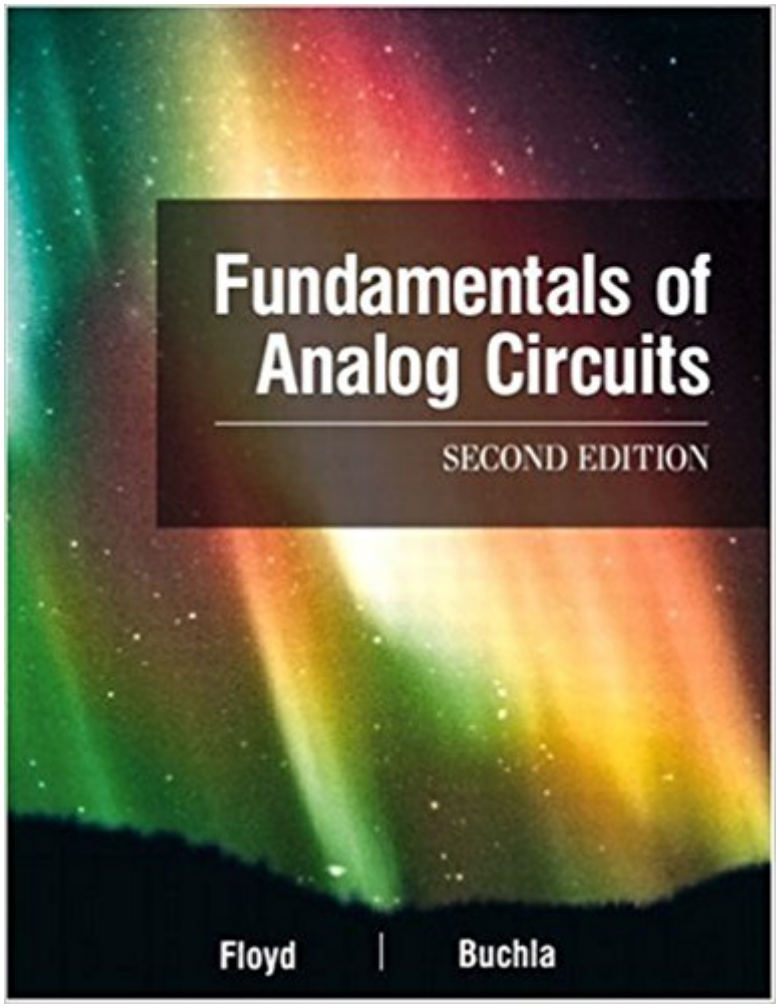
Fundamentals Of Analog Circuits (2nd Edition)



Synopsis

This comprehensive book meets the content requirements of most technical schools without hampering the reader with excessive detail. A strong emphasis on troubleshooting will help prepare the reader for work in the industry. This book introduces discrete device circuits and then delves more deeply into analog integrated circuitsâ ”a topic that has more importance for today’s technicians. For technician-level courses in analog circuits and those who are pursuing a career in electrical technology.

Customer Reviews

Fundamentals of Analog Circuits, Second Edition, presents an introduction to discrete linear devices and circuits, followed by comprehensive coverage of operational amplifiers and other linear integrated circuits. This new edition has been expanded and improved to include up-to-date coverage of these topics in a format containing a wealth of features to enhance the learning process. The text opens with five chapters providing a fundamental discussion of basic concepts, diodes, transistors, and amplifiers. The following ten chapters focus on integrated circuit op-amps, active filters, oscillators, power supplies, special amplifiers, communications circuits, data conversion circuits, and measurement and control circuits. Extensive troubleshooting material and exercises appear throughout these chapters, and further practice and understanding can be achieved with the use of the CD-ROM described below. In addition, the following innovative features assist in making Fundamentals of Analog Circuits, Second Edition, the leading text in its area: Current in a circuit is indicated by a polarized meter symbol that allows the user to apply the direction of preference. Current meters show relative current magnitude in a circuit. Emphasis is on analog integrated circuits, but good coverage of discrete circuits is also included. Topics that are generally not found in other textbooks, such as RF amplifiers and transducers, are included. System applications with Troubleshooting exercises incorporate realistic printed circuit boards, and a related full-color insert section is included. A full set of ancillaries accompanies this book, including a Laboratory Manual (ISBN 0-13-060673-1). A CD-ROM (ISBN 0-13-060944-7) containing numerous circuits from the text in a locked version of Electronics WorkbenchÂ® Version 5 and MultiSim Version 6 is also available. The Companion Website, http://www.prenhall.com/floyd , contains practice test questions and other supportive material. Supplements available to instructors who are using this book for a course include an Instructor’s Supplement CDROM (ISBN 0-13-060677-4), the Instructor’s Manual (ISBN 0-13-060678-2), PowerPointÂ® Transparencies (ISBN 0-13-060675-8), and the Prentice Hall Test Manager, a computerized test bank (ISBN 0-13-060676-6). WebCT

(ISBN 0-13-062317-2), BlackBoard (ISBN 0-13-062316-4), and Course Compass (ISBN 0-13-065355-1) complete the package.

