Abstracts

GaAs Monolithic MICs for Direct Broadcast Satellite Receivers (1983 [MWSYM])

S. Hori, K. Kamei, K. Shibata, M. Tatematsu, K. Mishima and S. Okano. "GaAs Monolithic MICs for Direct Broadcast Satellite Receivers (1983 [MWSYM])." 1983 MTT-S International Microwave Symposium Digest 83.1 (1983 [MWSYM]): 59-64.

A 12-GHz low-noise amplifier (LNA), a 1-GHz IF amplifier (IFA) and an 11-GHz dielectric resonator oscillator (DRO) have been developed for DBS home receiver a placations by using GaAs MMIC (monolithic MIC) technology. Each MMIC chip contains FETs as active elements and self-biasing source resistors and bypass capacitors for single power supply operation. It also contains DC-block and RF-bypass capacitors. The three-stage LNA exhibits 3.4-dB noise figure and 19.5-dB gain over 11.7 GHz-12.2 GHz. The negative-feedback type three-stage IFA shows 3.9-dB noise figure and 23-dB gain over 0.5 GHz-1.5 GHz. The DRO gives 10-mW output power at 10.67 GHz with a frequency stability of 1.5 MHz over a temperature range from -40 to 80 °C. A DBS receiver incorporating these MMICS exhibits an overall noise figure of <= 4.0 dB for frequencies from 11.7 to 12.2 GHz.

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