

Re: best book to get started in ac/dc smps power supply design

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- *From:* Terry Given <my_name@xxxxxxxx>
 - *Date:* Wed, 09 Apr 2008 13:30:49 +1200
-

Joel Koltner wrote:

Say Terry,

"Terry Given" <my_name@xxxxxxxx> wrote in message
news:1207695325.968930@xxxxxxxxxxx

Marty Brown's book is pretty good, as is Abraham Pressmans (although his maths is designed to be as confusing as possible).

What I know about switchers and magnetics design came mostly from Pressman. I discovered Marty's book later, and thought the 1st edition was a little too "cookbookish" -- albeit with coverage of more contemporary topics than Pressman, who still spent a lot of time talking about 20kHz switching. :-) Marty added some significant "meat" for the second edition, though... I think it's pretty good now.

yeah it is a bit that way. Anything JD Lenk writes should be avoided for that reason. Cookbook = "neither understand nor think"

I don't have a copy of Billings' book.

I have these:

Billings, 1st ed.

Pressman, 2nd ed.

Brown, 2nd ed.

SMPS simulation with SPICE3, Sandler

Switch Mode Power Conversion, K. Kit Sum

One by Gottlieb, published by TAB – I have learned my lesson, the book is a joke.

Principles of Inverter Circuits, Bedford & Hoft

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Power Electronics 2nd ed, Lander
High Frequency Switching Power Supplies, Chryssis
Switching Power Converters, Wood
Power supplies for electronic equipment vols 1&2, Nowicki (old but great)
Dynamic Analysis of Switching mode dc/dc converters, Redl, Sokal et al (fabulous method injection-absorbed current analysis)
Resonant power converters, kazimierczuk
Power Electronics 1st ed, Mohan undeland & robbins
Design of solid-state power supplies 2nd ed, Hnatek
SMPS design & optimization, maniktala (this is pretty good)
Transistor inverters & converters, Roddam
Severns & Blooms book
Mitchells book

If there are any I am missing, let me know ;)

But what I wanted to ask was... do you have a copy of the combined Pressman/Billings 3rd edition of "Switching Power Supply Design?" (My understanding is that the publisher called in Billings to expound upon Pressman's 2nd edition after Pressman died.) If so, how does it compare to either book alone?

nope, and I only have the 1st ed. of Billings – I bought it in Australia in about 1990, and its been worth its weight in gold. and more.

Personally I like Keith Billings book, it has a great deal of info on magnetics design, which is an area most people dont know much about.

I cringe whenever I attend a seminar aimed mainly digital guys and they start talking about how "undesirable" magnetics are. :-(

LOL. At uni I learned this:

1st year: $V = LdI/dt$
2nd year: use opamp active filters
3rd year: use switched-cap filters
4th year: DSP

and that was it. Luckily about 2 months into my first engineering job designing motor controllers I went to a week-long Magnetics seminar by Rudy Severns. Smartest thing I ever did.

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Its interesting designing stuff here in NZ. If it is to be made locally, I try to replace magnetics with silicon as its cheaper. If it is made in China, the converse is true. my latest smps has a pair of coupled-inductor buck converters – I get 20dB less ripple by adding a tiny KoolMu core and 4 x 10uF 10V X7R caps. And I have far lower losses in the inductor, as I steer all the ripple current into one winding so the other sees 10Adc, and can thus be the biggest wire we can fit in the hole. yay.

I did an EMC consulting job 2 yrs ago in China, where the digital guys had run amok splitting up 0V planes with large 1uH 6A ferrite beads (inductors up to several MHz). We recently hired one of those guys, who has been told he will be stabbed repeatedly if he so much as touches an inductor. Good FPGA guy though :)

IMNSHO anything published by TAB books is a joke, suitable only for hobbyists who specifically dont want to know whats really going on.

Newnes was getting a simular reputation to TAB, although they (Newnes) came up with a new brand --- Elsevier --- that seems to have a slightly higher standard. (Although they did accept Tim Wescott's tome, but there's no accounting for taste. Just kidding, Tim!)

---Joel

I just finished reading a couple of great books:

- Guns, Rockets & Targets – a summary of US efforts during WWII
- Electromechanical Transducers & Wave filters. Brilliant!
- Exploding Wires vol. 1 & 2. Now I know how to set off nukes :)
- High Power optically activated solid state switches – brilliant! these are impressive, megavolt kilo- or mega-amp switches. Basically a honking great block of semiconductor with terminals at either end, which they thump with stupidly large laser pulses (10kW, that sort of thing), essentially mondo (mongo?) photodiodes. I want one! I wonder if I can trigger an IGBT with a laser? I should tear a module apart and try it....so many things to fiddle with, so few of them I get paid for :(

Cheers

Terry

PS glad you enjoyed my CAD post ;)

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