Scott D. Sudhoff

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DESCRIPTION

Power Magnetic Devices

Discover a cutting-edge discussion of the design process for power magnetic devices

In the newly revised second edition of Power Magnetic Devices: A Multi-Objective Design Approach, accomplished engineer and author Dr. Scott D. Sudhoff delivers a thorough exploration of the design principles of power magnetic devices such as inductors, transformers, and rotating electric machinery using a systematic and consistent framework.

The book includes new chapters on converter and inverter magnetic components (including three-phase and common-mode inductors) and elaborates on characteristics of power electronics that are required knowledge in magnetics. New chapters on parasitic capacitance and finite element analysis have also been incorporated into the new edition. The work further includes:

• A thorough introduction to evolutionary computing-based optimization and magnetic analysis techniques
• Discussions of force and torque production, electromagnet design, and rotating electric machine design
• Full chapters on high-frequency effects such as skin- and proximity-effect losses, core losses and their characterization, thermal analysis, and parasitic capacitance
• Treatments of dc-dc converter design, as well as three-phase and common-mode inductor design for inverters
• An extensive open-source MATLAB code base, PowerPoint slides, and a solutions manual
Perfect for practicing power engineers and designers, *Power Magnetic Devices* will serve as an excellent textbook for advanced undergraduate and graduate courses in electromechanical and electromagnetic design.

ABOUT THE AUTHOR

**SCOTT D. SUDHOFF, PhD,** is a Professor of Electrical and Computer Engineering at Purdue University. He served as Editor-in-Chief of IEEE’s Transactions on Energy Conversion and IEEE’s Power and Energy Technology Systems Journal. He is an IEEE Fellow, recipient of the Veinott award, and co-author of the Wiley-IEEE Press title *Analysis of Electric Machinery and Drive Systems, Third Edition* (2013). Dr. Sudhoff also holds patents in the areas of solid-state distribution transformers, stability of power-electronics based systems, and novel electric machine design concepts.

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