Abstracts

Low cost coplanar 77 GHz single-balanced mixer using ion-implanted GaAs Schottky diodes

R. Shimon, D. Caruth, J. Middleton, H. Hsia, M. Feng, J. Mondal and S. Moghe. "Low cost coplanar 77 GHz single-balanced mixer using ion-implanted GaAs Schottky diodes." 1998 MTT-S International Microwave Symposium Digest 98.3 (1998 Vol. III [MWSYM]): 1439-1442.

A W-band single-balanced mixer and W-band LO amplifier, suitable for automotive collision-avoidance radar, have been designed and fabricated using a 0.18 /spl mu/m direct ion-implanted GaAs MESFET process developed at the University of Illinois at Urbana-Champaign. As a downconverter with an LO frequency of 77 GHz and an RF frequency of 77.1 GHz, the coplanar rat-race mixer achieves a conversion loss of 14.7 dB at an LO power of +3.5 dBm. The coplanar LO amplifier exhibits 5 dB of gain over a 4 GHz bandwidth centered at 77 GHz.

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