

Abstracts

Analytic Model for Varactor-Tuned Waveguide Gunn Oscillators (Short Papers)

A.S. Templin and R.L. Gunshor. "Analytic Model for Varactor-Tuned Waveguide Gunn Oscillators (Short Papers)." 1974 *Transactions on Microwave Theory and Techniques* 22.5 (May 1974 [T-MTT]): 554-556.

An analytic model for electronic tuning of an X-band waveguide transferred-electron oscillator is presented. The oscillator is electronically tunable by a varactor, and mechanically tunable by movement of a short circuit. The model is used to predict oscillation frequency, maximum electronic tuning range, and electronic tuning versus varactor bias voltage. Two different methods, the "zero reactance theory" and the Slater perturbation theory, are used to calculate the electronic tuning. The results of these calculations are compared to experimental results for two different oscillator configurations.

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