Abstracts

Self-Consistent Solutions for IMPATT Diode Networks

T.J. Brazil and S.O. Scanlan. "Self-Consistent Solutions for IMPATT Diode Networks." 1981 Transactions on Microwave Theory and Techniques 29.1 (Jan. 1981 [T-MTT]): 26-32.

Self-consistent solutions are presented for IMPATT diodes of the Si flat-profile, and GaAs Read types. Particular attention is paid to the onset of subharmonic instability and bias-block oscillations, and the results include numerical verification of a recent analytical theory of subharmonic instability. In addition, a lumped-element realization of the circuit conditions necessary to obtain maximum output power with second-harmonic tuning is described, and its performance is checked by means of self-consistent solution.

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