Abstracts

GaAs Post-Threshold Microwave Amplifier, Mixer, and Oscillator

B.W. Hakki. "GaAs Post-Threshold Microwave Amplifier, Mixer, and Oscillator." 1966 G-MTT International Microwave Symposium Digest 66.1 (1966 [MWSYM]): 1-6.

Bulk GaAs was operated simultaneously as a microwave amplifier, mixer, and oscillator under cw conditions. This was achieved by biasing the sample at post-threshold conditions, i.e., beyond the bias at which the sample broke into Gunn-type oscillations. It was found that even under these post-threshold conditions, wherein the device was oscillating at a certain frequency, the device simultaneously had the properties of a linear active element capable of mixing and amplification at other frequencies. The frequencies at which the device exhibited simultaneous amplification, mixing, and oscillation were not harmonically related. These frequencies were determined jointly by semiconductor and microwave circuits.

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