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Millimeter-Wave Low Noise Amplifiers Cambridge University Press

There is currently no single book that covers the mathematics, circuits, and electromagnetics backgrounds needed for the study of electromagnetic compatibility (EMC). This book aims to redress the balance by focusing on EMC and providing the background in all three disciplines. This background is necessary for many EMC practitioners who have been out of study for some time and who are attempting to follow and confidently utilize more advanced EMC texts. The book is split into three parts: Part 1 is the refresher course in the underlying mathematics; Part 2 is the foundational chapters in electrical circuit theory; Part 3 is the heart of the book: electric and magnetic fields, waves, transmission lines and antennas. Each part of the book provides an independent area of study, yet each is the logical step to the next area, providing a comprehensive course through each topic. Practical EMC applications at the end of each chapter illustrate the applicability of the chapter topics. The Appendix reviews the fundamentals of EMC testing and measurements.

Fundamentals of Wireless Communications Pearson Education India

This book teaches the skills and knowledge required by today's RF and microwave engineer in a concise, structured and systematic way. Reflecting modern developments in the field, this book focuses on active circuit design covering the latest devices and design techniques. From electromagnetic and transmission line theory and S-parameters through to amplifier and oscillator design, techniques for low noise and broadband design; This book focuses on analysis and design including up to date material on MMIC design techniques. With this book you will: Learn the basics of RF and microwave circuit analysis and design, with an emphasis on active circuits, and become familiar with the operating principles of the most common active system building blocks such as amplifiers, oscillators and mixers Be able to design transistor-based amplifiers, oscillators and mixers by means of basic design methodologies Be able to apply established graphical design tools, such as the Smith chart and feedback mappings, to the design RF and microwave active circuits Acquire a set of basic design skills and useful tools that can be employed without recourse to complex computer aided design Structured in the form of modular chapters, each covering a specific topic in a concise form suitable for delivery in a single lecture Emphasis on clear explanation and a step-by-step approach that aims to help students to easily grasp complex concepts Contains tutorial questions and problems allowing readers to test their knowledge An accompanying website containing supporting material in the form of slides and software (MATLAB) listings Unique material on negative resistance oscillator design, noise analysis and three-port design techniques Covers the latest developments in microwave active circuit design with new approaches that are not covered elsewhere

RF Coils for MRI John Wiley & Sons

RF Circuit Design Theory and Applications Prentice Hall

Heterojunction Bipolar Transistors for Circuit Design Springer

General in nature, "Applied Electronic Design" covers various design projects in the areas of analog electronics, digital electronics, and telecommunications. The text applies the theoretical information taught during the first two years of most electronics technology/electrical engineering technology programs and examines the design process as it relates to many common electric circuits. Topics include the design process from inception to completion, creativity, circuit board layout, and testing. This text provides very practical material that is unavailable from any other single source. "Applied Electronic Design" will be an invaluable tool for preparing students for future employment.

Systems-Level Packaging for Millimeter-Wave Transceivers John Wiley & Sons

Pozar's new edition of Microwave Engineering includes more material on active circuits, noise, nonlinear effects, and wireless systems. Chapters on noise and nonlinear distortion, and active devices have been added

along with the coverage of noise and more material on intermodulation distortion and related nonlinear effects. On active devices, there's more updated material on bipolar junction and field effect transistors. New and updated material on wireless communications systems, including link budget, link margin, digital modulation methods, and bit error rates is also part of the new edition. Other new material includes a section on transients on transmission lines, the theory of power waves, a discussion of higher order modes and frequency effects for microstrip line, and a discussion of how to determine unloaded.

