Abstracts

Nonlinear Behavior and Bias Modulation of an IMPATT Diode Oscillator

C. Chao and G.I. Haddad. "Nonlinear Behavior and Bias Modulation of an IMPATT Diode Oscillator." 1973 Transactions on Microwave Theory and Techniques 21.10 (Oct. 1973 [T-MTT]): 619-630.

Experimental results of the nonlinear behavior of an IMPATT diode oscillator under free-running and bias-modulated conditions are presented and correlated with theoretical results. Amplitude and frequency behavior of a free-running IMPATT diode oscillator such as: 1) power-frequency characteristic, 2) jump and hysteresis, 3) temperature dependence, 4) harmonic content, and 5) electronic tuning characteristics are discussed. The bias-modulation properties and their relation to the free-running behavior are described. The effects of the operating point, external Q, and injection locking on the modulation properties are presented.

❑ Return to main document.