Ebook free Cmos vlsi design a circuits and systems perspective 4th edition solution (PDF)

CMOS VLSI Design Low-Power Digital VLSI Design Integrated Circuit Design and Technology Electronic Design The Analysis and Design of Linear Circuits Circuit Design: Know It All Electronic Circuit Design and Application Ultra-Low Power Integrated Circuit Design Analysis and Design of Digital Integrated Circuits Digital Integrated Circuits Design Your Own Circuits Logic Circuit Design Introduction to System Design Using Integrated Circuits Advanced Circuit Analysis and Design The Design of CMOS Radio-Frequency Integrated Circuits Computer Methods for Circuit Analysis and Design Electronic Circuits Analog Circuit Design Introduction to Circuit Analysis and Design Circuit Design for CMOS VLSI Systematic Design of Analog CMOS Circuits Design of High-speed Communication Circuits Analysis and Design of Analog Integrated Circuits Circuit Design with VHDL, third edition CMOS Logic Circuit Design RF Circuit Design Analysis and Design of Analog Integrated Circuits Three-dimensional Integrated Circuit Design Fundamentals of Electronic Circuit Design Radio Frequency Circuit Design RF Circuit Design Electronic Circuit Design CMOS Analog Circuit Design Advanced Electronic Circuit Design Circuit Design and Analysis Analog Circuit Design Design of CMOS Phase-Locked Loops Analog/RF and Mixed-Signal Circuit Systematic Design Designing CMOS Circuits for Low Power CMOS Digital Integrated Circuits

CMOS VLSI Design

2005

details techniques for the design of complex and high performance cmos systems on chip this edition explains practices of chip design covering transistor operation cmos gate design fabrication and layout at level accessible to anyone with an elementary knowledge of digital electronics

Low-Power Digital VLSI Design

2012-12-06

low power digital vlsi design circuits and systems addresses both process technologies and device modeling power dissipation in cmos circuits several practical circuit examples and low power techniques are discussed low voltage issues for digital cmos and bicmos circuits are emphasized the book also provides an extensive study of advanced cmos subsystem design a low power design methodology is presented with various power minimization techniques at the circuit logic architecture and algorithm levels features low voltage cmos device modeling technology files design rules switching activity concept low power guidelines to engineering practice pass transistor logic families power dissipation of i o circuits multi and low vt cmos logic static power reduction circuit techniques state of the art design of low voltage bicmos and cmos circuits low power techniques in cmos srams and drams low power on chip voltage down converter design numerous advanced cmos subsystems e g adders multipliers data path memories regular structures phase locked loops with several design options trading power delay and area low power design methodology power estimation techniques power reduction techniques at the logic architecture and algorithm levels more than 190 circuits explained at the transistor level

Integrated Circuit Design and Technology

2013-12-01

the analysis and design of linear circuits 8th edition provides an introduction to the analysis design and evaluation of electric circuits focusing on developing the learners design intuition the text emphasizes the use of computers to assist in design and evaluation early introduction to circuit design motivates the student to create circuit solutions and optimize designs based on real world constraints this text is an unbound three hole punched version

Electronic Design

1991

the newnes know it all series takes the best of what our authors have written to create hard working desk references that will be an engineer s first port of call for key information design techniques and rules of thumb guaranteed not to gather dust on a shelf electronics engineers need to master a wide area of topics to excel the circuit design know it all covers every angle including semiconductors ic design and fabrication computer aided design as well as programmable logic design a 360 degree view from our best selling authors topics include fundamentals analog linear and digital circuits the ultimate hard working desk reference all the essential information techniques and tricks of the trade in one volume

The Analysis and Design of Linear Circuits

2016-01-05

this textbook for core courses in electronic circuit design teaches students the design and application of a broad range of analog electronic circuits in a comprehensive and clear manner readers will be enabled to design complete functional circuits or systems the authors first provide a foundation in the theory and operation of basic electronic devices including the diode bipolar junction transistor field effect transistor operational amplifier and current feedback amplifier they then present comprehensive instruction on the design of working realistic electronic circuits of varying levels of complexity including power amplifiers regulated power supplies filters oscillators and waveform generators many examples help the reader quickly become familiar with key design parameters and design methodology for each class of circuits each chapter starts from fundamental circuits and develops them step by step into a broad range of applications of real circuits and systems written to be accessible to students of varying backgrounds this

textbook presents the design of realistic working analog electronic circuits for key systems includes worked examples of functioning circuits throughout every chapter with an emphasis on real applications includes numerous exercises at the end of each chapter uses simulations to demonstrate the functionality of the designed circuits enables readers to design important electronic circuits including amplifiers power supplies and oscillators

