

Abstracts

Ka-Band Monolithic GaAs Balanced Mixers (Jan. 1983 [T-MTT])

C. Chao, A. Contolatis, S.A. Jamison and P.E. Bauhahn. "Ka-Band Monolithic GaAs Balanced Mixers (Jan. 1983 [T-MTT])." 1983 Transactions on Microwave Theory and Techniques 31.1 (Jan. 1983 [T-MTT] (Joint Special Issue on Monolithic Microwave IC's)): 11-15.

Monolithic integrated circuits have been developed on semi-insulating GaAs substrates for millimeter-wave balanced mixers. The GaAs chip is used as a suspended stripline in a cross-bar mixer circuit. A double sideband noise figure of 4.5 dB has been achieved with a monolithic GaAs balanced mixer filter chip over a 30- to 32-GHz frequency range. A monolithic GaAs balanced mixer chip has also been optimized and combined with a hybrid MIC IF preamplifier in a planar package with significant improvement in RF bandwidth and reduction in chip size. A double sideband noise figure of less than 6 dB has been achieved over a 31- to 39-GHz frequency range with a GaAs chip size of only 0.5x0.43 in. This includes the contribution of a 1.5-dB noise figure due to if preamplifier (5-500 MHz).

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