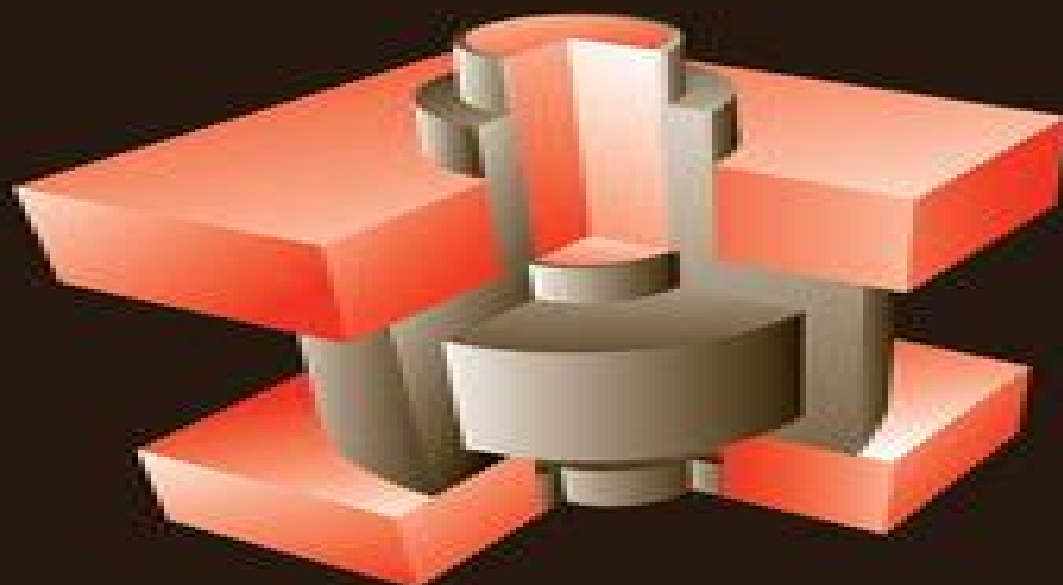


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SEMICONDUCTOR DEVICES: PHYSICS AND TECHNOLOGY, 2ND ED S.M.Sze, 2008-06 Market_Desc Electrical Engineers Scientists Special Features Provides strong coverage of all key semiconductor devices Includes basic physics and material properties of key semiconductors Covers all important processing technologies About The Book This book is an introduction to the physical principles of modern semiconductor devices and their advanced fabrication technology It begins with a brief historical review of major devices and key technologies and is then divided into three sections semiconductor material properties physics of semiconductor devices and processing technology to fabricate these semiconductor devices

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Semiconductor Devices Simon M. Sze, Ming-Kwei Lee, 2012-08-07 The awaited revision of Semiconductor Devices Physics and Technology offers more than 50% new or revised material that reflects a multitude of important discoveries and advances in device physics and integrated circuit processing Offering a basic introduction to physical principles of modern semiconductor devices and their advanced fabrication technology the third edition presents students with theoretical and practical aspects of every step in device characterizations and fabrication with an emphasis on integrated circuits Divided into three parts this text covers the basic properties of semiconductor materials emphasizing silicon and gallium arsenide the physics and characteristics of semiconductor devices bipolar unipolar special microwave and photonic devices and the latest processing technologies from crystal growth to lithographic pattern transfer *Semiconductor Devices* Simon Min Sze, 2002

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underlying physics of semiconductor devices It begins with a review of basic solid state physics then goes on to describe the properties of semiconductors including energy bands the concept of effective mass carrier concentr Modern Semiconductor Device Physics S. M. Sze,1998 An in depth up to date presentation of the physics and operational principles of all modern semiconductor devices The companion volume to Dr Sze s classic Physics of Semiconductor Devices Modern Semiconductor Device Physics covers all the significant advances in the field over the past decade To provide the most authoritative state of the art information on this rapidly developing technology Dr Sze has gathered the contributions of world renowned experts in each area Principal topics include bipolar transistors compound semiconductor field effect transistors MOSFET and related devices power devices quantum effect and hot electron devices active microwave diodes high speed photonic devices and solar cells Supported by hundreds of illustrations and references and a problem set at the end of each chapter Modern Semiconductor Device Physics is the essential text reference for electrical engineers physicists material scientists and graduate students actively working in microelectronics and related fields *Physics and Technology of Semiconductor Devices* A. S. Grove,2000 **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 **Electronic and Optoelectronic Properties of Semiconductor Structures** Jasprit Singh,2007-03-26 A graduate textbook presenting the underlying physics behind devices that drive today s technologies The book covers important details of structural properties bandstructure transport optical and magnetic properties of semiconductor structures Effects of low dimensional physics and strain two important driving forces in modern device technology are also discussed In addition to conventional semiconductor physics the book discusses self assembled structures mesoscopic structures and the developing field of spintronics The book utilizes carefully chosen solved examples to convey important concepts and has over 250 figures and 200 homework exercises Real world applications are highlighted throughout the book stressing the links between physical principles and actual devices Electronic and Optoelectronic Properties of Semiconductor Structures provides engineering and physics students and practitioners with complete and coherent coverage of key modern semiconductor concepts A solutions manual and set of viewgraphs for use in lectures are available for instructors from solutions cambridge org **Devices for Integrated**

