Abstracts

Distributed Numerical Modeling of Dual-Gate GaAs MESFET's

R.B. Darling. "Distributed Numerical Modeling of Dual-Gate GaAs MESFET's." 1989 Transactions on Microwave Theory and Techniques 37.9 (Sep. 1989 [T-MTT] (Special Issue on FET Structures Modeling and Circuit Applications)): 1351-1360.

A one-dimensional, numerical gradual channel model is used to examine the behavior of dual-gate GaAs metal-semiconductor field-effect transistors (MESFET's). Lumped circuit models for the dual-gate FET are based upon two single-gate devices with their channels in series and are considerably more complex than those for a single-gate device. By contrast, distributed numerical models for dual-gate devices do not incur any significant changes over equivalent single-gate device models. Such distributed numerical models are very useful for examining the regions of operation of each channel, the internal field distributions, and are also applicable to the case where the close proximity of the two gates couples the parameters of the individual channels and invalidates the modeling of the device as two channels in series.

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