

Abstracts

A 26-GHz High-Performance MIC Transmitter/Receiver for Digital Radio Subscriber Systems (Dec. 1984 [T-MTT])

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A high-performance 26-GHz microwave integrated circuit (MIC) transmitter/receiver using frequency-shift-keying (FSK) modulation has been developed. All RF components are fabricated using MIC technology and integrated into a single compact module. Newly developed MIC components include an FSK modulator, a time division multiple access (TDMA) switch, and a single-balanced mixer. The FSK modulator is composed of an IMPATT diode, a varactor diode, and a dielectric resonator. A high-frequency stability of 50 ppm is obtained in the temperature range of -10-45°C. The configuration and performance of the TDMA switch with a high ON/OFF ratio and a low insertion loss are described. A transmitting power of 21 dBm and a receiving noise figure of 8.7 dB are obtained. The bit error rate is measured to evaluate the overall transmitter/receiver performance. The required carrier-to-noise ratio (CNR) has been considerably improved by adopting FSK modulation and by using the MIC transmitter/receiver described in this paper.

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