Abstracts

Transfer Function Approximations for a New Class of Bandpass Distributed Network Structures

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Characteristic functions for a new class of prototype bandpass transmission-line structures have been derived for both the maximally flat and equiripple or Chebyshev characteristics. The class of bandpass distributed structures considered in this paper consists of commensurate transmission lines with constraints in the form of a shunt open-circuited stub and/or a series short-circuited stub. The gain-bandwidth restrictions imposed by the reactance constraints have been derived and some explicit results are presented for the synthesis of this class of bandpass transmission-line networks. Results presented in this paper are directly applicable to the design of broad-band microwave passive and active networks. In particular, the results are applied to the design of broad-band matching networks for octave-band GaAs FET amplifiers.

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