Fundamentals of Analog Circuits, Second Edition, presents an introduction to discrete linear devices and circuits followed by a thorough coverage of operational amplifiers and other linear integrated circuits. Also, this textbook provides extensive troubleshooting and applications coverage. Applications are shown with a realistic printed circuit board format in the last section of each chapter. They include a Troubleshooter's Bench exercise that presents a troubleshooting problem with the system. In addition to the Troubleshooter's Bench, troubleshooting sections are found in many parts of the text. This second edition updates and improves coverage of the various operational amplifiers and other analog circuits introduced in the first edition. Each device was reviewed; older devices were replaced with newer ones, and a reference to the manufacturer's Internet site has been added to expedite finding additional information. In some cases, the explanation was streamlined or improved. For example, a brief discussion of triggering SCRs and triacs by microcontrollers was added in Chapter 15. Two new features of this text include identifying key terms and adding a Troubleshooter's Quiz. Key terms are presented in the chapter opener and highlighted in color in the text with a margin icon. The Troubleshooter's Quiz reinforces critical thinking and troubleshooting skills for circuits introduced in the chapter. The Troubleshooter's Quiz' consists of 8 to 12 multiple-choice questions that require students to consider how a given fault will affect voltage, current, gain, and so forth (increase, decrease, no change). Answers to the Troubleshooter's Quiz are found at the end of each chapter. In addition, circuits have been prepared for many of the examples using Electronics Workbench™/Multisim to enable changes or troubles to be investigated. Electronics Workbench/Multisim is a computer-simulation program that is useful for testing circuits and observing the effect of parameter changes or troubles with the circuit. It uses a graphical interface to place components on a "workbench" and simulated instruments to view the results. These circuits are available on CD-ROM (ISBN: 0-13-060944-7). Current in Fundamentals of Analog Circuits, Second Edition, is indicated by a meter notation rather than by directional arrows. This unique approach accomplishes two things. First, it eliminates the need to distinguish between conventional flow and electron flow because it indicates current direction by polarity signs, just as an actual ammeter does. Users can interpret current direction based on the meter polarity in accordance with their particular preference. Second, in addition to current direction, the meter notation provides relative magnitudes of the currents in a given circuit by observing the number of bars. Overview The first five chapters provide a fundamental coverage of

basic concepts, diodes, transistors, and amplifiers. The last ten chapters focus on integrated circuit op-amps, active filters, oscillators, power supplies, special amplifiers, communications circuits, data conversion circuits, and measurement and control circuits. Discrete Devices and Circuits. The first part of the text consists of five chapters as follows: Chapter 1 presents an introduction to analog electronics, analog signals, amplifiers, and troubleshooting. Chapter 2 covers diodes, rectifiers, and regulators. Chapter 3 introduces bipolar junction transistors and BJT amplifiers. Chapter 4 gives a basic treatment of field-effect transistors and FET amplifiers. Chapter 5 deals with multistage amplifiers, radio-frequency (RF) amplifiers, and power amplifiers. Analog Integrated Circuits. The second part of the text consists of ten chapters that cover analog integrated circuits as follows: Chapter 6 provides an introduction to) operational amplifiers. Op-amp frequency response is covered in Chapter 7, and basic op-amp circuits (comparators, summing amplifiers, integrators, and differentiators) is the: topic of Chapter 8. Active op-amp filters are covered in Chapter 9, and oscillators ands timers are introduced in Chapter 10. Power supplies are covered in Chapter 11. Special amplifiers (instrumentation amplifiers, isolation amplifiers, operational transconductance; amplifiers (OTAs), and log/antilog amplifiers) are introduced in Chapter 12. Communication circuits (AM and FM receivers, , linear multipliers, mixers, and phase-locked loops) are studied in Chapter 13. Data conversion circuits such as analog switches, sample-and-hold circuits, digital-to-analog and analog-to-digital converters, and voltage-to-frequency and frequency-to-voltage converters are among the topics in Chapter 14. Finally, Chapter 15 covers various types of transducers and associated measurement circuits.

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