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(mn)(x, y); 2.12.2 Orthogonality Relations Between Electric Fields and Between Magnetic Fields; 2.12.3 Orthogonality Relations Between Electric and Magnetic Fields; 2.12.4 Power Orthogonality for Lossless Structures; References; Problems; 3 Green's Function; 3.1 Descriptions of Green's Function; 3.1.1 Solution of Poisson's Equation Using Green's Function; 3.1.2 Solution of the Wave Equation Using Green's Function; 3.2 Sturm-Liouville Equation
3.3 Solutions of Green's Function3.3.1 Closed-Form Green's Function; 3.3.2 Series-Form Green's Function; 3.3.3 Integral-Form Green's Function; References; Problems; Appendix: Green's Identities; 4 Planar Transmission Lines; 4.1 Transmission Line Parameters; 4.1.1 Static Analysis; 4.1.2 Dynamic Analysis; 4.2 Microstrip Line; 4.3 Coplanar Waveguide; 4.4 Coplanar Strips; 4.5 Strip Line; 4.6 Slot Line; References; Problems; 5 Conformal Mapping; 5.1 Principles of Mappings; 5.2 Fundamentals of Conformal Mapping; 5.3 The Schwarz-Christoffel Transformation
5.4 Applications of the Schwarz-Christoffel Transformation in Transmisison Line Analysis5.5 Conformal-Mapping Equations for Common Transmission Lines; References; Problems; 6 Variational Methods; 6.1 Fundamentals of Variational Methods; 6.2 Variational Expressions for the Capacitance per Unit Length of Transmission Lines; 6.2.1 Upper-Bound Variational Expression for C; 6.2.2 Lower-Bound Variational Expression for C; 6.2.3 Determination of C, Z(o), and (eff); 6.3 Formulation of Variational Methods in the Space Domain; 6.3.1 Variational Formulation Using Upper-Bound Expression
6.3.2 Variational Formulation Using Lower-Bound Expression6.4 Variational Methods in the Spectral Domain; 6.4.1 Lower-Bound Variational Expression for C in the Spectral Domain; 6.4.2 Determination of C, Z(o), and (eff); 6.4.3 Formulation; References; Problems; Appendix: Systems of Homogeneous Equations from the Lower-Bound Variational Formulation; 7 Spectral-Domain Method; 7.1 Formulation of the Quasi-static Spectral-Domain Analysis; 7.2 Formulation of the Dynamic Spectral-Domain Analysis; References; Problems; Appendix A: Fourier Transform and Parseval's Theorem Appendix B: Galerkin's Method

Sommario/riassunto

A one-stop reference to themajor techniques for analyzingmicrowave planar transmission line structuresThe last two decades have seen important progress in the development of methods for the analysis of microwave and millimeter-wave passive structures, which contributed greatly to microwave integrated circuit design while also stimulating the development of new planar transmission lines. This timely and authoritative work introduces microwave engineers to the most commonly used techniques for analyzing microwave planar transmission line structures.Designed to be easily a