Abstracts

An Extension of the Mode Theory to Periodically Distributed Parametric Amplifiers with Losses

K. Kurokawa and J. Hamasaki. "An Extension of the Mode Theory to Periodically Distributed Parametric Amplifiers with Losses." 1960 Transactions on Microwave Theory and Techniques 8.1 (Jan. 1960 [T-MTT]): 10-18.

For the extension of the mode theory of the Iossless periodically distributed parametric amplifier to the Iossy case, a "conjugate circuit" is introduced in this paper. The conjugate circuit is an imaginary circuit which is obtained in the pass band by replacing each resistance in the original circuit with the negative resistance of the same maguitude. The orthogonality properties between the modes of the original circuit and those of the conjugate circuit are derived. The power gain and the noise figure of the amplifier are calculated, showing the usefulness of this mode theory in accounting for the spreading resistance of the semiconductor diode.

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