Abstracts

Noise Properties and Stabilization of Gunn and Avalanche Diode Oscillators and Amplifiers

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Figures 1 and 2 give the FM and AM noise of typical X-Band and Gunn and avalanche diode oscillators. These data are typical and not essentially different from the early data presented by Josenhans. Most differences in the FM noise can be explained by the changes in circuit Q with great reduction in the FM noise obtained only by increasing the circuit Q by energy storage in an additional stabilizing cavity. Differences in AM data can usually be accounted for by the bias circuit impedance or by threshold problems in the AM noise measurement equipment. This is particularly true for the Gunn diode oscillator because the AM noise is low enough that only a Schottky barrier diode is capable of making the measurement.

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