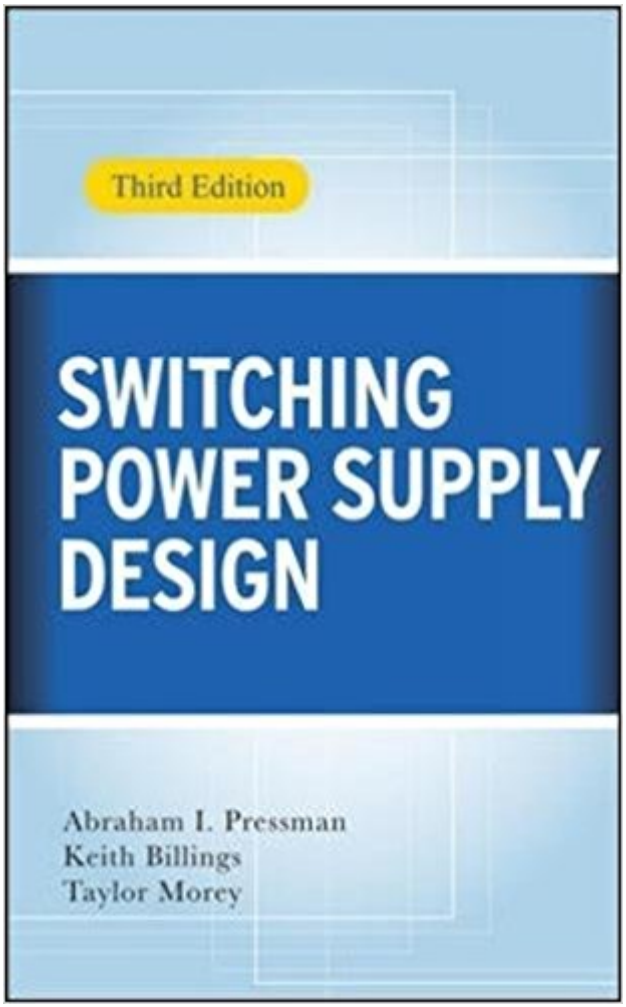
Switching Power Supply Design, 3rd Ed. (Electronics)



Synopsis

The World’s #1 Guide to Power Supply Design Now Updated!Recognized worldwide as the definitive guide to power supply design for over 25 years, Switching Power Supply Design has been updated to cover the latest innovations in technology, materials, and components. This Third Edition presents the basic principles of the most commonly used topologies, providing you with the essential information required to design cutting-edge power supplies. Using a tutorial, how-and-why approach, this expert resource is filled with design examples, equations, and charts. The Third Edition of Switching Power Supply Design features:Designs for many of the most useful switching power supply topologiesThe core principles required to solve day-to-day design problemsA strong focus on the essential basics of transformer and magnetics design New to this edition: a full chapter on choke design and optimum drive conditions for modern fast IGBTsGet Everything You Need to Design a Complete Switching Power Supply:Fundamental Switching Regulators * Push-Pull and Forward Converter Topologies * Half- and Full-Bridge Converter Topologies * Flyback Converter Topologies * Current-Mode and Current-Fed Topologies * Miscellaneous Topologies * Transformer and Magnetics Design * High-Frequency Choke Design * Optimum Drive Conditions for Bipolar Power Transistors, MOSFETs, Power Transistors, and IGBTs * Drive Circuits for Magnetic Amplifiers * Postregulators * Turn-on, Turn-off Switching Losses and Low Loss Snubbers * Feedback-Loop Stabilization * Resonant Converter Waveforms * Power Factor and Power Factor Correction * High-Frequency Power Sources for Fluorescent Lamps, and Low-Input-Voltage Regulators for Laptop Computers and Portable Equipment

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Customer Reviews

Abraham Pressman was a nationally known power supply consultant whose background ranged from army radar officer to four decades as an analog-digital design engineer. Keith Billings is a practicing engineer with more than 40 yearsÃ¢â ¬â„¢ experience in the design of switching power equipment. Taylor MoreyTaylor Morey, currently a professor of Electronics at Conestoga College in Kitchener, Ontario, Canada, is co-author of an electronics devices textbook, and has taught courses at Wilfred Laurier University in Waterloo. He collaborates with Keith Billings as an independent power supply engineer and consultant, and previously worked in switchmode power supply development at Varian Canada in Georgetown, and Hammond Manufacturing and GFC Power in Guelph, where he first met Keith in 1988. During a 5-year sojourn to Mexico, he became fluent in Spanish and taught electronics engineering courses at the Universidad CatÃƒÂ lica de La Paz, and English as a second language at CIBNOR biological research institution of La Paz, where he also worked as an editor of graduate biology studentsÃ¢â ¬â„¢ articles for publication in refereed scientific journals. Earlier in his career he worked for IBM Canada on mainframe computers, and at Global TVÃ¢â ¬â„¢s studios in Toronto.

