Abstracts

L-C-Band Low-Voltage BiCMOS MMIC's for Dual-Mode Cellular-LAN Applications

M. Madihian, K. Imai, H. Yoshida, Y. Kinoshita and T. Yamazaki. "L-C-Band Low-Voltage BiCMOS MMIC's for Dual-Mode Cellular-LAN Applications." 1996 Transactions on Microwave Theory and Techniques 44.11 (Nov. 1996 [T-MTT]): 2025-2031.

This paper is concerned with the design considerations and performance results for low-voltage Si monolithic microwave/millimeter-wave integrated circuits (MMIC'S) developed for mobile and personal communications applications. A 0.4 µm ECL-BiCMOS process technology was employed to develop bipolar-based RF amplifiers, MOS-based IF amplifiers, BiCMOS-based simplified Gilbert mixers, and monolithic down-converter as well as upconverter IC'S incorporating these elements. These converters are designed to operate at a bias voltage of 2 V over 1.8-6.2 GHz exhibiting a conversion gain of 35-15 dB with a variable IF frequency of up to several 100 MHz. Chip size for both the downconverter and upconverter IC'S is 1.0 mm x 0.7 mm.

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