Analog Filters using MATLAB Prentice Hall

The content of this volume has been added to eMagRes (formerly Encyclopedia of Magnetic Resonance) - the http://onlinelibrary.wiley.com/book/10.1002/9780470034590/homepage/rf_coils_virtual_issue.htm?cm=on-chem&cs=chem-analytic&cu=sitenameln&cd=sitenameln-MRIgroup-VI target="_blank" ultimate online resource for NMR and MRI/a. To date there is no single reference aimed at teaching the art of applications guided coil design for use in MRI. This RF Coils for MRI handbook is intended to become this reference. Heretofore, much of the know-how of RF coil design is bottled up in various industry and academic laboratories around the world. Some of this information on coil technologies and application techniques has been disseminated through the literature, while more of this knowledge has been withheld for competitive or proprietary advantage. Of the published works, the record of technology development is often incomplete and misleading, accurate referencing and attribution assignment being tantamount to admission of patent infringement in the commercial arena. Accordingly, the literature on RF coil design is fragmented and confusing. There are no texts and few courses offered to teach this material. Mastery of the art and science of RF coil design is perhaps best achieved through the learning that comes with a long career in the field at multiple places of employment... until now. RF Coils for MRI combines the lifetime understanding and expertise of many of the senior designers in the field into a single, practical training manual. It informs the engineer on part numbers and sources of component materials, equipment, engineering services and consulting to enable anyone with electronics bench experience to build, test and interface a coil. The handbook teaches the MR system user how to safely and successfully implement the coil for its intended application. The comprehensive articles also include information required by the scientist or physician to predict respective experiment or clinical performance of a coil for a variety of common applications. It is expected that RF Coils for MRI becomes an important resource for engineers, technicians, scientists, and physicians wanting to safely and successfully buy or build and use MR coils in the clinic or laboratory. Similarly, this guidebook provides teaching material for students, fellows and residents wanting to better understand the theory and operation of RF coils. Many of the articles have been written by the pioneers and developers of coils, arrays and probes, so this is all first hand information! The handbook serves as an expository guide for hands-on radiologists, radiographers, physicians, engineers, medical physicists, technologists, and for anyone with interests in building or selecting and using RF coils to achieve best clinical or experimental results. About EMR Handbooks / eMagRes Handbooks The Encyclopedia of Magnetic Resonance (up to 2012) and eMagRes (from 2013 onward) publish a wide range of online articles on all aspects of magnetic resonance in physics, chemistry, biology and medicine. The existence of this large number of articles, written by experts in various fields, is enabling the publication of a series of EMR Handbooks / eMagRes Handbooks on specific areas of NMR and MRI. The chapters of each of these handbooks will comprise a carefully chosen selection of articles from eMagRes. In consultation with the eMagRes Editorial Board, the EMR Handbooks / eMagRes Handbooks are coherently planned in advance by specially-selected Editors, and new articles are written (together with updates of some already existing articles) to give appropriate complete coverage. The handbooks are intended to be of value and interest to research students, postdoctoral fellows and other researchers learning about the scientific area in question and undertaking relevant experiments, whether in academia or industry. Have the content of this Handbook and the complete content of eMagRes at your fingertips! Visit: <http://www.wileyonlinelibrary.com/ref/eMagRes> or <http://www.wileyonlinelibrary.com/ref/eMagRes/a> View other eMagRes publications http://onlinelibrary.wiley.com/book/10.1002/9780470034590/homepage/emagres_publications.htm target="_blank" here/a

Electronics World Springer Science & Business Media

Design of Analog Filters, Second Edition, moves beyond the elementary treatment of active filters built with opamps. The book discusses fundamental concepts; opamps; first- and second-order filters; second-order filters with arbitrary transmission zeros; filters with maximally flat magnitude, with equal ripple (Chebyshev) magnitude, and with inverse Chebyshev and Cauer response functions; frequency transformation; cascade designs; delay filters and delay equalization; sensitivity; LC ladder filters; ladder simulations by element replacement and by operational simulation; in addition, high-frequency filters based on transconductance-C concepts and on designs using spiral inductors are covered; as are switched-capacitor filters, and noise issues.

Microwave Engineering Springer

This textbook provides a complete introduction to analog filters for senior undergraduate and graduate students. Coverage includes the synthesis of analog filters and many other filter types including passive filters and filters with distributed elements.

