Abstracts

Calculating the Characteristic Impedance of Finlines by Transverse Resonance Method

J. Bornemann and F. Arndt. "Calculating the Characteristic Impedance of Finlines by Transverse Resonance Method." 1986 Transactions on Microwave Theory and Techniques 34.1 (Jan. 1986 [T-MTT]): 85-92.

The characteristic impedance of finlines with up to three slots is calculated by a rigorous hybrid-mode analysis which includes the finite metallization thickness and finite depth of the mounting grooves. The transverse resonance principle utilized reduces considerably the order of the involved matrix eigenvalue problem. The propagation constants for the fundamental HE/sub 1/ mode (and EH/sub 0/ mode at related structures), as well as for the higher order modes (up to HE/sub 7/), and the characteristic impedances for the fundamental modes are computed as a function of frequency for the bilateral and unilateral finline, as well as for the unilateral finline with two coupled slots, and an additional slot on the opposite side of the substrate surface. The finite metallization thickness and mounting groove depth considered show significant influence on the behavior of the characteristic impedance.

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