaporation based on the conduction combination of tunneling barrier and organic capacitor which was proved by investigating high resolution TEM images of OBDs

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