Abstracts

A Monolithic W-Band High-Gain LNA/Detector for Millimeter Wave Radiometric Imaging Applications

D.C.W. Lo, G.S. Dow, B.R. Allen, L. Yujiri, M. Mussetto, T.W. Huang, H. Wang and M. Biedenbender. "A Monolithic W-Band High-Gain LNA/Detector for Millimeter Wave Radiometric Imaging Applications." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1117-1120.

We have demonstrated a monolithic W-band six-stage low noise amplifier/detector, using 0.1 mu-m passivated pseudomorphic AI0.25Ga0.75As/In0.22Ga0.78As/GaAs HEMT technology. The front-end LNA, over the band from 85 to 96 GHz has achieved an average small signal gain of 40 dB which is the highest gain value ever reported for a MMIC operating in the W-band. The measured minimum resolvable temperature of the MMIC is about 1.6 degrees K, where the dominant noise source is attributed to be the 1/f noise of the monolithically integrated HEMT diode.

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