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Electronic Devices on Discrete Components for Industrial and Power Engineering

EN-Genius Reviewer: Dennis L Feucht

by Vladimir Gurevich, Published by CRC Press

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Perhaps better titled *Discrete Electronics Devices for Industrial and Power Engineering*, this book, by a former Ukrainian professor at Kharkov Technical University and now an inventor at Israel Electric Corporation, fills topical gaps in the power-electronics literature. As electronics rushes towards ever higher levels of integration, some devices defy this trend and are covered in this book.

The introductory explanations of semiconductor devices begin at what I would consider a technician level, and are done well, with intuitively-appealing diagrams. The use of mathematics is sparse. What might appeal to an engineer in this book is the coverage of rare topics. Chapters on reed switches and high-voltage reed relays are hard to find elsewhere and contain information useful for design with numerous mechanical drawings that electronics engineers sometimes would like to have. For instance, the mounting of high-power devices in hockey-puck packages requires some mechanical involvement that the electronics engineer is usually well-equipped to do if given the requisite information. This book contributes to that end.

Semiconductor function modules get a long chapter, with numerous circuit illustrations of commercial modules. As I page through this chapter, asking myself what's in it for the engineer, it is representative of several chapters that provide a good starting point for those who have little to no familiarity with this odd corner of electronics technology. It is not uncommon to find electromechanical relays used to protect semiconductor circuitry, though it is an awkward and unappealing, yet realistic, subject. Somebody's got to cover it. This book has two chapters on it, done with those abhorrent European-style circuit symbols. Despite this, the English (except for the title) is fluent. Perhaps CRC Press should get some credit (except for the title) for editing the grammar in this book, allowing of course for the possibility that Dr Gurevich himself has an impeccable command of the Anglian tongue. And despite the technician-oriented coverage of much of the content, the chapter on protective relays drew me in, with its many diagrams illustrating interesting circuit ideas.

Arc protectors, pulse-current transducers, and other oddities complete the first 224 pages of the book. The rest (approximately the last half of the book) consist of appendices which are parts specifications. These are commercially available parts, with part numbers, that can be found on the websites of their manufacturers or in paper data books and need not be reprinted in a book: albeit in a useful form, condensed down to the essential parameters.

This book is for both technicians and engineers. It has more photos than many technical books because many of these large power components are

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mechanical in a nontrivial sense. Wiring such circuits is more like working on an automobile. Wrenches replace needle-nose pliers and hacksaws replace diagonal cutters.

All told, if you have some cash burning a hole in your bank statement, or need to get rid of some government funds to justify the same appropriation for your department next year, this book might be good to have tucked away somewhere on the shelf. It is best suited for those doing high-power power electronics that overlaps with electrical (in contrast to electronics) engineering, or for any power-electronics engineer who does not want to go through life not knowing about some lesser-known aspects of the craft.

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