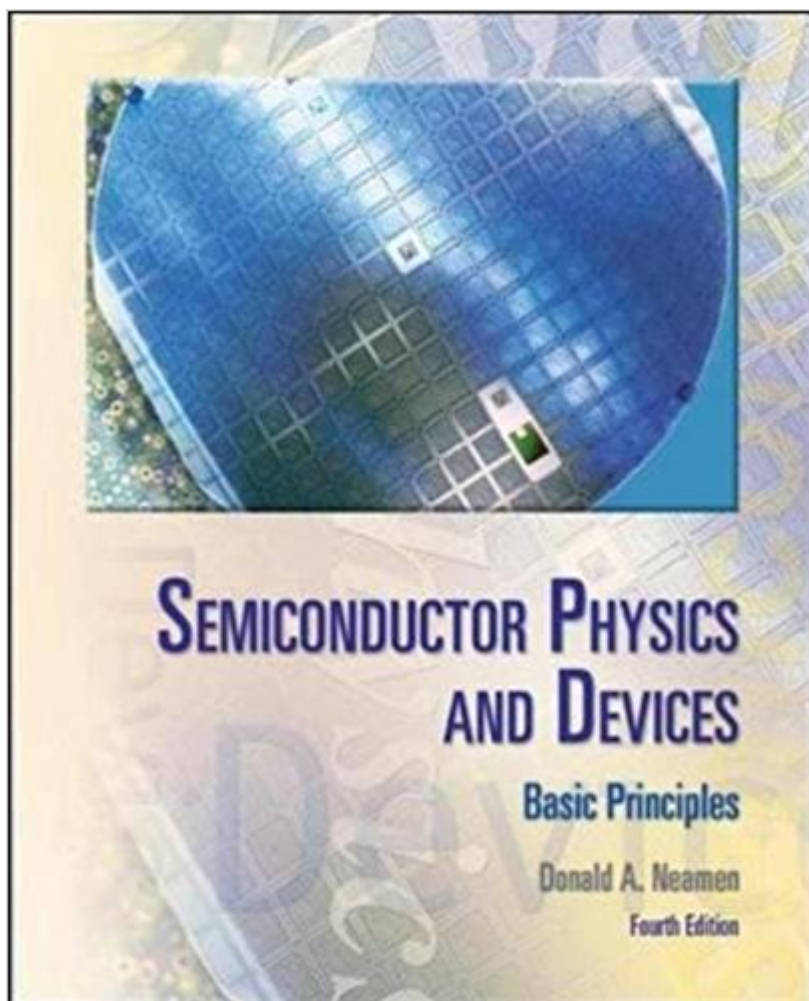


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# Semiconductor Physics And Devices: Basic Principles



## Synopsis

With its strong pedagogy, superior readability, and thorough examination of the physics of semiconductor material, *Semiconductor Physics and Devices*, 4/e provides a basis for understanding the characteristics, operation, and limitations of semiconductor devices. Neamen's *Semiconductor Physics and Devices* deals with the electrical properties and characteristics of semiconductor materials and devices. The goal of this book is to bring together quantum mechanics, the quantum theory of solids, semiconductor material physics, and semiconductor device physics in a clear and understandable way.

## Book Information

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## Customer Reviews

There are two ways to teach semiconductor physics. The first is to start from first principles (as much as is possible) of quantum mechanics, statistical mechanics, etc., and derive for the reader the basic relationships and equations that the rest of the text relies on. The second is to gloss over the underlying fundamentals and move straight into practical applications. This author takes the first approach, and his text smells more of mathematical formalism than engineering. If that works for you, then fantastic, but fortunately the text does not lean too heavily on the reader having such a background, as most of the material can be learned with just the results the author derives.

I'm currently using this book for a class in solid state electronics and I feel this covers the topics very well. There are lots of examples throughout the book with problems given right after them, which are

similar to the examples. I really liked this because I felt that it gives readers an opportunity to practice and understand the material better as they read through it. So far we have found one mistake in one of the problems, but its just a typo and its easy to figure out what's meant. I've heard that the previous editions had several mistakes that have been corrected in this one, the 4th edition, so if you can afford it, you might want to consider getting this one. I haven't read the whole book, and don't intent to, but from what I've read so far, I've felt that everything was clear and flowed well. There are derivations given for most of the formulas used in the book. I usually skip over them, but if you'd like to study them, they're there.

Too advanced for me. I have no electronics background

This book was part of my university studies and it was an absolutely wonderful book to learn from. It also makes a great resource tool for those who need the fundamental knowledge of quantum mechanics and energy diagrams for semiconductor devices. The book is well written and consists of many supporting diagrams which help aid in the understanding of the descriptions. You learn about basic quantum mechanics, simple material science and device physics (which includes band diagrams of different materials from homogeneous to heterojunctions).I definitely recommend this book to people who seek interest in this area!

If you get stuck with a bad professor for an introductory semiconductor physics class this book would help I also recommend reading other books on the subject by the same author.

Very densely written, really high level stuff and if you are trying to learn 'basic principles' you will have a very hard time with this textbook. Luckily a lot of the answers are on Chegg.

Quality of book is good as new. Same covered as classroom book. Very great price.

Good value

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