

Table of contents

Preface

Part I. Waveform Generation

Principal Symbols Used

Chapter 1. Properties of Transistors

a Brief Physical Description of Transistors

The D.C. Equations of a Transistor

Some Particular Solutions of D.C. Transistor Equations

Transient Response of a Transistor

The Transient Switching Parameters of a Transistor

Response times

Temperature Effects and Power Dissipation

Problems

Chapter 2. Some Basic Circuits

The Inverter

The Emitter Follower Or Buffer

The Long-Tailed Pair

Problems

Chapter 3. Waveform Generation and Wave Shaping

Rectangular Waveform Generation

a Current-Steered Multivibrator

Triggered Pulse Generators

Sawtooth Waveform Generators

Level Detectors

Problems

Part II. Combinational and Sequential Circuits

Graphical Symbols

Chapter 4. Combinational Circuits

Boolean Algebra

The Karnaugh Map

Combinational Circuits

Encoders and Code Translators

Practical Combinational Circuits

Problems

Chapter 5. Bistable Elements for Sequential Circuits

Triggered and Master-Slave Flip-Flops

The Design of Flip-Flop Circuits

The Binary

Modified Flip-Flops

Chapter 6. The Design of Sequential Circuits

Introduction

Decade Counters Using Triggered Flip-Flops

Decade Counters Using Level Sensitive Circuits

Chapter 7. Generalized Sequential Circuit Design

Digit Representation

Secondary Circuits

Sequential Circuit Design

Race-Hazards

Outputs and the Z-Map

The Master-Slave J-K Flip-Flop

Minimization

The Use of Modified Flip-Flops

Map Factoring

Problems

Chapter 8. Arithmetic Operations

The Shift Register

Adders

Multiplication

Division

References

Appendix A. Design Considerations for R.T.L.

Appendix B. An Analysis and Design of a D.T.L. R-S Flip-Flop

Appendix C. The Logical Design of a Sequence Detector

Index