Computing Algorithms with Applications in Engineering Elsevier

The book provides a comprehensive overview of electromigration and its effects on the reliability of electronic circuits. It introduces the physical process of electromigration, which gives the reader the requisite understanding and knowledge for adopting appropriate counter measures. A comprehensive set of options is presented for modifying the present IC design methodology to prevent electromigration. Finally, the authors show how specific effects can be exploited in present and future technologies to reduce electromigration's negative impact on circuit reliability.

Microwave Circuit Design Using Linear and Nonlinear Techniques Academic Press

A highly comprehensive summary on circuit related modeling techniques and parameter extraction methods for heterojunction bipolar transistors Heterojunction Bipolar Transistor (HBT) is one of the most important devices for microwave applications. The book details the accurate device modeling for HBTs and high level IC design using HBTs Provides a valuable reference to basic modeling issues and specific semiconductor device models encountered in circuit simulators, with a thorough reference list at the end of each chapter for onward learning Offers an overview on modeling techniques and parameter extraction methods for heterojunction bipolar transistors focusing on circuit simulation and design Presents electrical/RF engineering-related theory and tools and include equivalent circuits and their matrix descriptions, noise, small and large signal analysis methods

Design of Analog Filters John Wiley & Sons

Ultra-wideband Radio Frequency Identification Systems describes the essentials of radio frequency identification (RFID) systems as well as their target markets. The book covers a study of commercially available RFID systems and characterizes their performance in terms of read range and reliability in the presence of conductive and dielectric materials. The capabilities and limitations of commercial RFID systems are reported followed by comprehensive discussions of the advantages and challenges of using ultra-wideband (UWB) technology for tag/reader communications. The book presents practical aspects of RFID system such as: EPC global and ISO standards, implementation, and target markets in a simple and easy to understand language.

Active Circuits and Systems, Volume 2 McGraw Hill Professional

An up-to-date guide to the theory and applications of RF MEMS. With detailed information about RF MEMS technology as well as its reliability and applications, this is a comprehensive resource for professionals, researchers, and students alike. • Reviews RF MEMS technologies • Illustrates new techniques that solve long-standing problems associated with reliability and packaging • Provides the information needed to incorporate RF MEMS into commercial products • Describes current and future trends in RF MEMS, providing perspective on industry growth • Ideal for those studying or working in RF and microwave circuits, systems, microfabrication and manufacturing, production management and metrology, and performance evaluation

RF and Microwave Engineering SciTech Publishing

This practical and comprehensive book introduces RF circuit design fundamentals while emphasizing a circuit-based approach.

Handbook of Graphene Artech House

In today's globally competitive wireless industry, the design-to-production cycle is critically important. The first of a two-volume set, this leading-edge book takes a practical approach to RF (radio frequency) circuit design, offering a complete understanding of the fundamental concepts practitioners need to know and use for their work in the field.

RF Circuit Design Springer

This book is the first standalone book that combines research into low-noise amplifiers (LNAs) with research into millimeter-wave circuits. In compiling this book, the authors have set two research objectives. The first is to bring together the research context behind millimeter-wave circuit operation and the theory of low-noise amplification. The second is to present new research in this multi-disciplinary field by dividing the common LNA configurations and typical specifications into subsystems, which are then optimized separately to suggest improvements in the current state-of-the-art designs. To achieve the second research objective, the state-of-the-art LNA configurations are discussed and the weaknesses of state-of-the-art configurations are considered, thus identifying research gaps. Such research gaps, among others, point towards optimization — at a systems and microelectronics level. Optimization topics include the influence of short wavelength, layout and crosstalk on LNA performance. Advanced fabrication technologies used to decrease the parasitics of passive and active devices are also explored, together with packaging technologies such as silicon-on-chip and silicon-on-package, which are proposed as alternatives to traditional IC implementation. This research outcome

builds through innovation. Innovative ideas for LNA construction are explored, and alternative design methodologies are deployed, including LNA/antenna co-design or utilization of the electronic design automation in the research flow. The book also offers the authors' proposal for streamlined automated LNA design flow, which focuses on LNA as a collection of highly optimized subsystems.