Circuit Design: Know It All

2011-04-19

this book describes the design of cmos circuits for ultra low power consumption including analog radio frequency rf and digital signal processing circuits dsp the book addresses issues from circuit and system design to production design and applies the ultra low power circuits described to systems for digital hearing aids and capsule endoscope devices provides a valuable introduction to ultra low power circuit design aimed at practicing design engineers describes all key building blocks of ultra low power circuits from a systems perspective applies circuits and systems described to real product examples such as hearing aids and capsule endoscopes

Electronic Circuit Design and Application

2021-11-27

this is a state of the art treatment of the circuit design of digital integrated circuits it includes coverage of the basic concepts of static characteristics voltage transfer characteristics noise margins fanout power dissipation and dynamic characteristics propagation delay times and the interrelationships among these parameters the authors are regarded as leading authorities in integrated circuits and mos technology

Ultra-Low Power Integrated Circuit Design

2013-10-23

intended for use in undergraduate senior level digital circuit design courses with advanced material sufficient for graduate level courses progressive in content and form this text successfully bridges the gap between the circuit perspective and system perspective of digital integrated circuit design beginning with solid discussions on the operation of electronic devices and in depth analysis of the nucleus of digital design the text maintains a consistent logical flow of subject matter throughout the revision addresses today s most significant and compelling industry topics including the impact of interconnect design for low power issues in timing and clocking design methodologies and the tremendous effect of design automation on the digital design perspective the revision reflects the ongoing evolution in digital integrated circuit design especially with respect to the impact of moving into the deep submicron realm

Analysis and Design of Digital Integrated Circuits

1983

while basic circuits may be easy to understand creating a circuit requires a different way of thinking the purpose of this book is to show how it s done being creative instead of just following instructions is part of the maker ethic this should include designing circuits to do what you want the hands on projects in this book progress from simple to complex breaking circuits into modules to make them easier to understand it is suitable for adult learners as well as for teens ages 12 and up younger readers can work through it with adult assistance unique pictorial diagrams included in the book show circuits as they actually appear on a breadboard not just schematics teaches the fundamentals of electronic circuits starts with basics and builds to more sophisticated designs explains how to read and draw circuit diagrams encourages experimentation and hands on building includes cartoons and full color photographs and line drawings one of the relatively few entry level books on circuit design shifts the focus away from explaining components and onto showing how to link them together make electronics creating circuits is a standalone book that doesn t require familiarity with charles platt s other popular make electronics books

Digital Integrated Circuits

2003

in three main divisions the book covers combinational circuits latches and asynchronous sequential circuits combinational circuits have no memorising ability while sequential circuits have such an ability to various degrees latches are the simplest sequential circuits ones with the shortest memory the presentation is decidedly non standard the design of combinational circuits is discussed in an orthodox manner using normal forms and in an unorthodox manner using set theoretical evaluation formulas relying heavily on karnaugh maps the latter approach allows for a new design technique called composition latches are covered very extensively their memory functions are expressed mathematically in a time independent manner allowing the use of normal non temporal boolean logic in their calculation the theory of latches is then used as the basis for calculating asynchronous circuits asynchronous circuits are specified in a tree representation each internal node of the tree representing an internal latch of the circuit the latches specified by the tree itself the tree specification allows solutions of formidable problems such as algorithmic state assignment finding equivalent states non recursively and verifying asynchronous circuits

Design Your Own Circuits

2018-03-25

beginning with an introduction to integrated electronics the book describes the basic digital and linear ics in detail together with some applications and building blocks of digital systems principles of system design using ics are then explained and a number of system design examples using the latest ics are worked out useful supplementary information on ics is included in the appendices and a list of references to published work is given at the end the book covers what is latest in the state of the art in ics including ls t tl f ttl n mos high speed cmos i2l ccds proms plas asics and microprocessors the main emphasis here is on providing a clear insight into the characteristics and limitations of ics upto lsi vlsi level their parameters circuit features and electronic equipment system design based on them students of the b e m e m sc physics courses specializing in electronics or communication engineering would find this book a convenient text reference source for a first in depth understanding of system design using ics the book would also be useful to r d engineers in electronics communication engineering

