Abstracts

Analysis and Sensitivities of Noisy Networks Using Nodal Approach

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An enhancement of nodal noise analysis of electrical networks is presented by computing noise sensitivities with respect to network parameters. The noise figure and spot noise parameters sensitivities of the reduced two-port network are obtained from the partial inversion of the nodal admittance matrix. Analytical formulas are derived to calculate first- and second-order noise sensitivities directly, rather than using a computer-time intensive perturbation method. Expressions for noise sensitivities of cascaded networks are also given. Numerical results for an actively matched amplifier are shown to illustrate the advantages of the proposed technique.

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