Abstracts

Large-Signal Equivalent Circuit for IMPATT-Diode Characterization and Its Application to Amplifiers

M.-S. Gupta. "Large-Signal Equivalent Circuit for IMPATT-Diode Characterization and Its Application to Amplifiers." 1973 Transactions on Microwave Theory and Techniques 21.11 (Nov. 1973 [T-MTT] (Special Issue on Solid-State Microwave Power Amplifiers)): 689-694.

A frequency-independent lumped equivalent circuit is proposed for characterizing the large-signal behavior of IMPATT diodes. It has five elements including a negative resistance, two of which are quadratic functions of the single-frequency RF voltage across the device. It is used for computer-aided analysis and the design of reflection-type negative-resistance amplifiers employing IMPATT diodes. The frequency response of the amplifier is calculated for different input power levels and the nature of the results is found to be in agreement with published experimental results.

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