DESCRIPTION

The 4th edition of this classic text provides a thorough coverage of RF and microwave engineering concepts, starting from fundamental principles of electrical engineering, with applications to microwave circuits and devices of practical importance. Coverage includes microwave network analysis, impedance matching, directional couplers and hybrids, microwave filters, ferrite devices, noise, nonlinear effects, and the design of microwave oscillators, amplifiers, and mixers. Material on microwave and RF systems includes wireless communications, radar, radiometry, and radiation hazards. A large number of examples and end-of-chapter problems test the reader's understanding of the material. The 4th edition includes new and updated material on systems, noise, active devices and circuits, power waves, transients, RF CMOS circuits, and more.

ABOUT THE AUTHOR

David Pozar is professor of Electrical and Computer Engineering at University of Massachusetts, Amherst. He has received numerous awards both for his teaching and for his research, including an IEEE Third Millennium award. Dr. Pozar is acknowledged as a leading figure in Microwave and RF circuit design research.
NEW TO EDITION

- New material has been introduced on microwave and RF systems, and how components are linked to system performance (e.g., noise figure, effect on Bit Error Rate, link margin, cell phones, etc.)

- More coverage of active circuits has been included (CMOS circuits, SiGe circuits, Power Added Efficiency, Gilbert cell mixer, etc.)

- Additional topics (power waves, transients, frequency dependent effects of microstrip line, and more) and more open-ended EOC problems have been added.

- Number of chapters has been increased from 13 to 14, with more emphasis on noise, nonlinear effects, and active circuit design.

- Material on the following topics has been substantially revised: noise and noise effects, intermodulation distortion, dynamic range, mixers, amplifier stability, antennas and antenna noise, wireless receivers, and characteristics of diodes and transistors.

- Numerous new or revised examples and problems have been added, with many of these related to practical design problems involving planar circuits and components.

FEATURES

- Thorough analysis and development based on fundamental principles. Students develop understanding of core concepts and learn that the operation of microwave circuits and devices can be explained through the use of circuit theory, Maxwell's equations, and related fundamentals. See Wilkinson divider operation derived from basic circuit and transmission line theory.

- Many examples cover both theory and design. Student can see how typical problems are solved, how practical designs are carried out, and how component designs perform. The availability of realistic and thorough examples reinforces subject matter.
See Example 7.7 that involves the design of a coupled line coupler on a lossy substrate. The design procedure is illustrated, and the response of the coupler is obtained using a CAD package.

- Many problems cover both theory and design. Problems test the student's understanding of the material and offer the opportunity for in-depth design and analysis of practical components. Problems offer students real-life design practice with the quick feedback of CAD tools to evaluate their work.

- Answers to selected problems allow students to test themselves on their understanding of material. The instructor can assign problems with or without answers, or modify answered problems for additional problems for use on exams. Approximately 25% of the problems have answers.

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