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**Electrical Extractions of One Dimensional MOSFET Doping Profiles and Effective Mobility in DRAM Transistor** HYUNHO PARK, KONG-SOO LEE, Samsung Electronics, Korea and Sungkyunkwan University, Suwon, Korea, SEOK IL KWON, KWANG-RYUL KIM, BYOUNGDEOK CHOI, Sungkyunkwan University, Suwon, Korea — The doping profiles of lightly doped semiconductors are most commonly determined from capacitance-voltage measurements for junction devices. Such C-V measurements work well for large-area devices and lightly doped device, but they are not very suitable for high doping concentrations found in heavily doped devices. And the channel region under the MOSFET gate has an additional limitation. The small gate area has very small capacitances that are difficult to measure, making C-V based techniques difficult or impossible. In view of these experimental difficulties, so we tried electrical doping profiling measurement for MOSFET with short gate length and ultra thin oxide thickness and checked an agreement with ISE simulation results. We could get effective mobility by simple drain current vs drain bias voltage measurement. Exact mobility value could not extracted exactly because of mobile charge density approximation error, but could be applied for various hot carrier injection cases by comparing relative values fresh versus after stress characteristics.

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