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High-frequency nonlinear characteristics of resonant-tunnelling diodes

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Abstract

The nonlinear response of resonant-tunnelling diodes (RTDs) is analysed theoretically at high frequencies (HFs), which are far above the diode's tunnel-relaxation-time limit. We show that the HF I-V curve in this regime is substantially different from the static one. The calculated static and oscillation characteristics of a HF RTD oscillator are in good agreement with our measurement results. Our RTD model is applicable to RTDs working at THz frequencies.