Fundamentals of Electromigration-Aware Integrated Circuit Design Artech House

Analog circuit and system design today is more essential than ever before. With the growth of digital systems, wireless communications, complex industrial and automotive systems, designers are being challenged to develop sophisticated analog solutions. This comprehensive source book of circuit design solutions aids engineers with elegant and practical design techniques that focus on common analog challenges. The book's in-depth application examples provide insight into circuit design and application solutions that you can apply in today's demanding designs. This is the companion volume to the successful Analog Circuit Design: A Tutorial Guide to Applications and Solutions (October 2011), which has sold over 5000 copies in its the first 6 months of since publication. It extends the Linear Technology collection of application notes, which provides analog experts with a full collection of reference designs and problem solving insights to apply to their own engineering challenges Full support package including online resources (LTSpice) Contents include more application notes on power management, and data conversion and signal conditioning circuit solutions, plus an invaluable circuit collection of reference designs

Early Transmission Lines Approach John Wiley & Sons

This book contains extended and revised versions of the best papers presented at the 18th IFIP WG 10.5/IEEE International Conference on Very Large Scale Integration, VLSI-SoC 2010, held in Madrid, Spain, in September 2010. The 14 papers included in the book were carefully reviewed and selected from the 52 full papers presented at the conference. The papers cover a wide variety of excellence in VLSI technology and advanced research. They address the current trend toward increasing chip integration and technology process advancements bringing about stimulating new challenges both at the physical and system-design levels, as well as in the test of these systems.

Oxford University Press, USA

Allen Hollister uses easy models to develop the theory needed to understand wideband amplifier design. With this theory, he develops equations used in high frequency design, giving the reader an understanding of the process and circuit.

Technology and Innovations John Wiley & Sons

This book describes a full range of contemporary techniques for the design of transmitters and receivers for communications systems operating in the range from 1 through to 300 GHz. In this frequency range there is a wide range of technologies that need to be employed, with silicon ICs at the core but, compared with other electronics systems, a much greater use of more specialist devices and components for high performance – for example, high Q-factor/low loss and good power efficiency. Many text books do, of course, cover these topics but what makes this book timely is the rapid adoption of millimetre-waves (frequencies from 30 to 300 GHz) for a wide range of consumer applications such as wireless high definition TV, “ 5G ” Gigabit mobile internet systems and automotive radars. It has taken many years to develop low-cost technologies for suitable transmitters and receivers, so previously these frequencies have been employed only in expensive military and space applications. The book will cover these modern technologies, with the follow topics covered; transmitters and receivers, lumped element filters, transmission lines and S-parameters, RF MEMS, RFICs and MMICs, and many others. In addition, the book includes extensive line diagrams to illustrate circuit diagrams and block diagrams of systems, including diagrams and photographs showing how circuits are implemented practically. Furthermore, case studies are also included to explain the salient features of a range of important wireless communications systems. The book is accompanied with suitable design examples and exercises based on the Advanced Design System – the industry leading CAD tool for wireless design. More importantly, the authors have been working with Keysight Technologies on a learning & teaching initiative which is designed to promote access to industry-standard EDA tools such as ADS. Through its University Educational Support Program, Keysight offers students the opportunity to request a student license, backed up with extensive classroom materials and support resources. This culminates with students having the chance to demonstrate their RF/MW design and measurement expertise through the Keysight RF & Microwave Industry-Ready Student Certification Program. www.keysight.com/find/eesof-university www.keysight.com/find/eesof-student-certification

Millimeter-Wave Power Amplifiers Springer Science & Business Media

The SBMicro symposium is a forum dedicated to fabrication and modeling of microsystems, integrated circuits and devices. The goal of the symposium is to bring together researchers in the areas of processing, materials, characterization, modeling and TCAD of integrated circuits, microsensors, microactuators and MEMS. This issue of ECS Transactions contains the papers presented at the 2008 conference.