

《工程电路分析》

图书基本信息

书名：《工程电路分析》

13位ISBN编号：9787121171376

10位ISBN编号：7121171376

出版时间：2012-6

出版社：电子工业出版社

页数：852

版权说明：本站所提供下载的PDF图书仅提供预览和简介以及在线试读，请支持正版图书。

更多资源请访问：www.tushu000.com

《工程电路分析》

内容概要

书籍目录

INTRODUCTION

- 1.1 Overview of Text
- 1.2 Relationship of Circuit Analysis to Engineering
- 1.3 Analysis and Design
- 1.4 Computer-Aided Analysis
- 1.5 Successful Problem-Solving Strategies

READING FURTHER

CHAPTER 1 BASIC COMPONENTS AND ELECTRIC CIRCUITS

- 2.1 Units and Scales
- 2.2 Charge, Current, Voltage, and Power
- 2.3 Voltage and Current Sources
- 2.4 Ohm ' s Law

SUMMARY AND REVIEW

READING FURTHER

EXERCISES

CHAPTER 2 VOLTAGE AND CURRENT LAWS

- 3.1 Nodes, Paths, Loops, and Branches
- 3.2 Kirchhoff ' s Current Law
- 3.3 Kirchhoff ' s Voltage Law
- 3.4 The Single-Loop Circuit
- 3.5 The Single-Node-Pair Circuit
- 3.6 Series and Parallel Connected Sources
- 3.7 Resistors in Series and Parallel
- 3.8 Voltage and Current Division

SUMMARY AND REVIEW

READING FURTHER

EXERCISES

CHAPTER 3 BASIC NODAL AND MESH ANALYSIS

- 4.1 Nodal Analysis
- 4.2 The Supernode
- 4.3 Mesh Analysis
- 4.4 The Supermesh
- 4.5 Nodal vs. Mesh Analysis: A Comparison
- 4.6 Computer-Aided Circuit Analysis

SUMMARY AND REVIEW

CHAPTER 4 HANDY CIRCUIT ANALYSIS TECHNIQUES

- 5.1 Linearity and Superposition
- 5.2 Source Transformations
- 5.3 Thévenin and Norton Equivalent Circuits
- 5.4 Maximum Power Transfer
- 5.5 Delta-Wye Conversion
- 5.6 Selecting an Approach: A Summary of Various Techniques

CHAPTER 5 THE OPERATIONAL

- 6.1 Background
- 6.2 The Ideal Op Amp:
- 6.3 Cascaded Stages
- 6.4 Circuits for Voltage

6.5 Practical Considerations

6.6 Comparators and

CHAPTER 6 CAPACITORS AND

7.1 The Capacitor

7.2 The Inductor

7.3 Inductance and

7.4 Consequences

7.5 Simple Op Amp

7.6 Duality

7.7 Modeling Capacitors and Inductors with PSpice

CHAPTER 7

BASIC RL AND RC CIRCUITS

8.1 The Source-Free RL Circuit

8.2 Properties of the Exponential Response

8.3 The Source-Free RC Circuit

8.4 A More General Perspective

8.5 The Unit-Step Function

8.6 Driven RL Circuits

8.7 Natural and Forced Response

8.8 Driven RC Circuits

8.9 Predicting the Response of Sequentially Switched Circuits

CHAPTER 8

THE RLC CIRCUIT 1

9.1 The Source-Free Parallel Circuit 1

9.2 The Overdamped Parallel RLC Circuit

9.3 Critical Damping

9.4 The Underdamped Parallel RLC Circuit

9.5 The Source-Free Series RLC Circuit

9.6 The Complete Response of the RLC Circuit

9.7 The Lossless LC Circuit

CHAPTER 9 SUMMARY AND REVIEW READING FURTHER EXERCISES SINUSOIDAL

STEADY-STATE ANALYSIS

10.1 Characteristics of Sinusoids

10.2 Forced Response to Sinusoidal Functions

10.3 The Complex Forcing Function

10.4 The Phasor

10.5 Impedance and Admittance

10.6 Nodal and Mesh Analysis

10.7 Superposition, Source Transformations and Thévenin's Theorem

10.8 Phasor Diagrams

CHAPTER 10 AC CIRCUIT POWER ANALYSIS

11.1 Instantaneous Power

11.2 Average Power

11.3 Effective Values of Current and Voltage

11.4 Apparent Power and Power Factor

11.5 Complex Power

CHAPTER 11 POLYPHASE CIRCUITS

12.1 Polyphase Systems

12.2 Single-Phase Three-Wire Systems

12.3 Three-Phase Y-Y Connection

12.4 The Delta (Δ) Connection

12.5 Power Measurement in Three-Phase Systems

CHAPTER 12 MAGNETICALLY COUPLED CIRCUITS

13.1 Mutual Inductance

13.2 Energy Considerations

13.3 The Linear Transformer

13.4 The Ideal Transformer

CHAPTER 13 COMPLEX FREQUENCY AND THE LAPLACE TRANSFORM 3

14.1 Complex Frequency 3

14.2 The Damped Sinusoidal Forcing Function

14.3 Definition of the

章节摘录

Voltage We must now begin to refer to a circuit element, something best defined in general terms to begin with. Such electrical devices as fuses, light bulbs, resistors, batteries, capacitors, generators, and spark coils can be represented by combinations of simple circuit elements. We begin by showing a very general circuit element as a shapeless object possessing two terminals at which connections to other elements may be made (Fig.2.8). There are two paths by which current may enter or leave the element. In subsequent discussions we will define particular circuit elements by describing the electrical characteristics that may be observed at their terminals. In Fig.2.8, let us suppose that a dc current is sent into terminal A, through the general element, and back out of terminal B. Let us also assume that pushing charge through the element requires an expenditure of energy. We then say that an electrical voltage (or a potential difference) exists between the two terminals, or that there is a voltage "across" the element. Thus, the voltage across a terminal pair is a measure of the work required to move charge through the element. The unit of voltage is the volt, and 1 volt is the same as 1 J/C. Voltage is represented by V or v . A voltage can exist between a pair of electrical terminals whether a current is flowing or not. An automobile battery, for example, has a voltage of 12 V across its terminals even if nothing whatsoever is connected to the terminals. According to the principle of conservation of energy, the energy that is expended in forcing charge through the element must appear somewhere else. When we later meet specific circuit elements, we will note whether that energy is stored in some form that is readily available as electric energy or whether it changes irreversibly into heat, acoustic energy, or some other nonelectrical form. We must now establish a convention by which we can distinguish between energy supplied to an element and energy that is supplied by the element itself. We do this by our choice of sign for the voltage of terminal A with respect to terminal B. If a positive current is entering terminal A of the element and an external source must expend energy to establish this current, then terminal A is positive with respect to terminal B. (Alternatively, we may say that terminal B is negative with respect to terminal A.)

《工程电路分析》

精彩短评

- 1、很注重基础的一本书，看原版也能很好地锻炼英语阅读能力。
- 2、非常不错的书！不过有一点我不明白为什么有两章没有纸质版的只有电子版？难道就为了省那么一点钱？

《工程电路分析》

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:www.tushu000.com