Abstracts

Analysis and Design of MESFET Gate Mixers

C. Camacho-Penalosa and C.S. Aitchison. "Analysis and Design of MESFET Gate Mixers." 1987 Transactions on Microwave Theory and Techniques 35.7 (Jul. 1987 [T-MTT]): 643-652.

A general and efficient nonlinear/linear analysis of MESFET gate mixers is presented. In the nonlinear analysis, the Newton-Raphson algorithm is used in conjunction with a novel approach for computing partial derivatives required by the Jacobian.The study of conversion gain and stability characteristics of the mixer is based on S-parameter matrix theory. As a result of the analysis, the possibility of improving the conversion gain of X-band MESFET gate mixers by an appropriate choice of the RF drain termination has been theoretically and experimentally demonstrated.

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