Abstracts

Microwave Characterization of Silicon BARITT Diodes Under Large-Signal Conditions

G.K. Montress and M.S. Gupta. "Microwave Characterization of Silicon BARITT Diodes Under Large-Signal Conditions." 1979 Transactions on Microwave Theory and Techniques 27.5 (May 1979 [T-MTT] (Special Issue on Solid-State Microwave/Millimeter-Wave Power Generation, Amplification, and Control)): 458-462.

Experimental measurements of the small- and large-signal admittance of a silicon BARITT diode are reported. The structural characteristics of the devices are also reported, so that the results provide a basis for evaluating the large-signal analyses of BARITT diodes. A lumped-element frequency-independent equivalent circuit is proposed to represent the terminal characteristics of the device over a broad-frequency range, and is verified by comparison with the measured admittances. Simple approximations are given to describe the dependence of the device admittance on the three operating point parameters: dc bias current, signal frequency, and RF signal level.

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