Abstracts

Design of broad-band matching network with lossy junctions using the real-frequency technique

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A computer-aided design (CAD) procedure based on the real-frequency technique (RFT) is introduced for treating the matching of an arbitrary load to a complex generator. In this paper, the method has been applied to the design of interstage matching networks for microwave active circuits. The RFT provides several advantages over most of the usual techniques. It requires neither any transistor model because it directly includes measuring scattering- and noise-parameter data, nor a predetermined matching-circuit topology is necessary. A low-noise amplifier (LNA) design proceeding directly from experimental data is presented. Moreover, a new idea for treating the broadband matching problem leads to the use of an equalizer topology containing cascaded transmission lines with lossy junctions. Thus, gain-flatness and stability are satisfied by designing the input and the output matching circuits by the line-segment technique. An example is presented for the matching of a 0.1-5 GHz amplifier.

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