Abstracts

Performance Comparison of MODFET and MESFET Using Combined Electromagnetic and Solid-State Simulator

S.M.S. Imtiaz, M.A. Alsunaidi and S.M. El-Ghazaly. "Performance Comparison of MODFET and MESFET Using Combined Electromagnetic and Solid-State Simulator." 1996 MTT-S International Microwave Symposium Digest 96.3 (1996 Vol. III [MWSYM]): 1783-1786.

A Combined Electromagnetic and Solid-State (CESS) simulation model for the analysis of electromagnetic wave effects on the behavior of the submicron semiconductor devices is presented. The CESS simulation model couples a 3D time-domain solution of Maxwell's equations to the semiconductor model. The performance comparison of two important high frequency devices, MODFET and MESFET, are discussed. The electromagnetic wave effects on the two devices are thoroughly analyzed. The simulation uses the electromagnetic wave concept to emphasize the better performance of MODFET over MESFET. The transfer of energy takes place between the electrons and the electromagnetic wave at high frequencies.

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