

Abstracts

Design and Characterization of High Performance 60 GHz Pseudomorphic MODFET LNAs in CPW-Technology Based on Accurate S-Parameter and Noise Models (1992 [MCS])

M. Schlechtweg, W. Reinert, P.J. Tasker, R. Bosch, J. Braunstein, A. Hulsmann and K. Kohler. "Design and Characterization of High Performance 60 GHz Pseudomorphic MODFET LNAs in CPW-Technology Based on Accurate S-Parameter and Noise Models (1992 [MCS])." 1992 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 92.1 (1992 [MCS]): 29-32.

We have fabricated low noise V-band 2-stage amplifiers using PM-MODFETs which have a performance of 10.5 dB gain and 5.2 dB noise figure at 58.5 GHz in very close agreement with results predicted in advance. The CAE models for the transistors and the passive CPW-components were extracted from on-wafer S-parameter measurements up to 60 GHz and noise parameter measurements up to 18 GHz. For noise modeling of the MODFETs up to millimeter wave frequencies, we have pursued a novel approach which is based on the temperature noise model reported by Pospiezalski. A very good agreement between simulated and performance is measured MMIC gain and noise achieved up to V-band using these models.

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