Abstracts

Design of GaAs MESFET Oscillator Using Large-Signal S-Parameters (Dec. 1977 [T-MTT])

Y. Mitsui, M. Nakatani and S. Mitsui. "Design of GaAs MESFET Oscillator Using Large-Signal S-Parameters (Dec. 1977 [T-MTT])." 1977 Transactions on Microwave Theory and Techniques 25.12 (Dec. 1977 [T-MTT] (1977 Symposium Issue)): 981-984.

A design method of GaAs MESFET oscillator using large-signal S-parameters has been discussed. Together with the measurement results of the dependence of Iarge-signall S-parameters on power levels and bias conditions, computer analysis of the equivalent circuit for MESFET'S has qualitatively clarified the large signal properties of MESFET'S. On the basis of these findings, S-parameters have been designed for the MESFET oscillator over the frequency range of 6-10 GHz, which has resulted in power output of 45 mW at 10 GHz with 19-percent efficiency, and 350 mW at 6.5 GHz with 26-percent efficiency, respectively. Good agreements between predicted and obtained performances of MIC positive feedback oscillator have been ascertained, verifying the validity of the design method using large-signal S-parameters.

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