

Quarter-Wavelength Coupled Dielectric Plate Resonators for High Selectivity TE/sub 10/-Mode Filters

A.S. Podgorski and R.H. MacPhie. "Quarter-Wavelength Coupled Dielectric Plate Resonators for High Selectivity TE/sub 10/-Mode Filters." 1980 Transactions on Microwave Theory and Techniques 28.4 (Apr. 1980 [T-MTT]): 405-408.

An analysis of high selectivity TE/sub 10/-mode filters with quarter-wavelength coupled resonators formed by axially spaced dielectric plates is presented and shows that high-loaded quality factors of individual resonators can be obtained by placing the resonant frequency close to the waveguide cutoff frequency and by using low-loss low-dielectric constant materials. Design equations for Butterworth and Chebyshev filters are presented and employed in a three-cavity Butterworth filter having 30-MHz bandwidth at resonant frequency at 7250 MHz. Experimental results show that filter performance can be well predicted.

 [Return to main document.](#)