

Abstracts

Tunnel Diode Oscillator in an Open Structure

E. Yamashita and J.R. Baird. "Tunnel Diode Oscillator in an Open Structure." 1967 Transactions on Microwave Theory and Techniques 15.7 (Jul. 1967 [T-MTT]): 415-421.

This paper describes a theoretical and experimental evaluation of the oscillation conditions of a microwave tunnel diode integrally mounted at the feed point of a semicircular loop antenna. The oscillation conditions are based on a quasi-linear equivalent circuit where the diode load impedance is the complex radiation impedance of the semicircular loop antenna. The results of a radiation impedance calculation based on a Fourier transform method are presented. Diode fabrication techniques are described and experimental results are reported to be consistent with the theory.

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