Abstracts

A Low Cost High Performance MMIC Low Noise Downconverter for Direct Broadcast Satellite Reception

P. Wallace, R. Michels, J. Bayruns, S.B. Christianson, N. Scheinberg, J. Wang, R. Goyal and M. Patel. "A Low Cost High Performance MMIC Low Noise Downconverter for Direct Broadcast Satellite Reception." 1990 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 90.1 (1990 [MCS]): 7-10.

This paper describes a low cost single chip receiver designed for use in direct broadcast satellite (DBS) receivers operating over 11.7 to 12.2 GHz. The chip is comprised of a low noise amplifier, image filter, active mixer, IF filter, IF amplifier and local oscillator replacing about 50 discrete components in typical outdoor DBS receiver. The unit is housed in a low cost hermetic package and requires only dielectric resonator for proper operation. With power supplies of +6 V and -5 V, the typical noise figure is about 5 dB, with a conversion gain of about 36 dB. The device is manufactured in a 0.5 micron, buried P layer GaAs MESFET IC process without through substrate vias.

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