Abstracts

Synthesis of Two Classes of Acoustic Surface-Wave Filter Tap Weights

G.L. Matthaei, D.Y. Wong and B.P. O'Shaughnessy. "Synthesis of Two Classes of Acoustic Surface-Wave Filter Tap Weights." 1976 Transactions on Microwave Theory and Techniques 24.1 (Jan. 1976 [T-MTT]): 1-10.

Techniques are presented for the synthesis of interdigital acoustic surface-wave filter tap weights so as to give transfer functions having a Chebyshev stopband attenuation characteristic with a specified minimum attenuation, along with a single-peaked or a Chebyshev double-peaked passband characteristic. The techniques first give the gain zero locations, and as a result are very flexible. Linear phase or minimum or maximum phase-shift characteristics are obtainable. The transfer function can be factored into two sets of zeros which can be realized as two separate anodized transducers which, when operated with a multistrip coupler, will give the desired overall transfer function. Also, it is shown that the class of designs having a double-peaked passband can be realized in the form of an unanodized phase-reversal transducer (PRT) in cascade with a second transducer having very smooth anodization and no phase reversals. The fact that such designs have such smooth anodization with relatively few small taps can help in obtaining precision performance.

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