Abstracts

60-GHz MMIC Downconverter Using an Image-Rejection Active HEMT Mixer

T. Saito, N. Hidaka, Y. Ohashi, T. Shimura and Y. Aoki. "60-GHz MMIC Downconverter Using an Image-Rejection Active HEMT Mixer." 1994 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 94.1 (1994 [MCS]): 77-80.

Using AIGaAs/GaAs HEMT technology, we designed, fabricated, evaluated a V-band monolithic downconverter. The downconverter consists of a four-stage RF amplifier and an image-rejection active-drain HEMT mixer. The HEMTs in the downconverter have gates 0.15 µm long and 100 µm wide. The downconverter has a maximum conversion gain of 15.5 dB and a minimum noise figure of 6.8 dB at 8 dBm LO power at 60 GHz. These characteristics are, to our knowledge, the best reported for MMIC downconverters using an image-rejection active-drain HEMT mixer in this frequency range.

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