Abstract

Double gate MOSFET is one of the most promising and leading contender for nano regime devices. In this paper we investigate the impact of channel engineering on double gate MOSFET by using different channel doping. Sentaurus TCAD simulator is used to analyze the channel engineering of double gate MOSFET. It is observed in the results that we can change the threshold voltage by changing the channel doping. The impact of channel engineering also observed on performance parameters of the DG-MOSFET such as on current, off current, drain induced barrier lowering, sub-threshold slope and carrier mobility. Thus, an optimized value of the channel doping will be projected for future reference in context of leakage power. Thus channel engineering will play an important role in optimizing the device parameters.

References

Impact of Channel Doping on DG-MOSFET Parameters in Nano Regime-TCAD Simulation

- ISE TCAD: Synopsys Sentaurus Device simulator.

Index Terms

Computer Science
Integrated Circuits
Keywords
DG-MOSFET  MOSFET scaling  SS-sub threshold slope  DIBL-drain induced barrier lowering