Abstracts

Nonlinear-Linear Analysis of Microwave Mixer with Any Number of Diodes

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A theory is presented for analyzing mixers with any number of diodes. Both the nonlinear and linear steps of the analysis are included. The diodes are characterized by both nonlinear conductance and nonlinear capacitance. Any linear embedding network is allowed. It is assumed that both the parameters of the linear part of a mixer circuit and the parameters of the diodes are known. This general approach to microwave circuits with diodes, which is a qualitatively new problem in circuits analysis, allows to investigate any diode mixer with deep insight into its operation. A computer program has been developed to perform the analysis and all computations. The program has been utilized to analyzee a crossbar mixer conjuration which exhibits extremely encouraging performance. Some computed results are presented herein.

❑ Return to main document.