Abstracts

The Single-Cavity Multiple-Device Oscillator

K. Kurokawa. "The Single-Cavity Multiple-Device Oscillator." 1971 Transactions on Microwave Theory and Techniques 19.10 (Oct. 1971 [T-MTT]): 793-801.

The output power from 12 IMPATT diodes has been combined in a single-cavity multiple-device oscillator. The oscillator is free from the well-known moding problem of multiple-device oscillators. The objective of this paper is to present the oscillator-circuit theory, which clearly indicates why this particular circuit configuration can give a stable operation free from moding problems. To handle the formidable equations necessary for the analysis, the eigenfunction approach is extensively used. The condition for stable operation, the noise performance, and the locking behavior of the oscillator are all discussed. The noise performance is similar and the locking behavior identical to those of single-device oscillators.

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