Abstracts

HIgh-Power C-Band Multiple-IMPATT-Diode Amplifiers

R.E. Lee, U.H. Gysel and D. Parker. "HIgh-Power C-Band Multiple-IMPATT-Diode Amplifiers." 1976 Transactions on Microwave Theory and Techniques 24.5 (May 1976 [T-MTT]): 249-253.

The design considerations and performance characteristics of two high-power microwave reflection amplifiers that use multiple silicon IMPATT diodes are presented. The amplifiers employ microstrip hybrid-circuit-type power combiners to combine the individually matched IMPATT diodes. The first unit, a single-stage 4-diode amplifier, produced 8-W output with 6-dB gain while the second 12-diode amplifier gave 15.8-W output at about 9-dB gain. FM and AM noise added by these amplifiers has been measured with each amplifier driven to nearly full output. Use of microstrip hybrid-circuit power combiners appears to offer a simple and economical design approach for the implementation of microwave solid-state power amplifiers using multiple active devices.

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