Abstracts

Interfacial Stress and Excess Noise in Schottky-Barrier Mixer Diodes

G.K. Sherrill, R.J. Mattauch and T.W. Crowe. "Interfacial Stress and Excess Noise in Schottky-Barrier Mixer Diodes." 1986 Transactions on Microwave Theory and Techniques 34.3 (Mar. 1986 [T-MTT]): 342-345.

This paper presents evidence linking excess noise in submillimeter-wave Schottky-barrier mixer diodes to stress at the devices' GaAs-SiO/sub 2/ interface. At the periphery of the Schottky anodes, the SiO/sub 2/ film is discontinuous and the stress surpasses the GaAs yield stress, resulting in damage to the surrounding material. By modifying the device structure in three independent manners, the stress and damage at the diode periphery were either increased or decreased; in each case, the noise temperature increased or decreased accordingly.

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