Abstracts

Electron-Wave Interaction in Submicrometer Gate Field-Effect Transistors

M.A. Alsunaidi and S.M. El-Ghazaly. "Electron-Wave Interaction in Submicrometer Gate Field-Effect Transistors." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1257-1260.

The electromagnetic wave effects on the behavior of submicrometer gate Field-Effect Transistors is investigated by coupling a full wave solution of Maxwell's equations to the active device model. Three-dimensional simulations verify the expected device-wave interaction. According to simulation results, energy transfer between electrons and the EM wave takes place along the device width. This effect is represented by a build-up in the wave amplitude and an increase in the device gain.

❑ Return to main document.