Abstracts

A high-performance miniaturized 6/4-GHz satellite receiver using MMIC technology

R. Gupta, J. Upshur, R. Mott and L. Pryor. "A high-performance miniaturized 6/4-GHz satellite receiver using MMIC technology." 1999 MTT-S International Microwave Symposium Digest 99.3 (1999 Vol. III [MWSYM]): 1059-1062 vol.3.

This paper presents the design and measured results of a high-performance, miniature 6-/4-GHz receiver for on-board satellite applications. The receiver has a gain of 76 dB, weighs less than 500 g, and consumes less than 5 W of DC power. Extensive use is made of custom-designed monolithic microwave integrated circuit (MMIC) chips for all RF functions, to achieve a high level of reliability and miniaturization. A pseudomorphic high-electron-mobility transistor (p-HEMT) C-band low-noise amplifier with 40-dB gain and a room temperature minimum noise figure of approximately 0.85 dB is used in the front end. Gain adjustments are provided in l-dB steps at IF frequency between 3.5 and 4.5 GHz.

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