High Performance sub-60 nm SOI MOSFETS with 1.2 nm Thick Nitride/Oxide Gate Dielectric
W.P. Maszara, S.Krishnan, Q.Xiang and M-R. Lin
Technology Research Group, Advanced Micro Devices, Sunnyvale, CA 94088

Abstract
High performance sub-60nm SOI CMOS transistors have been developed. Aggressively scaled, 1.2 nm thick, gate dielectric sandwich containing silicon nitride and dioxide layers allowed full control of boron penetration with manageable level of gate leakage. Excellent values of $I_{dss}$ of 850 $\mu$A/$\mu$m and 500$\mu$A/$\mu$m for NMOS and PMOS were respectively obtained at $V_{dd}$=1.2 V and $I_{off}$=100 nA/$\mu$m. CV/I metric was 1.0 and 1.9 ps for NMOS and PMOS respectively.