Circuits H. Craig Casey, 1998-12-14 This book develops the device physics of the Si and III V compound semiconductor devices used in integrated circuits Important equations are derived from basic physical concepts The physics of these devices are related to the parameters used in SPICE Terminology is intended to prepare students for reading technical journals on semiconductor devices This text is suitable for first year graduate students and seniors in Electrical Engineering graduate students in Material Science and Chemical Engineering interested in semiconductor materials Computer Science students interested in custom VLSI design and professionals in the semiconductor industry

Semiconductor Power Devices Josef Lutz, Heinrich Schlangenotto, Uwe Scheuermann, Rik De Doncker, 2018-02-16 Halbleiter Leistungsbaulemente sind das Kernstück der Leistungselektronik Sie bestimmen die Leistungsfähigkeit und machen neuartige und verlustarme Schaltungen erst möglich In dem Band wird neben den Halbleiter Leistungsbaulementen selbst auch die Aufbau und Verbindungstechnik behandelt von den physikalischen Grundlagen und der Herstellungstechnologie über einzelne Bauelemente bis zu thermomechanischen Problemen Zerstörungsmechanismen und Störungseffekten Die 2. bearbeitete Auflage berücksichtigt technische Neuerungen und Entwicklungen

Electronic Materials Handbook, 1989-11-01 Volume 1 Packaging is an authoritative reference source of practical information for the design or process engineer who must make informed day to day decisions about the materials and processes of microelectronic packaging Its 117 articles offer the collective knowledge and wisdom and judgement of 407 microelectronics packaging experts authors co authors and reviewers representing 192 companies universities laboratories and other organizations This is the inaugural volume of ASMAs all new Electronic Materials Handbook series designed to be the Metals Handbook of electronics technology In over 65 years of publishing the Metals Handbook ASM has developed a unique editorial method of compiling large technical reference books ASMAs access to leading materials technology experts enables to organize these books on an industry consensus basis Behind every article is an author who is a top expert in its specific subject area This multi author approach ensures the best most timely information throughout Individually selected panels of 5 and 6 peers review each article for technical accuracy generic point of view and completeness Volumes in the Electronic Materials Handbook series are multidisciplinary to reflect industry practice applied in integrating multiple technology disciplines necessary to any program in advanced electronics Volume 1 Packaging focusing on the middle level of the electronics technology size spectrum offers the greatest practical value to the largest and broadest group of users Future volumes in the series will address topics on larger integrated electronic assemblies and smaller semiconductor materials and devices size levels

Bipolar transistor and MOSFET device models Kunihiro Suzuki, 2016-03-02 Continuous efforts to develop new semiconductor devices enable device manufacturers to make significant improvements in the information technology sector Bipolar transistors and MOSFETs are two special electronic device components that are used to construct very large scale integrated VLSI circuits allowing engineers to create powerful machines that are power efficient VLSI device characterization depends largely on semiconductor device

modeling which is based on physical and electronic principles Bipolar transistor and MOSFET device models is a textbook that describes basic functions and characterization models of these two types of transistors Readers will learn about the processes employed to derive these models which will help them understand the modeling process Chapters in this text cover the fundamentals of semiconductor devices the pn junction high and low injection region models for bipolar transistors and different MOSFET models such as channel doping models and gated SOI models Key features of this book include step by step easy to understand presentation of model information on innovative semiconductor devices an overview of model derivation assumptions approximations and limitations novel experimental information on semiconductor parameters such as gate fringe capacitance silicided source drain resistance and threshold voltage shift Bipolar transistor and MOSFET device models is an essential learning resource for advanced students and professional engineers involved in semiconductor device modeling and fabrication divisions

Reviewing **Semiconductor Devices Physics And Technology**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is really astonishing. Within the pages of "**Semiconductor Devices Physics And Technology**," an enthralling opus penned by a very acclaimed wordsmith, readers set about an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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