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Chapter 4 Fixed Frequency Filters 4.1 Fundamentals; 4.2 Lumped LC-Element Filters; 4.3 Cavity Filters; 4.4 Ceramic Resonator Filters; 4.5 Microstrip and Stripline Filters; 4.6 Tubular Filters; 4.7 Waveguide Filters; 4.8 Yttrium-Iron Garnet (YIG) Filters; 4.9 Thin- and Thick-Film Filters; 4.10 Monolithic Crystal Filters; 4.11 SAW and BAW Filters; 4.12 MEMS Filters; 4.13 Harmonic Filters; 4.14 Frequency Multiplexers and Duplexers; 4.15 Fixed Frequency Filter Assemblies; Questions; References; Chapter 5 Control Components: Attenuators, Phase Shifters, Time Delay Lines, and Controlled Frequency Filters 5.1 Fundamentals 5.2 Classification and Parameters; 5.3 Variable Attenuators; 5.3.1 Manually controlled attenuators; 5.3.2 Electrically Variable Attenuators; 5.3.3 Digitally Controlled Attenuators; 5.3.4 Programmable Attenuators; 5.3.5 Phase Invariant Attenuators; 5.4 Phase Shifters; 5.5 Time Delay Lines; 5.6 Tunable and Switched Frequency Filters; Questions; References; Chapter 6 Control Components: Switches and Matrices; 6.1 Fundamentals; 6.2 Classification and Parameters; 6.3 Solid-State Switches and Matrices; 6.3.1 PIN-Diode Switches; 6.3.2 FET/GaAs Switches; 6.3.3 Solid-State Matrices 6.4 Coaxial Electromechanical Switches and Matrices 6.5 Waveguide Electromechanical Switches; 6.6 Microelectromechanical Switches; 6.7 Ferrite Switches; 6.8 Reed, Motorized, Redundancy, Shorting, Transmitter/Receiver, Bidirectional, Programmable Switches; Questions; References; Chapter 7 Amplifiers; 7.1 Fundamentals; 7.2 Classification and Parameters; 7.3 Low-Noise Amplifiers; 7.4 High Dynamic Range Amplifiers; 7.5 Solid-State Power Amplifiers; 7.6 Wideband Solid-State Amplifiers; 7.7 Variable Gain, Transimpedance, Limiting, Cryogenic, Distribution, Fast Recovering, Temperature Compensated Amplifiers 7.8 Klystrons, Klystrons, TWTs, Amplitrons, Crossed-Field, and Gyro-Amplifiers

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### Sommario/riassunto

This unique and comprehensive resource offers you a detailed treatment of the operations principles, key parameters, and specific characteristics of active and passive RF, microwave, and millimeter-wave components. The book covers both linear and nonlinear components that are used in a wide range of application areas, from communications and information sciences, to avionics, space, and military engineering. This practical book presents descriptions and clear examples and of the best materials and products used in the field, including laminates, prepregs, substrates; microstrip, coaxial and wa

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