Abstracts

Oscillation Characteristics of Millimeter-Wave IMPATT Diodes Mounted in Low-Impedance Waveguide Mounts (Short Papers)

M. Akaike, H. Kato and S. Yuki. "Oscillation Characteristics of Millimeter-Wave IMPATT Diodes Mounted in Low-Impedance Waveguide Mounts (Short Papers)." 1976 Transactions on Microwave Theory and Techniques 24.3 (Mar. 1976 [T-MTT]): 147-151.

Experiments on dc-bias-current-tuned IMPATT diodes mounted in low-impedance waveguide mounts are described. Broad-band bias-current-tuned IMPATT oscillators were obtained which cover almost the full waveguide band; 20-, 24-, and 18-GHz tuning bandwidths were obtained with the R-500, R-620, and R-740 waveguide, respectively. From experiments it became evident that there are some suitable relations for broad-band bias tuning among the diode breakdown voltage, the oscillation frequency, and the waveguide dimension. The results are very useful for the design of the circuit and diode parameter for broad-band millimeterwave IMPATT sweep oscillators. The feasibility of applying bias-current-tuned IMPATT oscillators to a broad-band measuring instrument is expected.

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