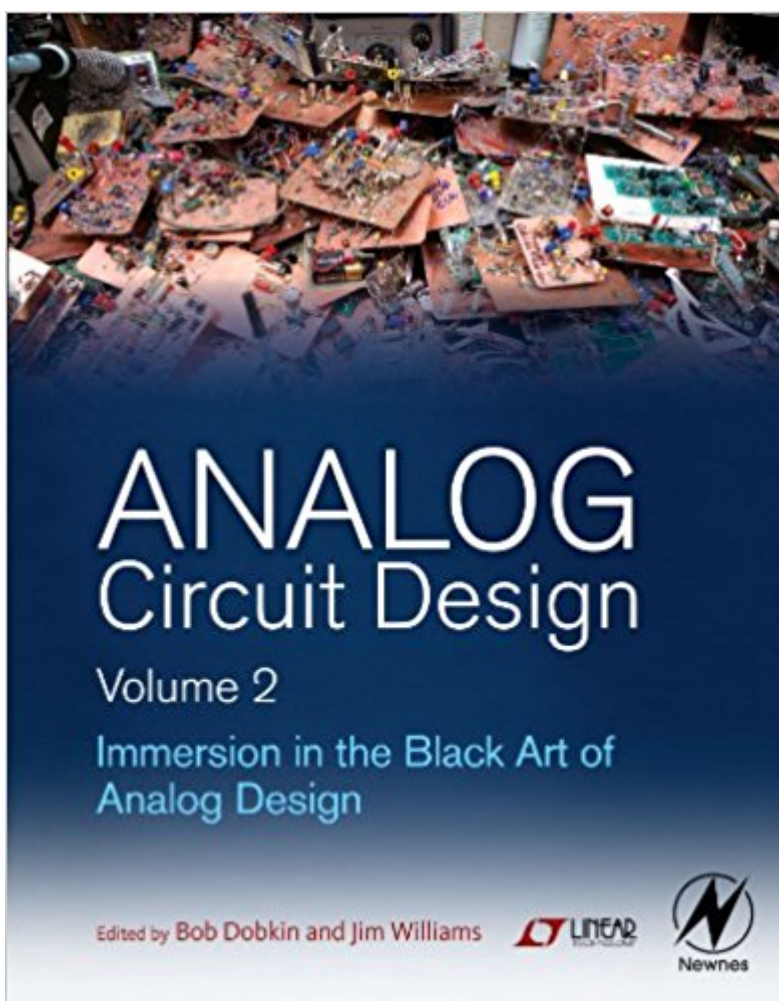


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# Analog Circuit Design, Volume 2: Immersion In The Black Art Of Analog Design



## Synopsis

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.

## Book Information

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## Customer Reviews

"Analog electronic designers will find this handbook an essential reference source. It contains a broad range of analog circuit design ideas and practical tips for ensuring proper circuit implementation, and more importantly, it provides the reader with the basis for good circuit and

board design techniques." --IEEE Electrical Insulation Magazine, May/June 2014 "The writing is clear, and for such detailed technique descriptions, the language is delightfully readable. Expect elegant design and timeless analogue wisdom on every page."

--Electronics Weekly, May 2013 "Newnes Press, an imprint of Elsevier, announced the publication of Analog Circuit Design, Volume 2, Immersion in the Black Art of Analog Design. The book is a companion volume to Analog Circuit Design: A Tutorial Guide to Applications and Solutions." --EDA BLOG and EETimes

Bob Dobkin is a founder and Chief Technical Officer of Linear Technology Corporation. Prior to 1999, he was responsible for all new product development at Linear. Before founding Linear Technology in 1981, Dobkin was Director of Advanced Circuit Development at National Semiconductor for eleven years. He has been intimately involved in the development of high performance linear integrated circuits for over 30 years and has generated many industry standard circuits. Dobkin holds over 100 patents pertaining to linear ICs and has authored over 50 articles and papers. He attended the Massachusetts Institute of Technology. Jim Williams, who worked for Linear Technology for nearly three decades, was a talented and prolific circuit designer and author in the field of analog electronics until his untimely passing in 2011. In nearly 30 years with Linear, he had the unique role of staff scientist with interests spanning product definition, development and support. Before joining Linear Technology in 1982, Williams worked in National Semiconductor's Linear Integrated Circuits Group for three years. Williams was a legendary circuit designer, problem solver, mentor and writer with writings published as Linear application notes and EDN magazine articles. In addition, he was writer/editor of four books. Williams was named Innovator of the Year by EDN magazine in 1992, elected to Electronic Design Hall of Fame in 2002, and was honored posthumously by EDN and EE Times in 2012 as the first recipient of the Jim Williams Contributor of the Year Award.

The content is good but available as application notes for free, online. So you might be excused for thinking you're paying for some editing. Well no. The application notes are repeated verbatim, including the repeating of material from app note to app note. If you try reading this as a book you'll be continually rereading the same material. It's a very expensive way of getting the appnotes. It may be better as a physical book, if you prefer that kind of thing. But as a kindle book it's awful, you'd be better getting the pdfs and using a decent App to search and annotate.

