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Sommario/riassunto

The Lubistor (lateral, unidirectional, bipolar-type insulated-gate transistor) is a transistor-like device invented by the author in 1982. The main application of the device is as an electrostatic discharge protection device in SOI (silicon-on-insulator) circuits used in IBM and AMD microprocessors. SOI structures are believed to have excellent potential in high-temperature electronics. No comprehensive description of the physics and possible applications of the Lubistor can be found in a single source even though the Lubistor is already being used in SOI LSI. The book provides, for the first time, a comprehensive understanding of the physics of the Lubistor. . Advanced level consolidation of the technology, physics and design aspects of silicon-on-insulator (SOI) Lubistors. Written by the inventor of the Lubistor, this volume describes the technology and the background physics comprehensively to enable readers to understand the physics and applications of the device. The first book devoted to the Lubistor transistor, presently being utilized in electrostatic discharge (ESD) applications in SOI technology, a growing market for semiconductor devices and advanced technologies. Approaches the topic in a systematic manner, from physics-based physical theory, through to modeling, and finally to circuit applications. Recent progress on device applications using Lubistors is addressed and future prospects are also discussed in-depth. Reviews and summaries of semiconductor physics and related mathematics are described for the convenience of readersThe book is designed for device and circuit engineers, researchers, as well as postgraduate and graduate students in electrical engineering courses.