Abstracts

High Performance MMIC 20 GHz LNA and 44 GHz Power Amplifier Using Planar-Doped InGaAs HEMTs

J.A. Lester, W.L. Jones and P.D. Chow. "High Performance MMIC 20 GHz LNA and 44 GHz Power Amplifier Using Planar-Doped InGaAs HEMTs." 1991 MTT-S International Microwave Symposium Digest 91.2 (1991 Vol. II [MWSYM]): 433-436.

GaAs-based lnGaAs Psuedomorphic High Electron Mobility Transistors (HEMT) have demonstrated superior low-noise and high power capabilities at microwave and millimeter wave frequencies. This paper presents a pair of 3-stage amplifiers fabricated with the same process demonstrating excellent noise and power performance. A K-Band fully monolithic LNA has demonstrated greater than 33 dB gain over a 4 GHz bandwidth with a noise figure of less than 2 dB over 2 GHz. The Q-Band power amplifier has demonstrated an output power of 13.3 dBm at 1 dB compression with 25.3 dB of gain and a saturated output power of 16.1 dBm at 40 GHz. These amplifiers are designed for insertion into future EHF satellite communication ground terminals.

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