Abstracts

Broadband and compact SiBJT balanced up-converter MMIC using Si 3-D MMIC technology

K. Nishikawa, K. Kamogawa, T. Nakagawa, B. Piernas and K. Araki. "Broadband and compact SiBJT balanced up-converter MMIC using Si 3-D MMIC technology." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 87-90 vol.1.

This paper presents a broadband and compact SiBJT balanced up-converter MMIC using Si 3-D MMIC technology. The balanced up-converter consists of newly designed Marchand-type balun, and two unit mixers that have stacked matching circuits. The fabricated balanced upconverter MMICs occupies just 1 mm/sup 2/ but achieves a conversion gain of 2.5 dB/spl plusmn/2.5 dB and LO signal suppression of more than 30 dB at an RF port from 12 GHz to 27 GHz. The power consumption is 9.8 mW with 1 V supply voltage. The broadband performance factor of the fabricated MMIC is twice those of previously reported balanced up-converter MMICs.

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