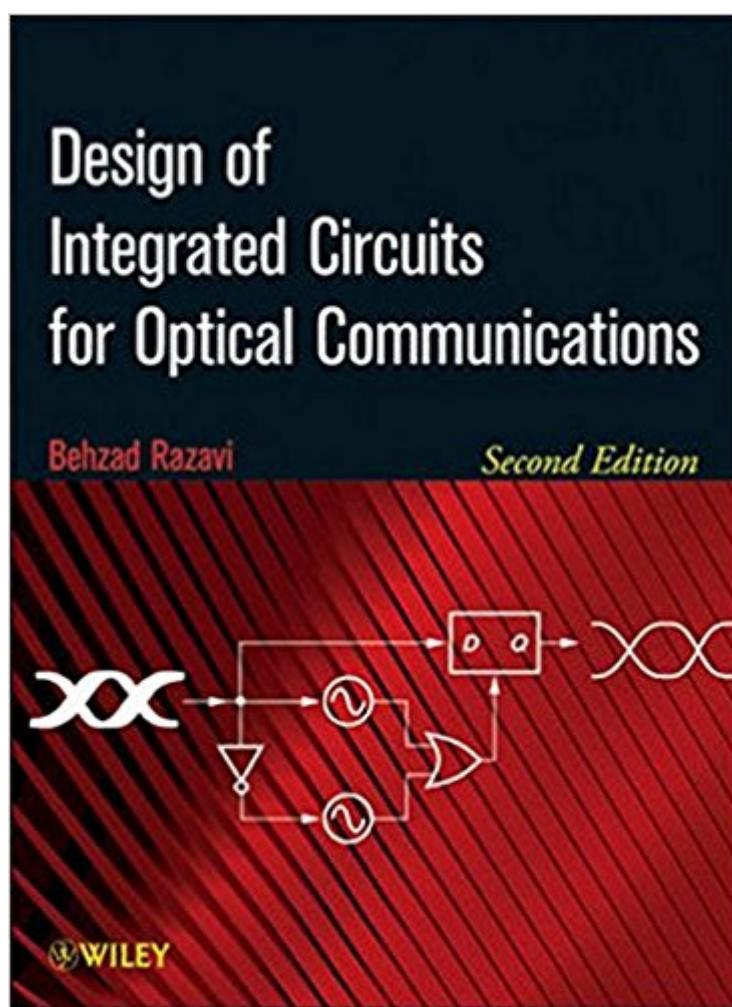The book was found

Design Of Integrated Circuits For Optical Communications

Design of
Integrated Circuits
for Optical Communications

Behzad Razavi

Second Edition

WILEY

Synopsis

The only book on integrated circuits for optical communications that fully covers High-Speed IOs, PLLs, CDRs, and transceiver design including optical communication The increasing demand for high-speed transport of data has revitalized optical communications, leading to extensive work on high-speed device and circuit design. With the proliferation of the Internet and the rise in the speed of microprocessors and memories, the transport of data continues to be the bottleneck, motivating work on faster communication channels. Design of Integrated Circuits for Optical Communications, Second Edition deals with the design of high-speed integrated circuits for optical communication transceivers. Building upon a detailed understanding of optical devices, the book describes the analysis and design of critical building blocks, such as transimpedance and limiting amplifiers, laser drivers, phase-locked loops, oscillators, clock and data recovery circuits, and multiplexers. The Second Edition of this bestselling textbook has been fully updated with: A tutorial treatment of broadband circuits for both students and engineers New and unique information dealing with clock and data recovery circuits and multiplexers A chapter dedicated to burst-mode optical communications A detailed study of new circuit developments for optical transceivers An examination of recent implementations in CMOS technology This text is ideal for senior graduate students and engineers involved in high-speed circuit design for optical communications, as well as the more general field of wireline communications.

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Customer Reviews

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BEHZAD RAZAVI, PhD, Professor of Electrical Enginnering at University of California, Los Angeles, is an award-winning author, researcher, and teacher. His research deals with wireless and wireline transceivers, high-speed communication circuits, and data converters. Author of more than 100 papers and seven popular books, Prof. Razavi is a Fellow of the IEEE, has served as an IEEE Distinguished Lecturer, and was recognized as one of the top ten authors in the fifty-year history of the International Solid-State Circuits Conference. He received the IEEE Donald O. Pederson Award in 2012 for his pioneering contributions to the design of high-speed CMOS communication circuits.

