Abstracts

Low-Pass and High-Pass Filters Consisting of Multilayer Dielectric Stacks

L. Young and E.G. Cristal. "Low-Pass and High-Pass Filters Consisting of Multilayer Dielectric Stacks." 1966 Transactions on Microwave Theory and Techniques 14.2 (Feb. 1966 [T-MTT]): 75-80.

Dielectric layers of alternating low and high dielectric constant are useful as filters in the millimeter wave, infrared, and optical regions, spanning a spectrum of about five decades. Transmission line theory can be applied, with refractive index replacing admittance. The electrical or optical thicknesses of the layers are generally integral multiples of the thinnest layer, but the reflection in the pass band can be appreciably reduced by small adjustments in the layer thicknesses. The theory is based on the concept of Herpin equivalent index, which is the optical counterpart of image admittance used by electrical engineers. The theory is reviewed and design data is presented.

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