Logic Circuit Design

2012-03-28

this book is intended to be a follow on to a basic circuit analysis text that can be offered in an upper level term it could also be used by students as supplementary material for self study and as an additional source of information problem solutions are provided for all the problems in the book in order to provide the student with an extensive source of worked examples the book covers advanced circuit analysis using the laplace transform system analysis in the frequency domain using bode plots and the design of passive and active filter circuits visit author facebook page at facebook com hmichaelthomas books

Introduction to System Design Using Integrated Circuits

1992

this book first published in 2004 is an expanded and revised edition of tom lee s acclaimed rfic text

Advanced Circuit Analysis and Design

2014-04-08

this text is about methods used for the computer simulation of analog systems it concentrates on electronic applications but many of the methods are applicable to other engineering problems as well this revised edition 1st 1983 encompasses recent theoretical developments and program writing tips for computer aided design about 60 of the text is suitable for a senior level course in circuit theory the whole text is suitable for graduate courses or as a reference for scientists and engineers who seek information in the field annotation copyright by book news inc portland or

The Design of CMOS Radio-Frequency Integrated Circuits

2004

electronic circuits covers all important aspects and applications of modern analog and digital circuit design the basics such as analog and digital circuits on operational amplifiers combinatorial and sequential logic and memories are treated in part i while part ii deals with applications each chapter offers solutions that enable the reader to understand ready made circuits or to proceed quickly from an idea to a working circuit and always illustrated by an example analog applications cover such topics as analog computing circuits the digital sections deal with ad and da conversion digital computing circuits microprocessors and digital filters this editions contains the basic electronics for mobile communications the accompanying cd rom contains pspice software an analog circuit simulation package plus simulation examples and model libraries related to the book topics

Computer Methods for Circuit Analysis and Design

1994

analog circuit design contains the contribution of 18 tutorials of the 14th workshop on advances in analog circuit design each part discusses a specific todate topic on new and valuable design ideas in the area of analog circuit design each part is presented by six experts in that field and state of the art information is shared and overviewed this book is number 14 in this successful series of analog circuit design providing valuable information and excellent overviews of analog circuit design cad and rf systems analog circuit design is an essential reference source for analog circuit designers and researchers wishing to keep abreast with the latest development in the field the tutorial coverage also makes it suitable for use in an advanced design course

Electronic Circuits

2015-12-09

introduction to circuit analysis and design takes the view that circuits have inputs and outputs and that relations between inputs and outputs and the terminal characteristics of circuits at input and output ports are all important in analysis and design two port models input resistance output impedance gain loading effects and frequency response are treated in more depth than is traditional due attention to these topics is essential preparation for design provides useful preparation for subsequent courses in electronic devices and circuits and eases the transition from circuits to systems

Analog Circuit Design

2006-01-18

the field of cmos integrated circuits has reached a level of maturity where it is now a mainstream technology for high density digital system designs this volume deals with circuit design in an integrated cmos environment emphasis is placed on understanding the operation performance and design o

Introduction to Circuit Analysis and Design

2011-02-18

this hands on guide contains a fresh approach to efficient and insight driven integrated circuit design in nanoscale cmos with downloadable matlab code and over forty detailed worked examples this is essential reading for professional engineers researchers and graduate students in analog circuit design

Circuit Design for CMOS VLSI

1992

mos technology has rapidly become the de facto standard for mixed signal integrated circuit design due to the high levels of integration possible as device geometries shrink to nanometer scales the reduction in feature size means that the number of transistor and clock speeds have increased significantly in fact current day microprocessors contain hundreds of millions of transistors operating at multiple gigahertz furthermore this reduction in feature size also has a significant impact on mixed signal circuits due to the higher levels of integration the majority of asics possesses some analog components it has now become nearly mandatory to integrate both analog and digital circuits on the same substrate due to cost and power constraints this book presents some of the newer problems and opportunities offered by the small

device geometries and the high levels of integration that is now possible the aim of this book is to summarize some of the most critical aspects of high speed analog rf communications circuits attention is focused on the impact of scaling substrate noise data converters rf and wireless communication circuits and wireline communication circuits including high speed i o contents achieving analog accuracy in nanometer cmos m p flynn et al self induced noise in integrated circuits r gharpurey s naraghi high speed oversampling analog to digital converters a gharbiya et al designing lc vcos using capacitive degeneration techniques b jung r harjani fully integrated frequency synthesizers a tutorial s t moon et al recent advances and design trends in cmos radio frequency integrated circuits d j allstot et al equalizers for high speed serial links p k hanumolu et al low power parallel interface with continuous time adaptive passive equalizer and crosstalk cancellation c p yue et al readership technologists scientists and engineers in the field of high speed communication circuits it can also be used as a textbook for graduate and advanced undergraduate courses

