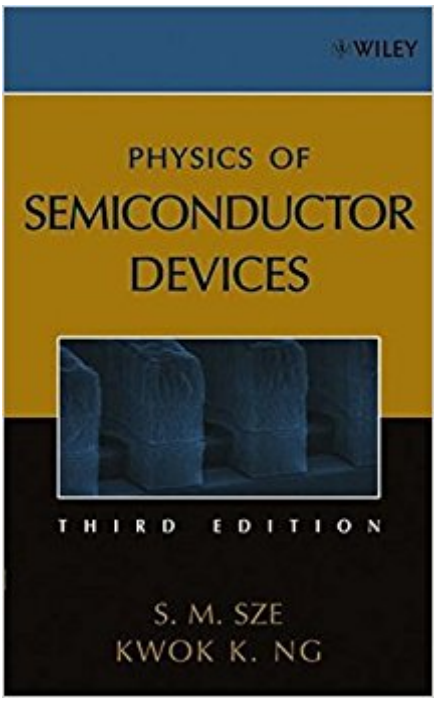
# Physics Of Semiconductor Devices



## Synopsis

The Third Edition of the standard textbook and reference in the field of semiconductor devices This classic book has set the standard for advanced study and reference in the semiconductor device field. Now completely updated and reorganized to reflect the tremendous advances in device concepts and performance, this Third Edition remains the most detailed and exhaustive single source of information on the most important semiconductor devices. It gives readers immediate access to detailed descriptions of the underlying physics and performance characteristics of all major bipolar, field-effect, microwave, photonic, and sensor devices. Designed for graduate textbook adoptions and reference needs, this new edition includes:  A complete update of the latest developments New devices such as three-dimensional MOSFETs, MODFETs, resonant-tunneling diodes, semiconductor sensors, quantum-cascade lasers, single-electron transistors, real-space transfer devices, and more Materials completely reorganized Problem sets at the end of each chapter All figures reproduced at the highest quality  Physics of Semiconductor Devices, Third Edition offers engineers, research scientists, faculty, and students a practical basis for understanding the most important devices in use today and for evaluating future device performance and limitations. Ã Â A Solutions Manual is available from the editorial department.

## Book Information

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## Customer Reviews

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S. M. Sze received his PhD in electrical engineering from Stanford University. He was with Bell Telephone Laboratories from 1963Ã¢â ¬â œ1989, joining the faculty of the Department of Electronics Engineering, National Chiao Tung University (NCTU) in 1990. Dr. Sze is currently Distinguished Chair Professor of NCTU and has served as a visiting professor to many academic institutions. He has made fundamental and pioneering contributions to semiconductor devices; of particular importance is his coinvention of nonvolatile semiconductor memory such as flash memory and EEPROM. Dr. Sze has authored, coauthored, or edited over 200 technical papers and twelve books. His book Physics of Semiconductor Devices (Wiley) is one of the most cited works in contemporary engineering and applied science publications (over 15,000 citations from ISI Press). Dr. Sze is the recipient of numerous awards and holds such titles as Life Fellow of the IEEE, Academician of the Academia Sinica, and member of the US National Academy of Engineering. Kwok K. Ng received his PhD from Columbia University in 1979 and BS from Rutgers University in 1975, both in electrical engineering. He joined Bell Laboratories of AT&T in Murray Hill, New Jersey, in 1980, which spun off as part of Lucent Technologies in 1996. He became affiliated with Agere Systems in Allentown, Pennsylvania, as the microelectronics unit became independent in 2001. He has been with MVC in San Jose, California, since 2005. Dr. Ng has also held positions as editor of IEEE Electron Device Letters and liaison to IEEE Press. He is the author of the Complete Guide to Semiconductor Devices, Second Edition (Wiley).

For people new to semiconductor devices, some of the concepts in the book might be a bit hard to understand, because it’s one of those books that is easier to comprehend with some fundamentals in solid state physics and basic device transport knowledge. It’s easier for use as a reference book if you want to flip through for reviewing semiconductor concepts. It’ll give you a general overview of the device principles for all the basic device types that you see right now for current technology, so it is useful too for brushing up on fundamental semiconductor knowledge.

great

Hello,I’ve read several books on Semicond. Physics (both in English and Italian) and I suggest to all lazy Italian guys, like I am, to save time and buy this book, which is as much as long the best (easy to read; clear to understand; deep enoguh; both theory and practice; well organized; general overview) textbook in Semiconductor Physics I’ve ever read!A.

This is a fairly good book; however, it is more like a 3rd edition of the Complete Guide to Semiconductor Devices by the second author Ng than the expected updated edition of Sze’s classic. Many of the figures are the same as in Ng’s book, and although more topics are covered than in Sze’s 2nd Ed, the theory of what is covered is often less in-depth. This is a nice book to have, especially if you do not have a copy of Ng’s book, but I would not get rid of your 2nd edition of Sze yet. I am giving it 3 stars not because it is a bad book, but I truly believe there is a great deal of similarity between this 3rd Ed of Sze and the 2nd Ed of Ng’s book, and I feel a little disappointed.

This is a great book for intermediate and advanced physics of semiconductor devices. I would caution against the use of of the term ’physics’, though, because it usually restricts the physics aspect to energy band diagrams. There is some talk of E-k digrams, but assumes prior exposure to them. There are better books for the physics and E-k diagrams. It does a great job describing many different types of advanced semiconductor devices and their applications. For the beginner, though, I recommend Pierret’s "Semiconductor Device Fundamentals". It’s not as current as Sze, but gives you a much better foundation of pn junctions, BJTs, and MOSFETs.

terrible book. hard to read, makes little sense and the font so faint you can barely read.

ok, but the quality is not that good. the paper smells bad but the printing is fine. But anyway, this

book is the most classical one for semiconductor devices.

I have used this book for two of my graduate level semiconductor courses. We use chapter 1 to chapter 6 extensively. It is a great book to have because you can find everything you need on the fundamentals. However, if you do not have any backgrounds in semiconductor this is probably not the book for you.