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| **Title:** | Linear Profile Based Analytical Surface Potential Model for Pocket Implanted Sub-100 nm n-MOSFET | | |
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| **Abstract:** |  |
| Abstract— This paper presents an analytical surface potential model for pocket implanted sub-100 nm n-MOSFET. The model is derived by solving Poisson's equation in the depletion region at the surface with the appropriate boundary conditions at the source and drain. The model includes the effective doping concentration of the two linear pocket profiles at the source and drain sides of the device. The model also incorporates the drain and substrate bias effect below and above threshold conditions. The simulation results show that the derived surface potential model has a simple compact form that can be utilized to study and characterize the pocket implanted advanced ULSI devices. | |