Abstracts

Millimeter-Wave Simulation of a Series-Integrated Resonant Tunneling Diode Including Transit Time Effect

C.C. Yang and D.-S. Pan. "Millimeter-Wave Simulation of a Series-Integrated Resonant Tunneling Diode Including Transit Time Effect." 1993 MTT-S International Microwave Symposium Digest 93.1 (1993 Vol. I [MWSYM]): 329-332.

An oscillator scheme that substantially increases the millimeter-wave power generation capabilities of the quantum-well resonant tunneling diode (RTD) by a device-level series integration is analyzed. A series-integrated RTD including transit time effect has been simulated in great detail at millimeter-wave frequencies. Using the available experimental characteristics of a GaAs/AIAs quantum-well RTD, our simulation shows that, for example, 120 mW output power with 10% dc-to-RF conversion efficiency at a 5-Omega load can be obtained at 100 GHz, when ten such RTD's are integrated in series.

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