Abstracts

Modeling and Analysis of GaAs MESFETs Considering the Wave Propagation Effect

R.L. Chang, T.J. Shieh, W.A. Davis and R.L. Carter. "Modeling and Analysis of GaAs MESFETs Considering the Wave Propagation Effect." 1989 MTT-S International Microwave Symposium Digest 89.1 (1989 Vol. I [MWSYM]): 371-374.

The effect of wave propagation along the electrodes of a GaAs MESFET is studied using distributed circuit analysis technique. Each distributed device element is considered as a combination of two pair of coupled coplanar strips and a conventional GaAs MESFET. The distributed equivalent circuit is then analyzed using SUPER-COMPACT. The maximum available power gain (MAG) or the maximum stable power gain (MSG) of the device is calculated as a function of device width. The results show, for single gate MESFETs over 100 µm wide, the transmission line properties of the electrodes have a significant effect on the transistor performance. The power gain also depends on where the input signal is fed and where the output signal is extracted.

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