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| **Title:** | Investigation of Short Channel Effects Suppression in Pocket Implanted MOSFET using MEDICI | | |
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| **Abstract:** |  |
| Abstract— MEDICI is a powerful device simulation program that can be used to simulate the behavior of MOS and other semiconductor devices. The program can be used to predict electrical characteristics for arbitrary bias conditions. On the other hand, pocket implantation is a very useful technique to suppress short channel effects (SCE) in submicrometer MOS devices. In this paper, SCE suppression of pocket implanted MOSFET has been investigated using MEDlCl. Several pocket implanted MOS devices of varying gate lengths have been studied by using MEDICI to observe the suppression of SCE. MOSFET structure, impurity concentration profiles are simulated. Also, the gate and drain characteristics of pocket implanted MOSFET has been simulated using MEDlCl. Then using these data threshold voltages are extracted using Kaleidagraph for various gate lengths of the pocket implanted MOSFET. Finally, threshold voltage versus gate length characteristics is plotted to observe the short channel effects suppression. The well-known reverse short channel effects have also been observed. | |