Measurement of Oxide Thickness for MOS Devices, Using Simulation of SUPREM Simulator

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Abstract

A procedure to characterize oxide thickness and conductor layers that are grown or deposited on semiconductor is by studying the characteristics of a MOS capacitor that is formed of the conductor -insulator-semiconductor layers. For a capacitor formed with oxide thickness of 510 Å (measured optically), here in this research author measures the oxide thickness by the SUPREM Simulator. Its accuracy depends on the quality of models, parameters and numerical techniques it employ. Authors also verify the result by measurement of capacitance at different voltages using LCR meter and the curve drawn through Visual Engineering Environment Programming (VEE Pro) software. Based on the oxide thickness measurement of a MOS capacitor, one can measure the device parameters, mainly the substrate dopant concentration and other parameter. This research was completed in BEL Laboratory.

Reference

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