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Sommario/riassunto

This book presents the latest developments in semiconducting materials and devices, providing up-to-date information on the science, processes, and applications in the field. A wide range of topics are covered, including optoelectronic devices, metal–semiconductor junctions, heterojunctions, MISFETs, LEDs, semiconductor lasers, photodiodes, switching diodes, tunnel diodes, Gunn diodes, solar cells, varactor diodes, IMPATT diodes, and advanced semiconductors. Detailed attention is paid to advanced and futuristic materials. In addition, clear explanations are provided of, for example, electron theories, high-field effects, the Hall effect, transit-time effects, drift and diffusion, breakdown mechanisms, equilibrium and transient conditions, switching, and biasing. The book is designed to meet the needs of undergraduate engineering students and will also be very useful for postgraduate students; it will assist in preparation for examinations at colleges and universities and for other examinations in engineering. Practice questions are therefore presented in both essay and multiple choice format, and many solved examples and unsolved problems are included.