Abstracts

Compact monolithic coplanar 94 GHz front ends

W.H. Haydl, L. Verweyen, T. Jakobus, M. Neumann, A. Tessmann, T. Krems, M. Schlechtweg, W. Reinert, H. Massler, J. Rudiger, W. Bronner, A. Hulsmann and T. Fink. "Compact monolithic coplanar 94 GHz front ends." 1997 MTT-S International Microwave Symposium Digest 3. (1997 Vol. III [MWSYM]): 1281-1284.

Fully integrated W-band 94 GHz heterodyne receivers in coplanar 0.15 /spl mu/m AlGaAs/InGaAs/GaAs PM-HEMT technology are described. The MMICs consist of a multistage low noise RF amplifier, a mixer, and an LO buffer amplifier. Balanced diode and single ended resistive HEMT mixers were investigated. A conversion gain of 13 dB and a DSB noise figure of 6.5 dB were obtained with a very compact 1/spl times/4 mm/sup 2/ front end MMIC, employing cascode amplifiers and balanced rat race diode mixer. The chip size is substantially less than that of any receiver chip published to date.

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