I am very pleased with this book. It is at a high enough level to be educational and useful. I was only vaguely familiar with optical communications and this filled a gap for me.

it is what I want, and deliver very fastwill come back to buy for sure

I only recently started reading the book. I read chapter 2, and I was very amazed at how effectively

prof. Razavi explains concepts. Specifically, the intuitive explanation for ISI was just amazing. I'm now glued to this book as it is so well-written (at least until the end of chapter 2). I only wish there were problems accompanying the chapters though as those are an excellent way to re-enforce concepts and to learn more :(. But, overall, I think I would recommend this book to any circuits/communications enthusiasts.

yes, I like it

i own both editions of this book. Excellent preparation, analysis-attention to details-i strongly recommend it-same in class as Dr.Sackinger's book-

This is a book good for people who is working on the circuit for optical communication. It describes most of the concepts in optical communication.

I would like to write about "Design of Integrated Circuits for Optical Communications" book (2003 ed.,McGRAW-HILL), written by Behzad Razavi.The information contained here should help anyone who feel interested to have some ideas about how much the book is directly useful for his or her application or learning interest.Also, this should be a guide for reading plan and learning to take a good advantage from the book.General : This book begins with two chapters that give a good brief overview of the Introductionto Optical Communications and some Basic Concepts necessary for analysis and design.The remaining chapters teach you to design important building blocks of the optical communications(OC) system. Fig 1.3 in the book is a system topology that guides you to see a big picture ofthe system or transceiver. The author recommends that the reader should have a good understanding of analog designbefore reding the book and also recommends some textbooks for starters; 1) Design of AnalogCMOS Integrated Circuits by B. Razavi, or 2) Analysis and Design of Analog Integrated Circuitsby P. Gray,P. Hurst et al. If you read this book, you might observe that Chapters 6,7,8,9 that relate to oscillators andPLLs are comprehensive and can give you more details of the topics more than other textbooksin CMOS circuits design.The obvious reason is that he is also the author or editor of the booksrelated to PLLs and Clock recovery circuits. Thus these particular chapters are very interestingin this book.Author's Writing Style: In each chapter, Razavi usually writes important equations that reasonably explain thedetailed analysis. Although he might not include every detailed step of analysis or calculation,it should be enough for a student to follow the idea. Busy engineers can skip the details ofequation formulation and use the results or ideas for

design decisions. Sentences are well written.Sentences are mostly concise and clearly explain the concepts. In contrast, authors of someengineering textbooks often use overly complex sentences which normally load the reader's brainpretty much, especially after some long hours of studies or works. Usually busy engineers liketo read something relatively short or concise to only get a particular idea. Thus, Razavi's book is suitable for both students and busy engineers who want to find a goodreference book in the field to get start or do some works.Errata: only a few(five I found)Contents: There are 362 pages of contents(not include Index). It is relatively a small book(i.e. a size of 400 pages).The book is divided into ten chapters,- Chapter 1 Introduction to Optical Communications (6 pages, not count References page)- Chapter 2 Basic Concepts (27 pages)- Chapter 3 Optical Devices (25 pages)- Chapter 4 Transimpedance Amplifiers (61 pages)- Chapter 5 Limiting Amplifiers and Output Buffers (42 pages)I also read "Microelectronic Circuit Design",3rd edition by Jaeger&Blalock,I found an interesting mention of TAS-TIS cascade technique developed by Cherry and Hooper.The technique was used to design the limiting amplifier in optical fiber receivers.I think, the author should add more detailed explanation about this technique to make this chapter better for this book of IC design for Optical Communications.- Chapter 6 Oscillator Fundamentals (58 pages)One distinc feature of the book that I like is a comprehensive chapter on topics of Oscillator Fundamentals. This will help much for readers who have little background, to develop understanding for studies of VCOs and PLLs.Begins with analysis of feedback systems and oscillation conditions.- Chapter 7 LC Oscillators (30 pages)- Chapter 8 Phase-Locked Loops (43 pages)- Chapter 9 Clock and Data Recovery (44 pages)- Chapter 10 Multiplexers and Laser Drivers (30 pages) A short list of References is given at the end of each chapter.Hope that the review is helpful.----Sittinart N.

If you appreciate Dr. Razavi's renowned book CMOS Analog IC Design, then this book won't disappoint you since it has the same quality: brevity and clarity of explanations of what matters, clear figures and good organization. Except for a part of the PLL chapter (ch. 8) which copies from his other books, most of the book is original text which summarizes knowledge which would take much more time to gain by simply reading papers or looking at other people's design at random. Highly recommended for anyone who loves Dr. Razavi's style in his CMOS Analog IC design book and who works in the wireline communication IC design industry.

Design of Integrated Circuits for Optical Communications Optical Thin Films: User's Handbook (Macmillan Series in Optical and Electro-Optical Engineering) Optical Integrated Circuits CMOS

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