Abstracts

GaAs HBT Wideband and Low Power Consumption Amplifiers to 24 GHz (1991 [MCS])

K.W. Kobayashi, R. Esfandiari, M.E. Hafizi, D.C. Streit, A.K. Oki and M.E. Kim. "GaAs HBT Wideband and Low Power Consumption Amplifiers to 24 GHz (1991 [MCS])." 1991 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 91.1 (1991 [MCS]): 85-88.

This paper reports on the design and performance of a 2-24 GHz distributed matrix amplifier and a 1-20 GHz 2-stage Darlington coupled amplifier based on an advanced HBT MBE profile which increases the bandwidth response of the distributed and Darlington amplifiers by providing lower base-emitter and collector-base capacitances. The matrix amplifier has a 9.5 dB nominal gain and a 3-dB bandwidth to 24 GHz. It is the highest bandwidth reported for an HBT distributed amplifier. The input and output VSWRs are less than 1.5:1 and 2.0:1, respectively. The total power consumed is less than 60 mW. The chip size measures 2.5x2.6 mm^2. The 2-stage Darlington amplifier has 7 dB gain and 3-dB bandwidth to 20 GHz. The input and output VSWRs are less than 1.5:1 and 2.3:1, respectively. This amplifier consumes 380 mW of power and has a chip size of 1.66x1.05 mm^2.

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