

Abstracts

Analysis of Nonlinear Characteristics and Transient Response of IMPATT Amplifiers

H.J. Kuno. "Analysis of Nonlinear Characteristics and Transient Response of IMPATT Amplifiers." 1973 Transactions on Microwave Theory and Techniques 21.11 (Nov. 1973 [T-MTT] (Special Issue on Solid-State Microwave Power Amplifiers)): 694-702.

Nonlinear characteristics, large-signal effects, and transient response of IMPATT amplifiers are analyzed leading to clear understanding of various nonlinear and large-signal phenomena which are often observed experimentally on IMPATT diodes operated as stable (linear) amplifiers or injection-locked oscillators. Effects of bandwidth on transient response of the IMPATT amplifiers as applied to phase-modulated signals and amplitude-modulated signals are investigated in detail. The relationship between the transition (switching) time and the amplifier bandwidth is derived. Capabilities and limitations of IMPATT diodes operated as stable amplifiers or injection-locked oscillators are discussed.

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