Abstracts

A 4-W 56-dB Gain Microstrip Amplifier at 15 GHz Utilizing GaAs FET's and IMPATT Diodes (Dec. 1979 [T-MTT])

V. Sokolov, M.R. Namordi and F.H. Doerbeck. "A 4-W 56-dB Gain Microstrip Amplifier at 15 GHz Utilizing GaAs FET's and IMPATT Diodes (Dec. 1979 [T-MTT])." 1979 Transactions on Microwave Theory and Techniques 27.12 (Dec. 1979 [T-MTT] (1979 Symposium Issue)): 1058-1065.

Performance results and design considerations are presented for an all solid-state Ku-band power amplifier which is feasible for use in PM communication systems for airborne or spacecraft transmitter applications. Design emphasis is placed on high power, and high efficiency operation as well as on compact amplifier construction. A six-stage GaAs FET preamplifier and a driver and balanced power amplifier utilizing GaAs IMPATT diodes operating in the injection locked oscillator mode are discussed. For high power and efficiency Schottky-Read IMPATT's with Iow-high-low doping profiles are employed. For improved reliability the IMPATT's incorporate a TiW barrier metallization to retard degradation of the IMPATT's. Results of accelerated life testing of the IMPATT devices are also presented.

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