Abstracts

A high-performance Ka-band monolithic variable-gain amplifier using dual-gate HEMTs

T. Kashiwa, T. Katoh, T. Ishida, Y. Kojima and Y. Mitsui. "A high-performance Ka-band monolithic variable-gain amplifier using dual-gate HEMTs." 1997 Microwave and Guided Wave Letters 7.8 (Aug. 1997 [MGWL]): 251-252.

The author describes the excellent performance of a Ka-band monolithic variable-gain amplifier monolithic microwave integrated circuit (VGA MMIC) using dual-gate AlGaAs-InGaAs pseudomorphic high electron mobility transistors (HEMT's). The dual-gate HEMT can be fabricated by the same process as a single-gate HEMT. To achieve low-noise performance, a single-gate HEMT is employed in the first stage of the VGA MMIC. However, in the second and third stages, dual-gate HEMT's are used for gain control performance with higher gain. The VGA MMIC achieves more than 30-dB gain with more than 50-dB gain control range from 30 to 35 GHz. A noise figure of 1.4 dB with an associated gain of 29.2 dB is achieved at 33 GHz when biased for a low-noise performance.

❑ Return to main document.