



Semiconductor Devices: Physics and Technology International Student Version (Third Edition)

By Ming-Kwei Lee, Simon Sze

Wiley India Pvt. Ltd, 2015. Softcover. Book Condition: New. 3rd edition. 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. Semiconductor Physics Semiconductor Devices Semiconductor Technology Table of Contents Preface Acknowledgments Chapter 0 1 Introduction 0.1 Semiconductor Devices 0.2 Semiconductor Technology Part I Semiconductor Physics Chapter 1 Energy Bands and Carrier Concentration in Thermal Equilibrium 1.1 Semiconductor Materials 1.2 Basic Crystal Structures 1.3 Valence Bonds 1.4 Energy Bands 1.5 Intrinsic Carrier Concentration 1.6 Donors and Acceptors Chapter 2 Carrier Transport Phenomena 2.1 Carrier Drift 2.2 Carrier Diffusion 2.3 Generation and Recombination Processes 2.4 Continuity Equation 2.5 Thermionic Emission Process 2.6 Tunneling Process 2.7 Space-Charge Effect 2.8 High-Field Effects Part II Semiconductor Devices Chapter 3 p-n Junction 3.1 Thermal Equilibrium Condition 3.2 Depletion Region 3.3 Depletion Capacitance 3.4 Current-Voltage Characteristics 3.5 Charge Storage and Transient Behavior 3.6 Junction Breakdown 3.7 Heterojunction Chapter 4 Bipolar Transistors and Related Devices 4.1 Transistor Action 4.2 Static Characteristics of Bipolar Transistors...

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