Great book. Good section on feedback loop stabilization. Get the C. Basso and the R. Ridley books too.

This book is extremely useful, helping the poor soul who had been suddenly thrown in the cold waters of switching power supply design, with no clue where to even start. As other reviewers stated, the late Mr. Pressman deals with the subject by treating each topology as a separate entity instead of taking the more modern, unified approach (see, for example `Switching Power Supplies A-Z' by Sanjaya Maniktala). For someone who just wants to design a flyback converter, for example, its equivalences with the buck-boost converter may not be worth much, but this book is certainly not for the academically inclined.In this third edition of the book, Mr. Billings keeps the original Pressman text virtually intact, and just comments or adds a note here and there, in an attempt to bring the book up to date. Entirely new sections were only added to chapter 7 (magnetic design) and chapter 9 (MOSFETs and IGBTs). I have yet to read chapter 9, so will limit my comments to

chapter 7. The added section is very practical, but, unfortunately, poorly proofread. There are numerous typographic errors in formulas, arithmetic errors in calculations, references to wrong figures, different values entered for the same parameter, and so on. There are also repetitions of the same discussion, just a few pages apart from each other, as if to hammer it down. Although the book is written for the practicing engineer and avoids even basic calculus like the plague, I am finding Mr. Billings' approach of just throwing formulas at the reader instead of deriving them from basic electromagnetic theory rather perplexing. How difficult would it be to show where these strange conversion factors came from or why inductance can be both the property linking the voltage across a circuit component to the rate of change of its current and the ratio between magnetic flux and current at the same time? Had he dedicated a couple pages to this simple subject, the reader would have been able to stand on his own feet instead of taking all those (sometimes erroneous) formulas at face value.

I just got into the field of switching power supplies recently and I was looking for a good book. I've read some books out there which had maybe the same information in this one, but it was very clear for me that this is "The One".What I like most about this book is the logical flow of the subjects discussed. When he explains one topology for instance, he really goes from A to Z and explains how every part is working, why it's working this way, what problems this might cause, how to resolve them, etc. He even shows you all his formula derivations so you won't miss anything.On top of that, he gave each sub-system (I would call it) of the switching power supply its own chapter, like Transistors and control circuits. In most of the text I've read, these sub-systems are mentioned only during explaining a topology.The best of all, he discussed switching power supplies in terms of control theory, where analysis becomes much easier showing you the advantages or disadvantages of a topology from the poles and zeros of there response.I have other books I want to read in this subject, but I can't imagine any book that would compete with this one.NOTE: He kept referring to equation 1.17 which was the wrong reference, but I guess that's redundant.

A classic, and now improved.

I have hundreds of engineering books written across many decades. This one (purchased 2003, again in 2011) has by far, far the most number of margin notes and comments, in various different colors, not to fill any shortcomings but to expound on the text or fix a realization for later. This book thoroughly explains and teaches you the WHYs: WHY certain design decisions are made, WHY one

is better than another for all kinds of specific cases, WHY one should do something one way versus myriad others. Ever wanted to 'pick the mind' of a power supply expert? No need to pick, since everything is spelled out proactively with detailed REASON. By far my favorite engineering book, most useful alongside ART OF ELECTRONICS and RADIOTRON DESIGNERS HANDBOOK (3rd and 4th ed.) and a great companion on airplane flights when I need something particular or just for general continued learning. Super super recommended. Keith Billings book also very good.

My EE training in college was focused around signal processing and analog circuit design. I never had a class on switching power supplies, so this is a new area for me. That said, this book has been worth its weight in gold for the project that I find myself on currently.This book gives a wonderful medium to high level treatment on the subject, from design of the transformer to design of the circuit, often going so far as to give steps for designing a particular circuit. Though they need not necessarily be followed in order, they give an excellent check list of what needs doing. It is all about practicality, with a smattering of theory thrown in to fill out the picture.Don't get this book if you are expecting to apply Maxwell's equations to transformers or get into deep theory. The author treats capacitor and inductor math simply but coherently.This is one of those books that will get enough use to make it worthwhile and I'm proud to put it with my other technical books.

Excellent book for fundamentals and intro on switched mode power supply design.

good book to have if you are designing switching power supply

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