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Semiconductor Physics And Devices

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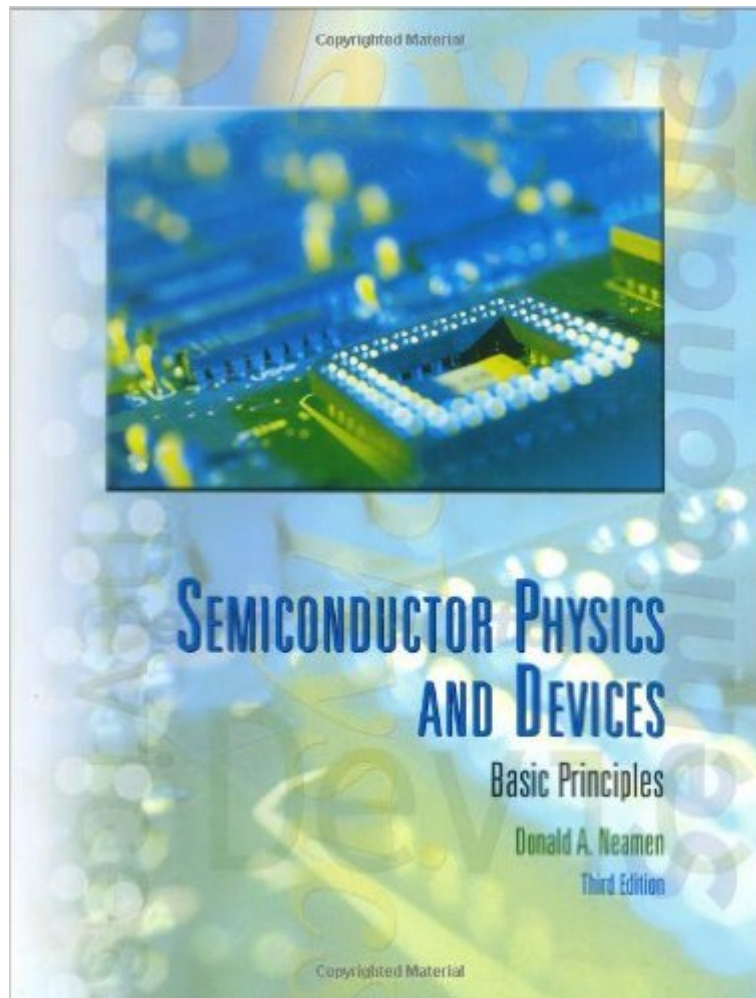
Synopsis

Neamen's Semiconductor Physics and Devices, Third Edition. 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

This is a really good introduction to the physics of semiconductor devices. It starts right from the basics of molecular structure and quantum mechanics and builds up from there. The only prerequisites needed are high school physics and chemistry, first-year calculus (second-year would help, but definitely isn't necessary), and basic knowledge of electronic circuits (knowledge of how diodes and transistors work in a circuit is not at all necessary).In general this book proceeds in a logical fashion, neither too fast nor too slow. Sufficient detail is given to understand the topics quite fully, yet the reader isn't overwhelmed by detail. Important equations and results are highlighted and sections are divided and organized well. Many examples are given as well as problems after each section with answers provided (but no worked-through solutions). Chapter summaries are among the best I've ever seen in a textbook, and they are supplemented with a Definitions section and Checkpoint section (which is a list of questions meant to make the reader think about the chapter).Something I don't like about the book is that it emphasizes "plug-and-chug" in most of its

problems and examples. By this I mean that all that is needed to solve the problem is to find the right equation, put in the numbers, and produce a solution, often without much thought involved at all. Very few problems require a strong understanding of the material, and actually most would be quite possible for someone who knows nothing about the material by just making an educated guess as to which equation in the chapter would be needed to solve a particular problem.

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