Abstracts

A 40-GHz Integrated Quasi-Optical Slot HFET Mixer (Dec. 1994, Part II [T-MTT])

H.H.G. Zirath, C.-Y. Chi, N. Rorsman and G.M. Rebeiz. "A 40-GHz Integrated Quasi-Optical Slot HFET Mixer (Dec. 1994, Part II [T-MTT])." 1994 Transactions on Microwave Theory and Techniques 42.12 (Dec. 1994, Part II [T-MTT] (1994 Symposium Issue)): 2492-2497.

We present for the first time a quasi-optical mixer realized as a resistive HFET mixer with an integrated slot antenna. Two different types of HFET's, based on GaAs and InP, are compared for this application. The mixer conversion loss, defined as the measured IF power in the 50 Omega load divided by the RF power available at the slot-antenna terminals, is better than 7 dB at LO powers down to 0 dBm, Subharmonic pumping of the mixer is also investigated. This topology has a potential interest for future low-cost millimeter-wave receivers for automobile radar and speed detector systems.

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