Abstracts

Edge-coupled coplanar waveguide bandpass filter design (Dec. 2000 [T-MTT])

T.M. Weller. "Edge-coupled coplanar waveguide bandpass filter design (Dec. 2000 [T-MTT])." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2453-2458.

This paper describes a new technique for the design of edge-coupled coplanar waveguide (CPW) bandpass filters at microwave and millimeter-wave frequencies. The topology consists of coupled-slot pairs that are symmetric about the center of the CPW line. By applying duality and symmetry, a design methodology is developed that follows the well-known coupled-strip approach. In order to provide filter design guidelines, a spectral domain integral equation analysis was used to characterize coupled slots on silicon with a range of geometrical parameters, through which a series of design curves were generated. Experimental results are given for 10-GHz filters printed on high-resistivity silicon, with bandwidths from 5% to 20%. It is shown how the manner of connecting filter sections can influence the frequency response.

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