

Abstracts

A High Performance 1.5 dB Low Noise GaAs PHEMT MMIC Amplifier for Low Cost 1.5-8 GHz Commercial Applications

H. Morkner, M. Frank and D. Millicker. "A High Performance 1.5 dB Low Noise GaAs PHEMT MMIC Amplifier for Low Cost 1.5-8 GHz Commercial Applications." 1993 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 93.1 (1993 [MCS]): 13-16.

A three stage, 1.5 to 8 GHz, 1.5 dB noise figure monolithic GaAs PHEMT has been designed, fabricated, and tested. This MMIC uses state-of-the-art .15u gate PHEMT devices, self-biasing current sources, source follower interstage, resistive feedback, and on-chip matching to make a unique low noise amplifier. Typical gain of 21 dB, VSWR of 2:1, and P-1dB output power of 7dBm have been measured. The die area is small (0.40 mm sq.) and is compatible with surface mount packages. DC power requirements are low, consuming only 14mA from a single +5V supply. This MMIC LNA has the best combination of noise figure, gain, low current, match, wide bandwidth, and low cost of any advertised or published product to date.

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