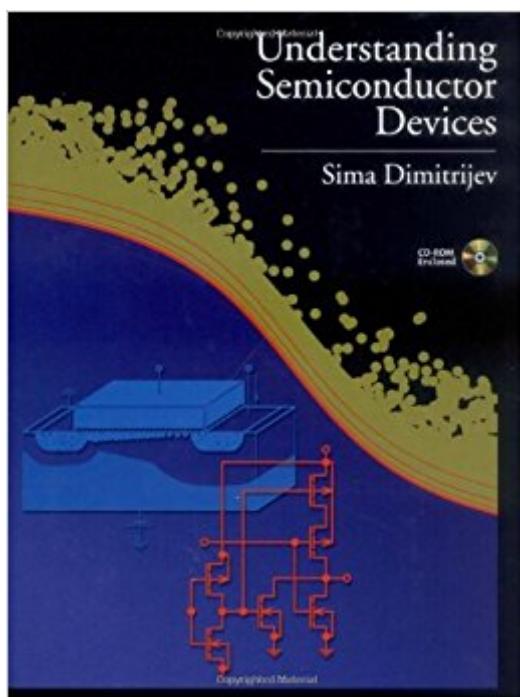


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# Understanding Semiconductor Devices (The Oxford Series In Electrical And Computer Engineering)



## **Synopsis**

Ideal for undergraduate and beginning graduate students in electrical engineering, Understanding Semiconductor Devices provides a solid grounding in both fundamental principles and practical skills. The text features intuitive explanations and a motivating "electronics-to-physics" approach that progresses from basic to more abstract concepts. It includes intriguing and diverse problems, review questions, and worked out examples.  $\rightarrow$  Part I: The Fundamentals introduces students to essential material (semiconductor theory, diodes, MOSFETs, and BJTs) without assuming extensive prerequisite knowledge.  $\rightarrow$  Part II: Advanced Topics covers the specifics of deep submicron MOSFET, photonic, microwave, and power devices and introduces advanced technologies, device reliability, and quantum mechanics. Bridging the gap between theory and practice, Understanding Semiconductor Devices incorporates the "nuts and bolts" of SPICE (models and parameters) and provides links between theoretical principles and real-life issues like reliability and device parameter measurement.

## **Book Information**

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## **Customer Reviews**

Ideal for undergraduate and beginning graduate students in electrical engineering, "Understanding Semiconductor Devices" provides a solid grounding in both fundamental principles and practical skills. The text features intuitive explanations and a motivating "electronics-to-physics" approach

that progresses from basic to more abstract concepts. It includes intriguing and diverse problems, review questions, and worked out examples. -"Part I: The Fundamentals" introduces students to essential material (semiconductor theory, diodes, MOSFETs, and BJTs) without assuming extensive prerequisite knowledge. -"Part II: Advanced Topics" covers specifics of deep submicron MOSFET, photonic, microwave, and power devices and introduces advanced technologies, device reliability, and quantum mechanics. Bridging the gap between theory and practice, "Understanding Semiconductor Devices" incorporates the "nuts and bolts" of SPICE (models and parameters) and provides links between theoretical principles and real-life issues like reliability and device parameter measurement. CD Supplements: "Interactive MATLAB Animations" enables a quicker and deeper introduction to and comprehension of underlying theoretical concepts. Directly supports many explanations and graphs from the text. "Computer Exercises Manual: Device Parameters in SPICE" illustrates the effects and meaning of the individual device parameters described in the text. Includes 90 pages of exercises, complete solutions, and PSPICE instructions.

Sima Dimitrijev is at Griffith University.

Excellent book!

I am extremely happy to meet a most pedagogical textbook on device physics. His explanation is very comprehensive and illustrative. Drawing is a fantastic and explanation is intuitive and based on basic physics and mathematics thus it's very easy and comfortable to follow the book. This book is really recommended for undergraduate.

This book is excellent. Every concept is clearly explained, pictures support every argument (I want to emphasise this: amazing). I have read many books about semiconductors, and again this ones clarified just everything...The understanding that you get about Semiconductors through this book is just amazing. Very helpful for beginners and even better when you need to review some concepts that were poorly explained or badly learned in the past. Just excellent Juan

I have been using this book for my Electric Devices course. It is a really, really good book. I would very much recommend it to any professors to use it as their textbook for their class. It explains concepts very clearly, and easy to understand. A+ to the author!

As a graduate student going through the book by myself I found the content really useful as well as very understandable. I would highly recommend this book to anyone wishing to learn more about the basic as well as the more complex principles of semiconductor devices.

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