Abstracts

High-Linearity, Low DC Power Monolithic GaAs HBT Broadband Amplifiers to 11 GHz

B.L. Nelson, D.K. Umemoto, C.B. Perry, R. Dixit, B.R. Allen, M.E. Kim and A.K. Oki. "High-Linearity, Low DC Power Monolithic GaAs HBT Broadband Amplifiers to 11 GHz." 1990 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 90.1 (1990 [MCS]): 15-18.

Two broadband monolithic amplifiers based on GaAs heterojunction bipolar transistors (HBT) have been developed covering the 0.05-11 GHz frequency band. The hybrid designs reported earlier have have been successfully implemented with MMIC technology. These amplifiers represent the first reported balanced and distributed MMIC HBT amplifiers and offer significant improvement over MESFET and HEMT approaches in high linearity, low dc power performance for communication and EW applications. A 5-11 GHz MMIC balanced amplifier designed for high linearity produces +33 dBm third-order output intercept point (IP3) with 7.5 dB associated gain and less than 160 mW dc power consumption. A 0.05-9 GHz distributed amplifier designed for low dc power and high gain consumes less than 50 mW and provides 6-10 dB gain at nominal bias.

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