Systematic Design of Analog CMOS Circuits

2017-10-12

analysis and design of analog integrated circuits authoritative and comprehensive textbook on the fundamentals of analog integrated circuits with learning aids included throughout written in an accessible style to ensure complex content can be appreciated by both students and professionals this sixth edition of analysis and design of analog integrated circuits is a highly comprehensive textbook on analog design offering in depth coverage of the fundamentals of circuits in a single volume to aid in reader comprehension and retention supplementary material includes end of chapter problems plus a solution manual for instructors in addition to the well established concepts this sixth edition introduces a new super source follower circuit and its large signal behavior frequency response stability and noise properties new material also introduces replica biasing describes and analyzes two op amps with replica biasing and provides coverage of weighted zero value time constants as a method to estimate the location of dominant zeros pole zero doublets including their effect on settling time and three examples of circuits that create doublets the effect of feedback on pole zero doublets and mos transistor noise performance including a thorough treatment on thermally induced gate noise providing complete coverage of the subject analysis and design of analog integrated circuits serves as a valuable reference for readers from many different types of backgrounds including senior undergraduates and first year graduate students in electrical and computer engineering along with analog integrated circuit designers

Design of High-speed Communication Circuits

2006

a completely updated and expanded comprehensive treatment of vhdl and its applications to the design and simulation of real industry standard circuits this comprehensive treatment of vhdl and its applications to the design and simulation of real industry standard circuits has been completely updated and expanded for the third edition new features include all vhdl 2008 constructs an extensive review of digital circuits rtl analysis and an unequaled collection of vhdl examples and exercises the book focuses on the use of vhdl rather than solely on the language with an emphasis on design examples and laboratory exercises the third edition begins with a detailed review of digital circuits combinatorial sequential state machines and fpgas thus providing a self contained single reference for the teaching of digital circuit design with vhdl in its coverage of vhdl 2008 it makes a clear distinction between vhdl for synthesis and vhdl for simulation the text offers complete vhdl codes in examples as well as simulation results and comments the significantly expanded examples and exercises include many not previously published with multiple physical demonstrations meant to inspire and motivate students the book is suitable for undergraduate and graduate students in vhdl and digital circuit design and can be used as a professional reference for vhdl practitioners it can also serve as a text for digital vlsi in house or academic courses

Analysis and Design of Analog Integrated Circuits

2024-02-21

this is an up to date treatment of the analysis and design of cmos integrated digital logic circuits the self contained book covers all of the important digital circuit design styles found in modern cmos chips emphasizing solving design problems using the various logic styles available in cmos

Circuit Design with VHDL, third edition

2020-04-14

it s back new chapters examples and insights all infused with the timeless concepts and theories that have helped rf engineers for the past 25 years rf circuit design is now more important than ever as we find ourselves in an increasingly wireless world radio is the backbone of today s wireless industry with protocols such as bluetooth wi fi wimax and zigbee most if not all mobile devices have an rf component and this book tells the reader how to design and integrate that component in a very practical fashion this book has been updated to include today s integrated circuit ic and system level design issues as well as keeping its classic wire lead material design concepts and tools include the basics wires resistors capacitors inductors resonant circuits resonance insertion loss filter design high pass bandpass band rejection impedance matching the l network smith charts software design tools transistors materials y parameters s parameters small signal rf amplifier transistor biasing y parameters s parameters rf power amplifiers automatic shutdown circuitry broadband transformers practical winding hints rf front end architectures software defined radios adc s effects rf design tools languages flow modeling check out this book s companion site at elsevierdirect com companion jsp isbn 9780750685184 for full color smith charts and extra content completely updated but still contains its classic timeless information two new chapters on rf front end design and rf design tools not overly math intensive perfect for the working rf and digital professional that need to build analog rf wireless circuits

