Abstracts

Noise Reduction in GaAs Schottky Barrier Mixer Diodes (Short Papers)

K.M. Kattmann, T.W. Crowe and R.J. Mattauch. "Noise Reduction in GaAs Schottky Barrier Mixer Diodes (Short Papers)." 1987 Transactions on Microwave Theory and Techniques 35.2 (Feb. 1987 [T-MTT]): 212-214.

The sensitivity of heterodyne receivers operating at millimeter and submillimeter wavelengths is limited by the noise produced in the mixer element. In this paper we investigate the presence of excess noise in GaAs Schottky barrier mixer diodes. Comparison of the measured noise data with that predicted from noise models indicates that these devices typically exhibit excess noise. An additional fabrication step, which removes several hundred angstroms from the GaAs surface before the anode contact is formed, greatly reduces this excess noise. This additional step is outlined, and experimental evidence is presented.

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