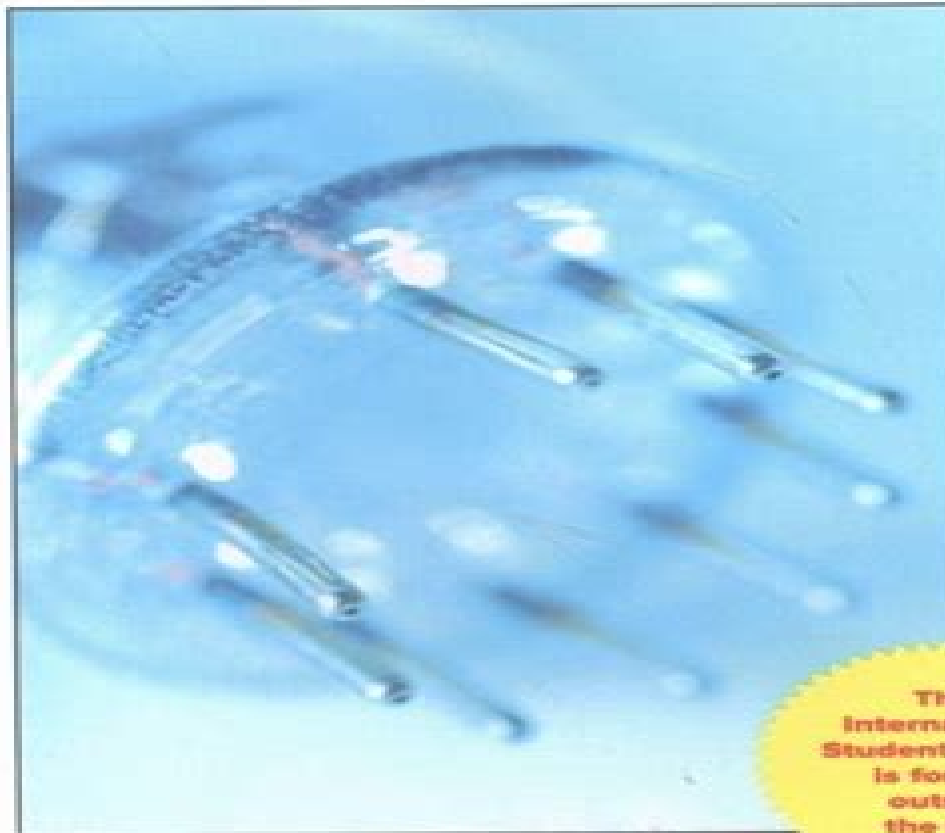


Betty-Lise Anderson / Richard Anderson

# Fundamentals of Semiconductor Devices

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# Fundamentals Of Semiconductor Devices

**Sabine Zange**



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*Fundamentals of Power Semiconductor Devices* B. Jayant Baliga, 2008-09-05 *Fundamentals of Power Semiconductor Devices* provides an in depth treatment of the physics of operation of power semiconductor devices that are commonly used by the power electronics industry Analytical models for explaining the operation of all power semiconductor devices are shown The treatment here focuses on silicon devices but includes the unique attributes and design requirements for emerging silicon carbide devices The book will appeal to practicing engineers in the power semiconductor device community

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semiconductor physicists will find this book useful and I recommend it to them Contemporary Physics Offers much new material an extensive appendix about the important and by now well established deep center known as the DX center additional problems and the solutions to over fifty of the problems at the end of the various chapters Semiconductor Measurements Robert Pierret,1991-01-01 *An Introduction to Semiconductor Devices* Donald A Neamen,2006 An Introduction to Semiconductor Devices by Donald Neamen is designed to provide a fundamental understanding of the characteristics operations and limitations of semiconductor devices In order to meet this goal the book brings together explanations of fundamental physics of semiconductor materials and semiconductor device physics This new text provides an accessible and modern approach to the material Aimed at the undergraduate Neamen keeps coverage of quantum mechanics to a minimum and labels the most advanced material as optional MOS transistors are covered before bipolar transistors to reflect the dominance of MOS coverage in today s world BOOK JACKET **Semiconductor Device Fundamentals** Robert F. Pierret,1996 Introduces and explains the basic terminology models properties and concepts associated with semiconductors and semiconductor devices provides detailed insight into the internal workings of the building block device structures such as the pn junction diode Schottky diode BJT and MOSFET presents information about a wide variety of additional devices including solar cells LEDs HBTs and modern field effect devices systematically develops the analytical tools needed to solve practical device problems *Fundamentals of semiconductor devices* Joseph Lindmayer,1965 *Semiconductor Devices* Jasprit Singh,2000-08-03 This introductory text designed for the first course in semiconductor physics presents a well balanced coverage of semiconductor physics and device operation and shows how devices are optimized for applications The text begins with an exploration of the basic physical processes upon which all semiconductor devices diodes transistor light emitters and detectors are based Topics such as bandstructure effective masses holes doping carrier transport and lifetimes are discussed Next the author focuses on the operation of the important semiconductor devices along with issues relating to the optimization of device performance Issues such as how doping device dimensions and parasitic effects influence device operation are also included The book is appropriate for the following courses Device Physics Semiconductor Devices Device Electronics Physics of Semiconductor Devices Integrated Circuit Devices Device Electronics Solid State Devices **Fundamentals of Semiconductor Devices** ,2006 Fundamentals of Semiconductor Devices is a comprehensively written text which deals with both qualitative and quantitative analysis of semiconductor theory devices This book is perfect for the first course on Semiconductor Physics and Devices at th **Semiconductor Fundamentals** Robert F. Pierret,1983 **Fundamentals of Semiconductor Processing Technology** Badih El-Kareh,Lou N. Hutter,2012-12-06 The drive toward new semiconductor technologies is intricately related to market demands for cheaper smaller faster and more reliable circuits with lower power consumption The development of new processing tools and technologies is aimed at optimizing one or more of these requirements This goal can however only be achieved by a

concerted effort between scientists engineers technicians and operators in research development and manufacturing It is therefore important that experts in specific disciplines such as device and circuit design understand the principle capabilities and limitations of tools and processing technologies It is also important that those working on specific unit processes such as lithography or hot processes be familiar with other unit processes used to manufacture the product Several excellent books have been published on the subject of process technologies These texts however cover subjects in too much detail or do not cover topics important to modern technologies This book is written with the need for a bridge between different disciplines in mind It is intended to present to engineers and scientists those parts of modern processing technologies that are of greatest importance to the design and manufacture of semiconductor circuits The material is presented with sufficient detail to understand and analyze interactions between processing and other semiconductor disciplines such as design of devices and circuits their electrical parameters reliability and yield

Introduction to Semiconductor Devices Kevin F. Brennan, 2005-02-03 From semiconductor fundamentals to semiconductor devices used in the telecommunications and computing industries this 2005 book provides a solid grounding in the most important devices used in the hottest areas of electronic engineering The book includes coverage of future approaches to computing hardware and RF power amplifiers and explains how emerging trends and system demands of computing and telecommunications systems influence the choice design and operation of semiconductors Next the field effect devices are described including MODFETs and MOSFETs Short channel effects and the challenges faced by continuing miniaturisation are then addressed The rest of the book discusses the structure behaviour and operating requirements of semiconductor devices used in lightwave and wireless telecommunications systems This is both an excellent senior graduate text and a valuable reference for engineers and researchers in the field

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