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Nota di contenuto	Nitride Semiconductor Devices: Fundamentals and Applications; Contents; Preface; 1 General Properties of Nitrides; 1.1 Crystal Structure of Nitrides; 1.2 Gallium Nitride; 1.3 Aluminum Nitride; 1.4 Indium Nitride; 1.5 AlGa _n N Alloy; 1.6 InGa _n N Alloy; 1.7 AlIn _n N Alloy; 1.8 InAlGa _n N Quaternary Alloy; 1.9 Electronic Band Structure and Polarization Effects; 1.9.1 Introduction; 1.9.2 General Strain Considerations; 1.9.3 k-p Theory and the Quasicubic Model; 1.9.4 Temperature Dependence of Wurtzite GaN Bandgap; 1.9.5 Sphalerite (Zincblende) GaN; 1.9.6 AlN; 1.9.6.1 Wurtzite AlN; 1.9.6.2 Zincblende AlN 1.9.7 InN 1.10 Polarization Effects; 1.10.1 Piezoelectric Polarization; 1.10.2 Spontaneous Polarization; 1.10.3 Nonlinearity of Polarization; 1.10.3.1 Nonlinearities in Piezoelectric Polarization; 1.10.4 Polarization in Heterostructures; 1.10.4.1 Ga-Polarity Single AlGa _n N-GaN Interface; 1.10.4.2 Polarization in Quantum Wells; 1.11 Nonpolar and Semipolar Orientations; Further Reading; 2 Doping: Determination of Impurity and Carrier Concentrations; 2.1 Introduction; 2.2 Doping; 2.3 Formation

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Sommario/riassunto

This book gives a clear presentation of the necessary basics of semiconductor and device physics and engineering. It introduces readers to fundamental issues that will enable them to follow the latest technological research. It also covers important applications, including LED and lighting, semiconductor lasers, high power switching devices, and detectors. This balanced and up-to-date treatment makes the text an essential educational tool for both advanced students and professionals in the electronics industry.
