

## Electrical characteristics of poly-Si NVM by using the MIC as the active layer

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In this paper, the electrical properties of nonvolatile memory (NVM) using multi-stacks gate insulators of oxide-nitride-oxynitride (ONOn) and active layer of the low temperature polycrystalline silicon (LTPS) were investigated. From hydrogenated amorphous silicon (a-Si:H), the LTPS thin films with high crystalline fraction of 96% and low surface's roughness of 1.28 nm were fabricated by the metal induced crystallization (MIC) with annealing conditions of 650°C for 5 hours on glass substrates. The LTPS thin film transistor (TFT) or the NVM obtains a field effect mobility of ( $\mu_{FE}$ ) 10 cm<sup>2</sup>/V·s, threshold voltage ( $V_{TH}$ ) of -3.5V. The results demonstrated that the NVM has a memory window of 1.6 V with a programming and erasing (P/E) voltage of -14 V and 14 V in 1 ms. Moreover, retention properties of the memory was determined exceed 80% after 10 years. Therefore, the LTPS fabricated by the MIC became a potential material for NVM application which employed for the system integration of the panel display.