Abstract

FinFET, a self–aligned double-gate MOSFET structure has been agreed upon to eliminate the short channel effects. In this thesis, we report the design, fabrication and physical characteristics of n-channel FinFET with physical gate length of 32nm using visual TCAD (steady state analysis). All the measurements were performed at a supply voltage of 1.5V and Tox=5nm. We elucidate the impact of doping concentration on the Performance of n-channel 32nm gate length FinFET at 22nm width. The drain current increases gradually when donor ion concentration in source/drain regions increases to 7e20 cm-3. Adding opposite type of source/drain impurity or decreasing acceptor ion concentration in channel further improves the performance of FinFET.
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**Index Terms**

- Computer Science
- Communications

**Keywords**

- FinFETs; CMOS; Drain Induced barrier lowering; Silicon-on-insulator