

Simulation of High Performance Nanoscale Partially Depleted SOI n-MOSFET Transistors

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Abstract : Invention of transistor is the foundation of electronics industry. Metal Oxide Semiconductor Field Effect Transistor (MOSFET) has been the key for the development of nanoelectronics technology. In the first part of this manuscript, we present a new generation of MOSFET transistors based on SOI (Silicon-On-Insulator) technology. It is a partially depleted Silicon-On-Insulator (PD SOI MOSFET) transistor simulated by using SILVACO software. This work was completed by the presentation of some results concerning the influence of parameters variation (channel length L and gate oxide thickness T_{ox}) on our PDSOI n-MOSFET structure on its drain current and kink effect.

Keywords : SOI technology, PDSOI MOSFET, FDSOI MOSFET, kink effect

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