Abstracts

High Performance V-Band Low Noise Amplifiers

S. Vaughn, K. White, U.K. Mishra, M.J. Delaney, P. Greiling and S. Rosenbaum. "High Performance V-Band Low Noise Amplifiers." 1989 MTT-S International Microwave Symposium Digest 89.2 (1989 Vol. II [MWSYM]): 801-804.

Significant advances in high frequency, low noise amplifier (LNA) performance have been achieved. Noise figures under 2.0 dB have been demonstrated with several single stage amplifiers incorporating devices from different wafers. These amplifiers utilized an Al/sub 0.48/In/sub 0.52/As-Ga/sub 0.47/In/0.53/sub/0.53/As lattice matched InP HEMT device with a gate periphery of 50 µm x .2 µm. Typical f/sub t/ of these devices are in excess of 120 GHz, with an extrinsic g/sub m/ of more than 900 mS/mm. The best results obtained by a single stage LNA was .8 dB, with an associated gain of 8.7 dB at 63.5 GHz. A 3-stage V-band amplifier produced a minimum noise figure of 2.6 dB, with 19.5 dB of gain at 61.0 GHz.

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