

Abstracts

Large-Signal Operation of Avalanche-Diode Amplifiers

E.F. Scherer. "Large-Signal Operation of Avalanche-Diode 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)): 922-932.

The effects of large signals on the performance of avalanche amplifiers under various operating and circuit conditions are investigated. Numerical results from a large-signal computer program based on an approximate nonlinear analysis are compared with experiment. It is found that the resulting distortions in the gain response are particularly pronounced in multiple-tuned amplifier circuits. Transfer characteristics of avalanche amplifiers are examined and intermodulation measurements compared with those of TWTs. Preliminary data indicate that avalanche amplifiers compare favorably with TWTs in their distortion characteristics.

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