Abstracts

Ultra-Low dc Power GaAs HBT S-Band Low Noise Amplifiers

K.W. Kobayashi, A.K. Oki, L.T. Tran and D.C. Streit. "Ultra-Low dc Power GaAs HBT S-Band Low Noise Amplifiers." 1995 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 95.1 (1995 [MCS]): 73-76.

We report on a 2.1 mW low dc power GaAs HBT LNA with 2.0 dB noise figure and 8.9 dB gain at 2 GHz. This amplifier achieves a Gain/N F·P/sub dc/ ratio figure of merit of 2.10 (1/mW) which is the highest reported at S-band. Under low dc power bias of 2V and 0.46 mA (0.92 mW), the amplifier achieves 5.2 dB gain, 3.01 dB noise figure and a Gain/P/sub dc/ figure of merit of 5.65 (dB/mW) which is also the highest reported in this frequency band. The HBT LNA consumes an area of 1.05x0.82 mm² and is fabricated using a relaxed 3 µm emitter width low cost GaAs production foundry process. The high performance obtained from HBTs at very low dc bias makes them attractive for portable wireless consumer applications.

❑ Return to main document.