Abstracts

Gunn-Effect Amplifiers for Microwave Communication Systems in X, Ku, and Ka Bands

J.G. de Koning, R.E. Goldwasser, R.J. Hamilton, Jr. and F.E. Rosztoczy. "Gunn-Effect Amplifiers for Microwave Communication Systems in X, Ku, and Ka Bands." 1975 Transactions on Microwave Theory and Techniques 23.4 (Apr. 1975 [T-MTT] (Special Issue on Microwave Communications)): 367-374.

This paper describes the design and performance of small-signal stable multistage Gunn-effect reflection-type amplifiers for communication systems in X, Ku, and Ka bands. A single-stage design approach is developed, based on measured small-signal Z parameters of the Gunn diodes. This technique is then applied to a microstrip medium at lower frequencies (X and Ku bands) and to a coax/waveguide hybrid structure at Ku band. Performance of a two-stage amplifier is described in the bands 11.7 to 12.2 GHz and 14.0 to 14.5 GHz. In high Ka band, performance of both a two- and a four-stage amplifier is presented.

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