Abstracts

Sharp Cutoff Microwave Filters

G. Oltman. "Sharp Cutoff Microwave Filters." 1963 Transactions on Microwave Theory and Techniques 11.1 (Jan. 1963 [T-MTT]): 30-35.

A class of sharp cutoff filters using combinations of lumped constant and distributed constant reactance have been analyzed and a test made of one type. The filters are developed in accordance with image parameter theory and are m-derived. Both high-pass and low-pass types are analyzed. The improvements over previous sharp-cutoff image parameter filters are predictable band limits and more predictable response. The derivations hold for all frequencies and are not approximations good only for short lengths of distributed constant reactance. Also, this class of filters have much sharper cutoffs than can be obtained with an equivalent number of sections designed using modern network theory. Some of these filters have fairly flat response close to the sharp-cutoff and are useful as end-matching sections. Curves and design equations are presented for three types---two high-pass and one low-pass filter. A seven-section high-pass filter was designed and tested. Its cutoff rate was 87db in a 3 per cent bandwidth located in the 300-Mc region. The pass-band width was greater than 30 per cent.

❑ Return to main document.