

High mobility MISFET with low trapped charge in HfSiO films

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MISFETs with HfSiO (EOT:1.8 nm) gate insulator have been reached high Ion (95%) and low gate leakage current (1/100) against SiO₂ gate film. This was achieved by the suppression of the remote coulomb scattering, caused by the electron traps in the HfSiO gate stack. It was experimentally confirmed that less than 3×10^{12} C/cm² electron trap level is required to get high mobility.