When I started in electrical engineering, transistors and diodes came individually boxed with data sheets, and most transistorized circuits were obviously (in hindsight) reworked vacuum tube circuit designs. Designs better suited to the strengths and weaknesses of semiconductors arose even as new and better semiconductors were developed. Integrated circuits greatly simplified simple functions, and greatly expanded possibilities for new functions. The data sheets and application notes published by semiconductor manufacturers were a tremendous wealth of useful information and inspiration. This book is full of designs, and offers discussion of functionality and design choices for each. It does not teach creativity - but it displays the fruits of some very creative minds. If you study and understand these circuits, you will come away with some valuable insights which will serve you well.

While this book is just a collection of Linear Technology's application notes, many are written by LT's applications engineer Jim Williams who has the ability to describe circuits in a very user friendly manner. A lot of good circuits even if they use LT's ICs. A good reference book.

This book organizes the best and most useful app notes. I have designed analog since 1970, and have stayed current. For me, a review, a great index, some reminders, and some new ideas. If you do analog design, Get this book.

The old Boolean Boogie and "calculator" books on Assembly  $\hat{A}$  Bebop to the Boolean Boogie, Third Edition: An Unconventional Guide to Electronics, and also by Maxfield:  $\hat{A}$  The Definitive Guide to How Computers Do Math : Featuring the Virtual DIY Calculator  $\hat{A}$  -- prior to these wonderful two new books by Bob Dobkin, were the only place a circuit designer new to or rusty in analog design could "brush up" on the assembly foundations and real world tips and tricks of analog circuits. Dobkin makes the sad point that, due to the massive presence of digital in embedded and FPGA applications, analog was becoming a "lost art" in many ways. For the beginner, you've got to realize that the "number" output you see on a digital calculator is simply a translation matrix (not an energy transduction) of 1's and 0's into a value, whereas that same display on an analog device is the ACTUAL complex trigonometry of, for example, cross sections of WIRES that measure voltage drop and other physical attributes! IOW, analog devices are actually "displaying" atomic physical values in a deep quantum sense, which means a LOT can go wrong with signal vs. noise! Analog Circuit Design: A Tutorial Guide to Applications and Solutions by the same author  $\hat{A}$  Analog Circuit Design: A Tutorial Guide to Applications and Solutions  $\hat{A}$  is a runaway smash best seller due to

the above factors, as well as the many "practical" real world tips from the Linear Tech guys, who really understand the "guts" of HP, TI and other older embedded analog, as well as the new applications in medical devices, etc. From a design standpoint, even though this is an older technology in some senses, ironically, there are probably more new discovery and patent opportunities in the "wiring" in analog than in digital, due to the need to translate between A/D in many new applications. I've reviewed the ASRAP dot org databases on new royalty filings in analog, and there are almost twice as many requests for circuit protection as algorithm protection in new patents! Not to downplay algorithms! Analog has even more "sticky" issues with memory allocation, access to the GPU, interface with brute force calculation (eg sieve methods) and other coding challenges. Finding a voltage that displays two added numbers is much different than finding one that solves a differential equation, even though "physical" systems are the ones most amenable to ODE's! If you're new, you might find this above your head unless you get the Boolean Boogie and Bob's first volume, if you're an old PCB designer, you'll find not only good review material, but a huge number of practical tips that will save you months of frustration by not repeating the mistakes and problems Linear Tech has already solved! In some ways this IS a commercial for their firm, which a few other reviews have dinged online, but honestly, these guys are EDITORS, not just authors, and draw on many tools and technologies, some proprietary to LT (some reviewers claim these books are just free LT appnotes, but this is NOT the case-- this is much more logically organized and indexed than the LT site, and you don't have to be a customer to benefit from this text), and many tips are chip dependent and focused as well as LT product focused, which makes them more a commercial for the chip and component developers than just promoting an Engineering group, if you must focus on the tools being promoted! MUST HAVE for ANYONE in or contemplating circuit design-- analog is a field that can't be ignored because of its rebirth where it started-- in embedded systems. Question: This is a lot of money, do I really need BOTH books? Answer: It's obvious that LT reviewed some of the criticism of the first volume (lack of coverage of RF, for example) and tried to expand the "appnote" feel to more "arcane" but real world techniques and solutions that can be generalized with this second volume, and even used in classes on circuit design. Yes, you could combine THIS volume with the LT appnotes online and get a somewhat cheaper version of both by skipping the first book, but it all depends on how much you value your time, and how frequently you need to access design tips. I'm old school and there is nothing like a physical book, especially the first one which, being appnotes, IS a manual. IF this is mostly for learning, the above technique of the LT site plus this book might work for you. If you're into serious daily analog design, I'd buy both books just for the "write in the margins," organize,

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everything perfect ( except the fact that the German customs asked for additional 5ÃfÃçÃ â Ã Å-...). A brilliant Book with lots of tips and tricks in it.

Jim Williams and Bob Pease were two of the most inventive analog designers who were able to clearly communicate the results of their inventiveness to the rest of us.

Advertisement sounds really good, but the book is just a collection of Linear Technology datasheet. Nothing is useful for engineering purpose. This book does not worth that much money.

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