Abstracts

Ku-band low noise MMIC amplifier with bias circuit for compensation of temperature dependence and process variation

K. Yamanaka, K. Yamauchi, K. Mori, Y. Ikeda, H. Ikematsu, N. Tanahashi and T. Takagi. "Ku-band low noise MMIC amplifier with bias circuit for compensation of temperature dependence and process variation." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1427-1430 vol.3.

In this paper, a Ku-band low-noise MMIC amplifier is presented, which is equipped with a bias circuit that compensates not only temperature dependence of the FETs' gain but also gain variation between chips due to process variations. The Ku-band low noise MMIC amplifier with proposed gate-bias circuit was designed and manufactured. It was proved that the proposed bias circuit reduced the temperature dependence of the two-stage MMIC amplifier's gain from 1.4 dB/100 K to 1.0 dB/100 K. The chip area consumed for the bias circuit is less than 10% of the total chip size of 1.17 mm/sup 2/. The gain variation between chips was reduced to 0.25 dB in RMS. This amplifier is suitable for active phased array applications.

❑ Return to main document.