Abstracts

Monolithic V-band Pseudomorphic-MODFET Low-Noise Amplifiers (1989 Vol. I [MWSYM])

G. Metze, A. Cornfeld, J. Singer, H. Carlson, E. Chang, T. Kirkendall, G. Dahrooge, J. Bass, H.-L. Hung and T. Lee. "Monolithic V-band Pseudomorphic-MODFET Low-Noise Amplifiers (1989 Vol. I [MWSYM])." 1989 MTT-S International Microwave Symposium Digest 89.1 (1989 Vol. I [MWSYM]): 199-204.

V-band, low-noise MMICs based on pseudomorphic modulation-doped FET's (P-MODFETs) have been developed for the first time and have yielded noise figures that are believed to be the lowest reported for any millimeter--wave MMIC. Single stage low-noise amplifiers with P-MODFETs as active elements (gate dimensions 0.35 x 60 µm) exhibited minimum noise figures of 3.9 dB at 58 GHz, with an associated gain of 3.5 dB. Dual-stage MMICs had minimum noise figures of 5.3 dB at 58 GHz, with an associated gain of 8.2 dB, and maximum gain of 10.4 dB at 59.5 GHz. Further, a cascaded four-stage amplifier (two dual-stage MMIC modules) exhibited a 5.8.dB minimum noise figure at 58 GHz, with an associated gain of 18.3 dB, and 21.1 dB of maximum gain. Device processing uniformity, as well as DC and RF reliability data, are also presented.

❑ Return to main document.