Abstracts

Analysis and Exact Synthesis of Cascaded Commensurate Transmission-Line C-Section All-Pass Networks

E.G. Cristal. "Analysis and Exact Synthesis of Cascaded Commensurate Transmission-Line C-Section All-Pass Networks." 1966 Transactions on Microwave Theory and Techniques 14.6 (Jun. 1966 [T-MTT]): 285-291.

An analysis of cascaded commensurate transmission-line C-section all-pass networks is presented. The analytical form of the transmission coefficient is found to have a very simple form, intimately related to the reflection coefficient of the stepped-impedance transformer prototype of the cascaded C-section. The phase function of cascaded commensurate transmission-line C-sections is investigated and found to be the arctangent of a reactance function in tan theta. Last, general, exact synthesis procedures for designing cascaded commensurate transmission-line C-section all-pass networks to have prescribed phase characteristics are presented, and two design examples are given. One of the examples is the exact design of a 3-section Schiffman 90° phase shifter, which has not been previously reported in the literature.

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