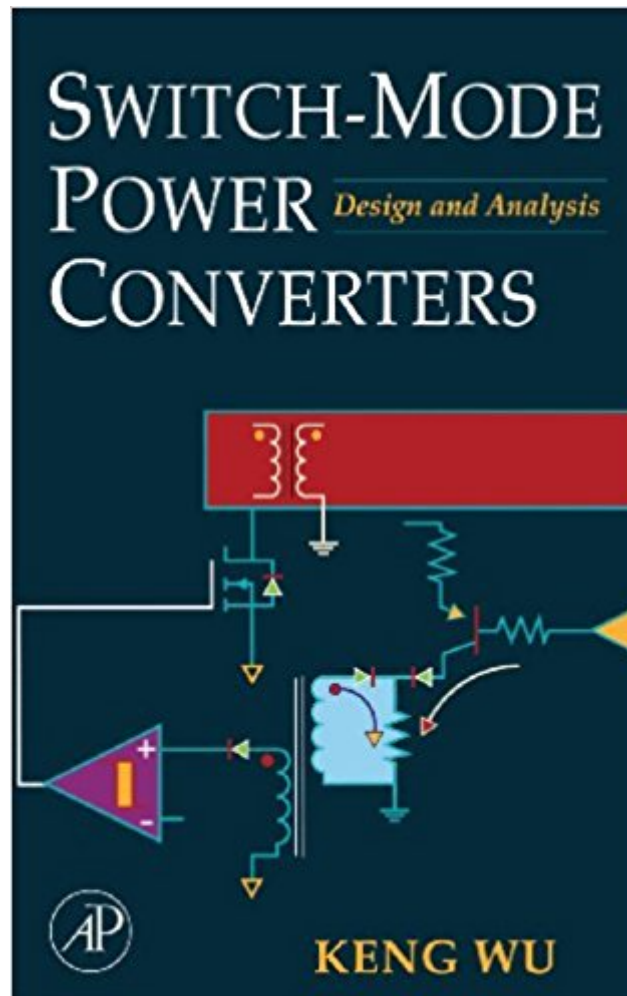




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Switch-Mode Power Converters: Design And Analysis



Synopsis

Switch-Mode Power Converters introduces an innovative, highly analytical approach to symbolic, closed-form solutions for switched-mode power converter circuits. This is a highly relevant topic to power electronics students and professionals who are involved in the design and analysis of electrical power converters. The author uses extensive equations to explain how solid-state switches convert electrical voltages from one level to another, so that electronic devices (e.g., audio speakers, CD players, DVD players, etc.) can use different voltages more effectively to perform their various functions. Most existing comparable books published as recently as 2002 do not discuss closed-loop operations, nor do they provide either DC closed-loop regulation equations or AC loop gain (stability) formulae. The author Wu, a leading engineer at Lockheed Martin, fills this gap and provides among the first descriptions of how error amplifiers are designed in conjunction with closed-loop bandwidth selection. **BENEFIT TO THE READER:** Readers will gain a mathematically rigorous introduction to numerous, closed-form solutions that are readily applicable to the design and development of various switch-mode power converters. Provides symbolic, closed-form solutions for DC and AC studies Provides techniques for expressing close-loop operation Gives readers the ability to perform closed-loop regulation and sensitivity studies Gives readers the ability to design error amplifiers with precision Employs the concept of the continuity of states in matrix form Gives accelerated time-domain, steady-state studies using Laplace transform Gives accelerated time-domain studies using state transition Extensive use of matrix, linear algebra, implicit functions, and Jacobian determinants Enables the determination of power stage gain that otherwise could not be obtained

Book Information

Hardcover: 408 pages

Publisher: Academic Press; 1 edition (October 25, 2005)

Language: English

ISBN-10: 0120887959

ISBN-13: 978-0120887958

Product Dimensions: 6 x 0.9 x 9 inches

Shipping Weight: 1.6 pounds (View shipping rates and policies)

Average Customer Review: 3.7 out of 5 stars 3 customer reviews

Best Sellers Rank: #3,951,587 in Books (See Top 100 in Books) #98 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics > Solid State #1190

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Customer Reviews

An innovative and analytical approach to Power Electronics!

Keng C. Wu, a native of Chiayi, Dalin, Taiwan, received a B.S. degree from Chiaotung University, Taiwan, in 1969 and a M.S. degree from Northwestern University, Evanston, Illinois in 1973. He was a lead member technical staff of Lockheed Martin, Moorestown, NJ; a well recognized expert in high reliability power supply, power systems, and power electronics product design, including all component selection, board layout, modeling, large scale system dynamic study, prototype, testing and specification verification; and an author of four books, Ã¢â –Å“Pulse Width Modulated DC-DC Converters” Jan. 1997; Ã¢â –Å“Transistor Circuits for Spacecraft Power System” Nov. 2002; Ã¢â –Å“Switch-mode Power Converters: Design and Analysis” Elsevier, Academic Press, Nov. 2005; Ã¢â –Å“Power Rectifiers, Inverters, and Converter” Nov. 2008. He also holds a dozen U.S. patents, was awarded Ã¢â –Å“Author of the Year” twice (2003 and 2006 Lockheed Martin), and presented a 3-hour educational seminar at IEEE APEC-2007.

Wu provides some of the most complete equations I have seen, including parasitics...that's useful. The price is high for what you get.

very good book. for those who interested in switch mode power converters this book analyse in deep mathematically and also by using graphs and schetimatic diagrams the explanation became better.

Not a beginners book. It reads like he he is writing his doctoral thesis. Many references to other works and you are expected to have them to understsnd some of the stuff herein.

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