Abstracts

Fundamental and Harmonic Operation of Millimeter-Wave Gunn Diodes

W.H. Haydl. "Fundamental and Harmonic Operation of Millimeter-Wave Gunn Diodes." 1983 Transactions on Microwave Theory and Techniques 31.11 (Nov. 1983 [T-MTT]): 879-889.

Pulsed and CW measurements in the range 26-110 GHz were performed on gallium arsenide (GaAs) Gunn diodes having active lengths of 1.8-2.6 µm, bonded into commercially available packages. The diodes were operated in full-height waveguides in the V-(WR-15), E-(WR-12), and W-(WR-10) bands, using coaxial-bias circuits and a disc-post resonator to provide the required resonance at their fundamental frequency in the range from about 25-65 GHz. Frequency and power measurements were performed up to 110 GHz on the fundamental, second, and third harmonics. The main emphasis of this experimental investigation has been the study of frequency changes caused by changes made in the various parameters of the disc, post, diode, diode package, and embedding waveguide sections.

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