

Abstracts

A Monolithic W-Band CPW Rat-Race Mixer with HBT IF Amplifier

H. Matsuura, K. Tezuka, I. Aoki, A. Miura, M. Yamanaka, T. Yakihara, S. Kobayashi, S. Oka, T. Fujita and D. Murata. "A Monolithic W-Band CPW Rat-Race Mixer with HBT IF Amplifier." 1996 MTT-S International Microwave Symposium Digest 96.1 (1996 Vol. 1 [MWSYM]): 389-392.

This paper reports on a fully monolithic W-band Schottky diode down converter with an IF amplifier using heterojunction bipolar transistors (HBTs). We use a coplanar wave guide (CPW) as a transmission line element for a rat-race, because a CPW requires one-side wafer processing only. The conversion gain is +9.5 dB with the HBT amplifier and -8.8 dB without the HBT amplifier at an RF of 95 GHz. The isolation from the LO port to the RF port is 29 dB with the HBT amplifier and 27 dB without the HBT amplifier.

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