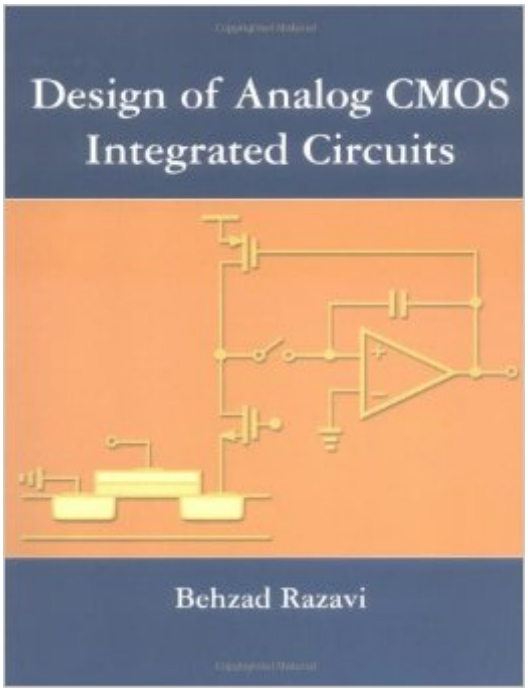
Design Of Analog CMOS Integrated Circuits



Synopsis

This textbook deals with the analysis and design of analog CMOS integrated circuits, emphasizing recent technological developments and design paradigms that students and practicing engineers need to master to succeed in today's industry. Based on the author's teaching and research experience in the past ten years, the text follows three general principles: (1) Motivate the reader by describing the significance and application of each idea with real-world problems; (2) Force the reader to look at concepts from an intuitive point of view, preparing him/her for more complex problems; (3) Complement the intuition by rigorous analysis, confirming the results obtained by the intuitive, yet rough approach.

Book Information

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Customer Reviews

I have all of the books written by Dr. Razavi, and this is the most recent one. CMOS has been the mainstream on analog design today, and more and more books cover this area. From Roubik Gregorian / Gabor Temes's "Analog MOS Integrated Circuits for Signal Processing" to Phillip Allen / Douglas Holberg's "CMOS Analog Circuit Design", from David Johns / Kenneth Martin's "Analog Integrated Circuit Design" to Roubik Gregorian's "Introduction to CMOS OP-AMPs and Comparators", we can see the rapid development of CMOS analog design techniques. And this book is the most updated one among these books. It covers basic CMOS design techniques as well as some important topics, such as common-mode feedback and current feedback amplifiers. Everything is expressed clearly and easy to understand. However, it does not address some of

today’s popular topics, such as low-voltage design techniques, constant-Gm and rail-to-rail amplifiers. Hope we can see these in the final edition. The readers can find these topics from Johns/Martin and Gregorian’s books. Anyway, I still rate it as a 5-star book.

This is an excellent book that provides a fresh look at CMOS Analog Circuit Design. Behzad Razavi has a clear writing style that takes the reader from an intuitive level of understanding circuit performance to a mathematical explantion based on this understanding. This text also covers most areas of modern Analog CMOS design including all variations of modern op amps, switched capacitor circuits, feedback, noise analysis, frequency response, stability and compensation, as well as oscillators and PLLs. The material is covered in context of modern sub-micron processes and includes coverage of short-channel effects in these technologies. I have found answers in this book to many of the questions I have come across recently. In particular, Dr. Razavi uses the examples in the book to characterize various circuit performance metrics for typical circuit configurations using a symbolic approach. This results in an expression that highlights which circuit/device parameters contribute to the particular performance metric under study.

If you really want to understand the fundamentals of CMOS design, and would like someone to break down the complexity and mystery of concepts like output resistance, transconductance, feedback, operational amplifiers, frequency response, closed and open loop gain, etc., into simple qualitative understandings before progressing to the more complex mathematics, and to do all of this in an order that makes sense and that places the right emphasis on the right material at the right time to maximize learning and minimize confusion, then this is your book. CMOS is complex enough, without an author excacerbating the problem by being disorganized in the presentation of topics, taking excessive liberties in assuming preexisting knowledge by the reader, and placing unecessary emphasis on topics that don’t mandate it. Other CMOS books I have read are needlessly complex and serve only to confuse the reader and raise more questions. This book, in contrast, is an outstanding resource that provides skills, insights, and examples, logically arranged in the right order. Nice job, Behzad.

Cannot be used as a text book. Quite a lot of material assumes that u have a very good knowledge of analog design. The auhtor tries to put himslef in the the place of the sutdents while writing the book but its no good. Its definitely good for ppl who have been degining analog circuits for a couple of years.

Difficult SideRead Sedra/Smith book before trying this one. It is really hard to follow. It's hard to differentiate between small and large signal analysis, since author uses the same notation for both. Watch out!Good Side:Book is on CMOS analog ICs, so it's specific.Book is very thorough. Behzad Razavi explains the function of each resistor in a circuit. Book teaches on a high level. Author put in much effort.

If you're learning this material for the first time, your best bet would be to look elsewhere. I'm taking a course in analog CMOS design after completing an introductory course in electronic devices. I can refer to the Razavi book and actually find it to be quite useful. In fact, it seems better than the book we're using for the class, (CMOS design by Allen)But when I first bought this book, which was required for the introductory class, it was not helpful at all. The material was too brief, examples too difficult and not explained in detail, problems were too long and onerous so that you completely lose sight of what you're supposed to get a grasp on. An absolute disaster if you're trying to learn this stuff. That's why it sat on my shelf for the whole semester. But for the advanced class, this book seems to pick up right after the introductory course. Definitely not for the novice reader, and it covers the advanced topics that you don't see when you first learn this stuff. Razavi's writing style and presentation is pretty good too.

I always had trouble developing an intuitive understanding of CMOS but this book works like a wonder potion. It not only gives you solid understanding but also makes you a guru in design. While discussing devices, circuits and various topologies, the author makes worthy comments about what would happen if device sizes were changed or the current derive changes etc. Overall, I think it can be both an excellent reference book as well as a text book for advanced classes.

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