CMOS Logic Circuit Design

1999-02-28

this is the only comprehensive book in the market for engineers that covers the design of cmos and bipolar analog integrated circuits the fifth edition retains its completeness and updates the coverage of bipolar and cmos circuits a thorough analysis of a new low voltage bipolar operational amplifier has been added to chapters 6 7 9 and 11 chapter 12 has been updated to include a fully differential folded cascode operational amplifier example with its streamlined and up to date coverage more engineers will turn to this resource to explore key concepts in the field

RF Circuit Design

2011-04-08

with vastly increased complexity and functionality in the nanometer era i e hundreds of millions of transistors on one chip increasing the performance of integrated circuits has become a challenging task connecting effectively interconnect design all of these chip elements has become the greatest determining factor in overall performance 3 d integrated circuit design may offer the best solutions in the near future this is the first book on 3 d integrated circuit design covering all of the technological and design aspects of this emerging design paradigm while proposing effective solutions to specific challenging problems concerning the design of 3 d integrated circuits a handy comprehensive reference or a practical design guide this book provides a sound foundation for the design of 3 d integrated circuits demonstrates how to overcome interconnect bottleneck with 3 d integrated circuit design leading edge design techniques offer solutions to problems performance power consumption price faced by all circuit designers the first book on 3 d integrated circuit design provides up to date information that is otherwise difficult to find focuses on design issues key to the product development cycle good design plays a major role in exploiting the implementation flexibilities offered in the 3 d provides broad coverage of 3 d integrated circuit design including interconnect prediction models thermal management techniques and timing optimization offers practical view of designing 3 d circuits

Analysis and Design of Analog Integrated Circuits

2009-01-20

three chapters emphasize ic design with spice simulations integrated into each one concise streamlined presentation of topics

Three-dimensional Integrated Circuit Design

2010-07-28

this book focuses on components such as filters transformers amplifiers mixers and oscillators even the phase lock loop chapter the last in the book is oriented toward practical circuit design in contrast to the more systems orientation of most communication texts

Fundamentals of Electronic Circuit Design

2003

essential reading for experts in the field of rf circuit design and engineers needing a good reference this book provides complete design procedures for multiple pole butterworth chebyshev and bessel filters it also covers capacitors inductors and other components with their behavior at rf frequencies discussed in detail provides complete design procedures for multiple pole butterworth chebyshev and bessel filters covers capacitors inductors and other components with their behavior at rf frequencies discussed in detail

Radio Frequency Circuit Design

2011-03-16

the theme of this new textbook is the practical element of electronic circuit design dr o dell whilst recognising that theoretical knowledge is essential has drawn from his many years of teaching experience to produce a book which emphasises learning by doing throughout however there is more to circuit design than a good theoretical foundation coupled to design itself where do new circuit ideas come from this is the topic of the first chapter and the discussion is maintained throughout the following eight chapters which deal with high and low frequency small signal circuits opto electronic circuits digital circuits oscillators translinear circuits and power amplifiers in each chapter one or more experimental circuits are described in detail for the reader to construct a total of thirteen project exercises in all the final chapter draws some conclusions about the fundamental problem of design in the light of the circuits that have been dealt with in the book the book is intended for use alongside a foundation text on the theoretical basis of electronic circuit design it is written not only for undergraduate students of electronic engineering but also for the far wider range of reader in the hard or soft sciences in industry or in education who have access to a simple electronics laboratory

RF Circuit Design

1997

a textbook for 4th year undergraduate first year graduate electrical engineering students

Electronic Circuit Design

1988-09-15

description building on fundamentals of electronics circuit design david and donald comer s new text advanced electronic circuit design extends their highly focused applied approach into the second and third semesters of the electronic circuit design sequence this new text covers more advanced topics such as oscillators power stages digital analog converters and communications circuits such as mixers and detectors the text also includes technologies that are emerging advanced electronic circuit design focuses exclusively on mosfet and bjt circuits allowing students to explore the fundamental methods of electronic circuit analysis and design in greater depth each type of circuit is first introduced without reference to the type of device used for implementation this initial discussion of general principles establishes a firm foundation on which to proceed to circuits using the actual devices features 1 provides concise coverage of several important electronic circuits that are not covered in a fundamentals textbook 2 focuses on mosfet and bjt circuits rather than offering exhaustive coverage of a wide range of devices and circuits 3 includes an important concepts summary at the beginning of each section that direct the reader s attention to these key points 4 includes several practical considerations sections that relate developed theory to practical circuits instructor supplements isbn supplement description online solutions manual brief table of contents 1 introduction 2 fundamental power amplifier stages 3 advanced

power amplification 4 wideband amplifiers 5 narrowband amplifiers 6 sinusoidal oscillators 7 basic concepts in communications 8 amplitude modulation circuits 9 angle modulation circuits 10 mixed signal interfacing circuits 11 basic concepts in filter design 12 active synthesis 13 future directions

