Abstracts

A 30 GHz MMIC Receiver for Satellite Transponders

H. Kato, T. Ohira, F. Ishitsuka, T. Tokumitsu, Y. Kihata and N. Imai. "A 30 GHz MMIC Receiver for Satellite Transponders." 1990 Transactions on Microwave Theory and Techniques 38.7 (Jul. 1990 [T-MTT]): 896-903.

The development of 30-GHz-band MMIC's and multichip MMIC modules (low-noise amplifier and frequency converters) is reported. A 30-GHz-band full-MMIC receiver for satellite transponders has been successfully constructed using the MMIC modules. The performance of the full-MMIC receiver is evaluated. Test results indicate its successful performance as a satellite receiver system. In this paper, the design and performance of the MMIC's (a two-stage amplifier, an image rejection mixer, and a frequency multiplier), of multichip-type MMIC modules (a 30-GHz-band low-noise amplifier module with a gain of 30 dB and a noise figure of 8.2 dB, and an image rejection frequency converter with a 10 dB conversion loss and an 18 dB image rejection ratio), and of the full-MMIC receiver, which weighs 1/6 as much as a conventional hybrid IC, are presented.

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