Abstracts

Numerical Analysis of Subharmonic Mixers Using Accurate and Approximate Models

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A full nonlinear numerical analysis technique is applied to subharmonically pumped mixer circuits where the two diodes are not identical. Results indicate that a slight imbalance in the diode parasitic parameters can significantly affect the mixer performance. A bilinear approximation of the Schottky-barrier diode characteristic is described, permitting accurate determination of the conversion loss peaks for millimeter-wave subharmonically pumped mixers. This approximation provides an analysis which requires significantly less computer time than a full nonlinear analysis.

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