Abstracts

Low-voltage C-band Si BJT single-chip receiver MMIC based on Si 3D MMIC technology

K. Nishikawa, K. Kamogawa, T. Nakagawa and M. Tanaka. "Low-voltage C-band Si BJT single-chip receiver MMIC based on Si 3D MMIC technology." 2000 Microwave and Guided Wave Letters 10.6 (Jun. 2000 [MGWL]): 248-250.

This letter demonstrates a C-band Si BJT MMIC single-chip receiver based on the masterslice 3D MMIC technology. The fabricated receiver MMIC on a chip of 1.8 mm by 1.8 mm integrates a low-noise amplifier, an image-rejection mixer, and an IF hybrid associated with an IF amplifier. The fabricated components on the chip are designed by using reactive matching method due to both broadband and low-voltage operation. The receiver MMIC achieves a conversion gain of 13.5 dB, a noise figure of 5.2 dB, and an image rejection ratio of 30.6 dB at 5.2 GHz. This receiver also has a flat gain characteristic in the C-band. The power consumption of this MMIC is 115 mW with 2 V collector supply voltage.

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