Abstracts

Iterated Solid-State Microwave Power Amplifier

S.F. Paik. "Iterated Solid-State Microwave Power Amplifier." 1972 Transactions on Microwave Theory and Techniques 20.3 (Mar. 1972 [T-MTT]): 202-209.

A theoretical analysis is presented of a solid-state power amplifier consisting of a unidirectional transmission line loaded by a series of negative-resistance diodes. Numerical calculations of the large-signal amplifier characteristics are carried out assuming a cubic nonlinear relationship between the diode current and the RF voltage. Diode parameters used in these calculations are chosen to approximate those of available IMPATT diodes. A bandwidth in excess of 30 percent and a saturated CW power output of more than 20 watts are predicted for 10-diode amplifiers.

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