Abstracts

An Ultra Low Noise W-Band Monolithic Three-Stage Amplifier Using 0.1 µm Pseudomorphic InGaAs/GaAs HEMT Technology

H. Wang, T.N. Ton, K.L. Tan, G.S. Dow, T.H. Chen, K.W. Chang, J. Berenz, B. Allen, P. Liu, D. Streit, G. Hayashibara and L.C.T. Liu. "An Ultra Low Noise W-Band Monolithic Three-Stage Amplifier Using 0.1 µm Pseudomorphic InGaAs/GaAs HEMT Technology." 1992 MTT-S International Microwave Symposium Digest 92.2 (1992 Vol. II [MWSYM]): 803-806.

An ultra low noise W-band monolithic three-stage amplifier based on 0.1 µm pseudomorphic InGaAs/GaAs HEMT devices has been developed. This amplifier has a measured noise figure of 3.5 dB with an associated small signal gain of 21 dB at 94 GHz. This is the best reported performance of a monolithic W-band high gain LNA and shows significant improvement compared with previous records in terms of noise figure and associated gain. The success of this LNA development is attributed to the excellent device performance and a rigorous design analysis methodology. The state-of-the-art MMIC performance shows great promise of the emerging technology for low cost W-band receiver applications.

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