Abstracts

Low-Noise Down Converter and High-Efficiency Up Converter for Transmitter-Receiver Applications in the 60-86-GHz Region (Short Papers)

N. Kanmuri, M. Akaike, H. Kato, S. Kitazume, H. Kobayashi and H. Ishihara. "Low-Noise Down Converter and High-Efficiency Up Converter for Transmitter-Receiver Applications in the 60-86-GHz Region (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.12 (Dec. 1974, Part II [T-MTT] (1974 Symposium Issue)): 1286-1290.

Design and performance of a low-noise down converter and a high-efficiency up converter for transmitter-receiver applications in the frequency range of 60-86 GHz are described in this short paper. The receiver and the transmitter are used in a guided millimeter-wave transmission system "W-40G" A wafer-type GaAs Schottky-barrier diode is used in both units. The diode mount consists of a semiconductor wafer and a whisker which are mounted in a waveguide circuit. The IF terminal is a coaxial line section which is connected to the whisker. The conversion loss of the up and down converters using the new wafer is 7.5 and 5.5 dB, respectively. The bandwidth of the frequency converters is approximately ±10 percent in the frequency region of 60-86 GHz.

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