Abstracts

Design and Performance of X-Band Oscillators with GaAs Schottky-Gate Field-Effect Transistors

M. Maeda, K. Kimura and H. Kodera. "Design and Performance of X-Band Oscillators with GaAs Schottky-Gate Field-Effect Transistors." 1975 Transactions on Microwave Theory and Techniques 23.8 (Aug. 1975 [T-MTT]): 661-667.

The circuit construction and design of an X-band oscillator with a GaAs Schottky-gate FET have been studied. The oscillation characteristics including stability and noise performance have been examined in order to clarify the position of a GaAs FET as a microwave solid-state oscillator device. The experiments have revealed that 1) the GaAs FET simultaneously possesses the most desirable features of both Gunn and IMPATT oscillators, i.e., low bias voltage operation and fairly high efficiency, and 2) it is situated between Gunn and GaAs IMPATT oscillators with respect to noise properties. The results indicate that the GaAs FET oscillator will soon be joining the family of microwave solid-state oscillators as a promising new member.

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