Abstracts

Performance of Dual-Gate GaAs MESFET's as Gain-Controlled Low-Noise Amplifiers and High-Speed Modulators

C.A. Liechti. "Performance of Dual-Gate GaAs MESFET's as Gain-Controlled Low-Noise Amplifiers and High-Speed Modulators." 1975 Transactions on Microwave Theory and Techniques 23.6 (Jun. 1975 [T-MTT]): 461-469.

This paper describes the microwave performance of GaAs FET's with two 1-µm Schottky-barrier gates (dual-gate MESFET). At 10 GHz the MESFET, with an inductive second-gate termination, exhibits an 18-dB gain with --26-dB reverse isolation. Variation of the second-gate potential yields a 44-dB gain-modulation range. The minimum noise figure is 4.0 dB with 12-dB associated gain at 10 GHz. Pulse modulation of an RF carrier with a 65-ps fall ad a 100-ps rise time is demonstrated. The dual-gate MESFET with high gain and low noise figure is especially suited for receiver amplifiers with automatic gain control (AGC) as an option. The MESFET is equally attractive for subnanosecond pulsed-amplitude modulation (PAM), phase-shift-keyed (PSK), and frequency-shift-keyed (FSK) carrier modulation.

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