Abstracts

Monolithic L-Band Amplifiers Operating at Milliwatt and Sub-Milliwatt DC Power Consumptions

K.R. Cioffi. "Monolithic L-Band Amplifiers Operating at Milliwatt and Sub-Milliwatt DC Power Consumptions." 1992 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 92.1 (1992 [MCS]): 9-12.

A set of monolithic L-band low noise amplifiers operating at milliwatt and sub-milliwalt DC power consumption have been designed and fabricated. A maximum gain/power quotient of 19.1 dB/mW was recorded at a frequency of 1.25 GHz with a cascade of 2 MMIC amplifiers yielding a total gain of 15.3 dB on a total power consumption of just 800 µW. This is believed to be the highest gain/power quotient ever reported for a monolithic circuit at L-band. The ultra-low power consumption were obtained with a standard foundry process using an enhancement-mode MESFET with a variety of design techniques. Yields obtained on two 4" GaAs wafers were 96-100%.

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