CMOS Analog Circuit Design

2011

this second volume analog circuit design designing dynamic circuit response builds upon the first volume analog circuit design designing amplifier circuits by extending coverage to include reactances and their time and frequency related behavioral consequences retaining a design oriented analysis this volume begins with circuit fundamentals involving capacitance and inductance and lays down the approach using s domain analysis additional concepts and perspectives fill in the blanks left by textbooks in regards to circuit design it simplifies dynamic circuit analysis by using the graphical methods of reactance plots methods of compensating amplifiers including feedback amplifiers are kept as simple as possible using reactance plots and s domain transfer functions that mainly require algebraic skill

Advanced Electronic Circuit Design

2003

this modern pedagogic textbook from leading author behzad razavi provides a comprehensive and rigorous introduction to cmos pll design featuring intuitive presentation of theoretical concepts extensive circuit simulations over 200 worked examples and 250 end of chapter problems the perfect text for senior undergraduate and graduate students

Circuit Design and Analysis

1992

despite the fact that in the digital domain designers can take full benefits of ips and design automation tools to synthesize and design very complex systems the analog designers task is still considered as a handcraft cumbersome and very time consuming process thus tremendous efforts are being deployed to develop new design methodologies in the analog rf and mixed signal domains this book collects 16 state of the art contributions devoted to the topic of systematic design of analog rf and mixed signal circuits divided in the two parts methodologies and techniques recent theories synthesis techniques and design methodologies as well as new sizing approaches in the field of robust analog and mixed signal design automation are presented for researchers and r d engineers

Analog Circuit Design

2010-06-30

designing cmos circuits for low power provides the fundamentals of low power design for logic circuit and physical design level as well as the design story of two innovative low power systems developed in the context of european low power initiative for electronic system design the main objective is to present in depth analytical and design capabilities for low power design cmos circuits determining the sources of power dissipation in depth description of the main existing low power optimization and estimation techniques and their corresponding advantages drawbacks and comparisons are discussed part i starts with the description of the main principles of dynamic short circuit static and leakage power dissipation together with the low power strategies for reducing each power component a typical low power design flow consists of power optimization and estimation techniques which should be applied in each design level starting with the formulation of logic optimization problem technology independent and technology dependent power optimization steps for combinational and sequential logic circuits are presented the power characteristics of different logic styles such as dynamic logic and pass transistor logic and alternative implementations of basic digital circuits are studied and compared in terms of performance area and power dissipation efficient implementations and comparisons of adder and multiplier circuits for various topologies are addressed furthermore novel techniques that reduce the power based on alternative arithmetic schemes are investigated then we tackle with the power reduction techniques for sram and dram memories in the physical design level the power optimization issues of clock distribution interconnect and layout design are described the first part ends up with the advantages and drawbacks of the simulation based and probabilistic power estimation methods of a logic circuit the second part

gives the architecture and the design techniques used for the low power implementation of a safety critical application specific instruction processor and ultrasound beamformer application specific integrated circuit designing cmos circuits for low power can be used as a textbook for undergraduate and graduate students and vlsi design engineers and professionals from academia and industry who have had a basic knowledge of microelectronics and cmos digital design

Design of CMOS Phase-Locked Loops

2020-01-30

the second edition of this comprehensive text contains extensive revisions to reflect recent advances in technology and in circuit design practices recognizing that the area of digital integrated circuit design is evolving at an increasingly fast pace every effort has been made to present state of the art material on all subjects covered in the book this book is primarily designed as a comprehensive text for senior level and first year graduate level digital circuit design classes as well as a reference for practicing engineers in the areas of ic design and vlsi

Analog/RF and Mixed-Signal Circuit Systematic Design

2013-02-03

Designing CMOS Circuits for Low Power

2002-10-31

CMOS Digital Integrated Circuits

1999

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