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2.3.2 Theory for a piezoelectric half-space; 2.3.3 Surface-wave solutions; 2.3.4 Other solutions; 2.3.5 Surface waves in layered substrates: perturbation theory; Chapter 3 Electrical excitation at a plane surface; 3.1 Electrostatic case; 3.2 Piezoelectric half-space; 3.3 Some properties of the effective permittivity; 3.4 Green's function; 3.5 Other applications of the effective permittivity; Chapter 4 Propagation effects and materials; 4.1 Diffraction and beam steering; 4.1.1 Formulation using angular spectrum of plane waves; 4.1.2 Beam steering in the near field; 4.1.3 Minimal-diffraction orientations; 4.1.4 Diffracted field in the parabolic approximation: scaling; 4.1.5 Two-transducer devices; 4.2 Propagation loss and non-linear effects; 4.3 Temperature effects and velocity errors; 4.4 Materials for surface-wave devices; 4.4.1 Orientation: Euler angles; 4.4.2 Single-crystal materials; 4.4.3 Thin films; Chapter 5 Non-reflective transducers; 5.1 Analysis for a general array of electrodes; 5.1.1 The quasi-static approximation; 5.1.2 Electrostatic equations and charge superposition; 5.1.3 Current entering one electrode; 5.1.4 Evaluation of the acoustic potential; 5.2 Quasi-static analysis of transducers; 5.2.1 Launching transducer; 5.2.2 Transducer admittance; 5.2.3 Receiving transducer; 5.3 Summary and P-matrix formulation; 5.4 Transducers with regular electrodes: element factor; 5.5 Admittance of uniform transducers; 5.5.1 Acoustic conductance and susceptance; 5.5.2 Capacitance; 5.5.3 Comparative performance; 5.6 Two-transducer devices; 5.6.1 Device using unapodized transducers; 5.6.2 Device using an apodized transducer; 5.6.3 Admittance of apodized transducers; 5.6.4 Two-transducer device using a multistrip coupler

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## Sommario/riassunto

This book gives the fundamental principles and device design techniques for surface acoustic wave filters. It covers the devices in widespread use today: bandpass and pulse compression filters, correlators and non-linear convolvers and resonators. The newest technologies for low bandpass filters are fully covered such as unidirectional transducers, resonators in impedance element filters, resonators in double-mode surface acoustic wave filters and transverse-coupled resonators using waveguides. The book covers the theory of acoustic wave physics, the piezoelectric effect, electrostatic

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