Abstracts

Experimental evaluation of microwave field-effect-transistor noise models

P. Heymann, M. Rudolph, H. Prinzler, R. Doerner, L. Klapproth and G. Bock. "Experimental evaluation of microwave field-effect-transistor noise models." 1999 Transactions on Microwave Theory and Techniques 47.2 (Feb. 1999 [T-MTT]): 156-163.

Extensive GaAs field-effect-transistor noise measurements are used to compare noise models with the aim of recommending the most useful one for monolithic-microwave integrated-circuit design. The evaluation is based on noise and S-parameter measurements of metal-semiconductor field-effect transistors and high electron-mobility transistors with different gatewidths in the frequency range of 0.05-26 GHz. The models under investigation differ in the number of independent coefficients necessary to calculate the four noise parameters of the device. The broad frequency range including radio-frequency frequencies down to 50 MHz requires two different noise measurement systems with special modifications for optimum performance. In conclusion, the two-parameter Pospieszalski model turns out to be the most suitable one.

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