Abstracts

Equivalent Transformations for Mixed-Lumped and Multiconductor Coupled Circuits

K. Kobayashi, Y. Nemoto and R. Sato. "Equivalent Transformations for Mixed-Lumped and Multiconductor Coupled Circuits." 1982 Transactions on Microwave Theory and Techniques 30.7 (Jul. 1982 [T-MTT] (Joint Special Issue on GaAs IC's)): 1034-1041.

Distributed circuits consisting of a cascade connection of m -port stab circuits and multiconductor coupled transmission lines are equivalent to ones consisting of cascade connections of multiconductor coupled transmission lines whose characteristic impedances are different from original ones, m-port stub circuits, and an m-port ideal transformer bank. Because of the reciprocity of the circuit, values of transformer ratio must be identified. In the special case of a one conductor transmission line, these equivalent transformations are equivalent to Kuroda's identities. These extended equivalent transformations may be applied to mixed-lumped and multiconductor coupled circuits. By using these equivalent transformations, equivalent circuits and exact network functions of multiconductor nonuniform coupled transmission lines can be obtained.

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