

Abstracts

IMPATT-Diode Multistage Transmission Amplifiers

H.C. Bowers, T.A. Midford and S.T. Plants. "IMPATT-Diode Multistage Transmission Amplifiers." 1970 Transactions on Microwave Theory and Techniques 18.11 (Nov. 1970 [T-MTT] (Special Issue on Microwave Circuit Aspects of Avalanche-Diode and Transferred Electron Devices)): 943-951.

In this paper are described the analytical design and experimental performance of broad-band IMPATT-diode transmission amplifiers. These amplifiers are negative-resistance loaded waveguide bandpass filters which do not employ interstage isolation. Computer-aided-design techniques for single- and multiple-stage amplifiers are described in detail along with performance of simplifiers based on these designs. Typical performance at X-band includes large-signal gains of 5-10 dB, output power of 1 watt or greater, and bandwidths of up to 10 percent. These characteristics are in good agreement with the design values.

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