

# Abstracts

## A Balanced Ka-Band GaAs FET MMIC Frequency Doubler

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*M. Abdo-Tuko, R. Bertenburg and I. Wolff. "A Balanced Ka-Band GaAs FET MMIC Frequency Doubler." 1994 Microwave and Guided Wave Letters 4.7 (Jul. 1994 [MGWL]): 217-219.*

A simplified and miniaturized state-of-the-art balanced GaAs FET MMIC frequency doubler operating at 36 GHz has been designed and realized in coplanar waveguide technology. The passive part of the circuit is designed using an effective, in-house developed quasi-static finite-difference method for the analysis of coplanar structures while the active device is characterized by using the Curtice-Ettenberg model. The model makes use of the measured electrical values of the transistor and interpreted them through approximate empirical formulas. The results obtained demonstrate that by using simple models, which require very little computation time, it is possible to design an efficient frequency doubler in the Ka-band with a maximum conversion gain of 3 to 6 dB, without the need of using complicated transistor models or circuitry.

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