Abstracts

Using the binomial transformer to approximate the Q distribution for maximally flat quarter-wavelength-coupled filters

J.M. Drozd and W.T. Joines. "Using the binomial transformer to approximate the Q distribution for maximally flat quarter-wavelength-coupled filters." 1998 Transactions on Microwave Theory and Techniques 46.10 (Oct. 1998, Part I [T-MTT]): 1495-1500.

With the binomial transformer as a basis, a closed-form expression is derived for the Q distribution used to design maximally flat quarter-wavelength-coupled transmission-line filters. The derived expression is shown to be valid for filters with small values of total Q. Also, an existing Q-distribution expression derived from the lumped-element prototype (LEP) circuit is discussed, and is shown to be valid for filters with large values of total Q. By combining the derived binomial transformer Q distribution and the LEP Q-distribution expressions, a piecewise closed-form Q-distribution expression is developed, which is applicable over a wide range of total Q values.

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