Abstracts

Scattering Parameter Approach to the Design of Narrow-Band Amplifiers Employing Conditionally Stable Active Elements (Short Papers)

In terms of scattering parameters, the equation transducer power gain is shown to be capable of representation as a family of circles of constant gain from which the design of load and source terminations to achieve a restricted bandwidth can be obtained. This is an extension of an earlier approach which only allowed either load reflection coefficient or source reflection coefficient to be considered in a given design. Through the use of a specification statement of VSWR, it is shown how a marginal stability factor can be derived. From the study of the interaction between the input and output reflection coefficients, a detuning factor is analytically derived to correlate the interaction between the input and output reflection coefficients. Either of these factors can be chosen and used to select optimum input and output reflection coefficients which provide stable operation for an amplifying stage that is to employ a conditionally stable active element. An example using these factors is given.

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