Abstracts

Improved Millimeter-Wave Mixer Performance Analysis at Cryogenic Temperatures

P.H. Siegel, I. Mehdi and J. East. "Improved Millimeter-Wave Mixer Performance Analysis at Cryogenic Temperatures." 1991 Microwave and Guided Wave Letters 1.6 (Jun. 1991 [MGWL]): 129-131.

The results are presented of a 600-GHz mixer performance analysis using an improved model for computing the Schottky diode capacitance-voltage (C-V) relationship. The computed C-V data for a realistic submillimeter-waver mixer diode are given as a function of physical temperature and compared to the standard analytic expression based on a solution of Poisson's equation. Both C-V relationships are used to predict the performance of an ideally terminated 600 GHz mixer operating at 300, 140, 80, and 30 K. It is shown that the drift-diffusion model more accurately describes the mixer performance when the physical temperature is reduced below /spl ap/100 K.

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