Abstracts

A Comb-Line Elliptic Filter

R. Levy and J.D. Rhodes. "A Comb-Line Elliptic Filter." 1971 Transactions on Microwave Theory and Techniques 19.1 (Jan. 1971 [T-MTT]): 26-29.

The design of a new type of elliptic filter, particularly suitable for narrow-band low-loss applications at VHF and UHF, is presented. The filter is derived from a lumped-element bandpass prototype by replacing the lumped inductors, which are normally the main contributory factors to the loss, by a comparatively low-loss distributed network. The latter consists of an n-wire digital line short-circuited at one end, the length of which is lambda/8 or less. An experimental elliptic filter of fifth order was constructed at 136.6 MHz with a pass bandwidth of 5 MHz, having 60-dB points at ±7 MHz from midband. The measured insertion loss of 1.1 dB is lower than that of a comparable lumped-element filter by a factor of at least 3.5:1. It compares favorably also with a comb-line filter, both in terms of loss and physical size.

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