Abstracts

RF Measurements and Characterization of Heterostructure Field-Effect Transistors at Low Temperatures

W. Brockerhoff, H. Meschede, W. Prost, K. Heime, G. Weimann and W. Schlapp. "RF Measurements and Characterization of Heterostructure Field-Effect Transistors at Low Temperatures." 1989 Transactions on Microwave Theory and Techniques 37.9 (Sep. 1989 [T-MTT] (Special Issue on FET Structures Modeling and Circuit Applications)): 1380-1388.

The RF performance of both conventional AIGaAs/GaAs and superlattice AIAs/GaAs heterostructure field-effect transistors has been investigated at 120 K and the results are compared with room-temperature values. Both the system used for low-temperature RF measurements up to 12 GHz and the procedure to extract the equivalent circuit from measured S parameters of the packaged FET are described. The high-frequency performance of the HFET's is strongly improved at low temperatures but is sensitive to light due to the device structure. Both the problems of low-temperature measurements and the results of the RF investigation are discussed.

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