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For courses in theory and the manufacture of integrated circuits. It is devoted exclusively to processing, and is emphasized by careful explanations, clear, simple language and numerous fully solved problems of the example. This work involves minimal knowledge of the integrated circuits and terminal behavior of electronic components such as resistors, diodes, and MOS and bipolar transistors. Presented features Introduction to the basic processes common to all IC technologies - provides a basis for understanding more advanced processing and what can and cannot be achieved by producing integrated circuits. The main changes in the second edition of this text include new or expanded coverage of lithographs and exposure systems, trenches of insulation, chemical, mechanical polishing, small compounds, expansion of diffusion, copper processes of Damascene, and the modeling process. Added a new chapter (Chapter 11) on MEM. Content Table (NOTE: Each chapter is completed by summary, links, and problems.) Foreword. 1. Review of microelectronic manufacturing. A historical perspective. Overview of monolithic processes and manufacturing structures. Metal-oxide-semiconductor (MOS) processes. Basic bipolar treatment. Safety. 2. Lithography. Photographic process. Etching techniques. Making a photomask. Exposure systems. Sources of exposure. Optical and electron microscopy. Next Reading. 3. Thermal silicon oxidation. The oxidation process. Simulation of oxidation. Factors influencing the level of oxidation. Dopant redistribution during oxidation. The masking properties of silicon dioxide. Oxidation technology. The quality of the oxide. Selective oxidation and the formation of a small trench. Characteristics of the thickness of oxide. Process modeling. 4. Diffusion. The diffusion process. Mathematical model of diffusion. Diffusion factor. Consistent diffusion. Solid strength limits. Connection formation and characteristic. Resistance to the sheet. Measuring the profile of a generation-deepness and impulsiveness. Simulation of diffusion. Diffusion systems. Gettering. 5. Implantation of ions. Implantation technology. Mathematical model of ion implantation. Selective implantation. The depth of the connection and the resistance of the sheet. Channeling, lattice damage and Anneal. Small implantation. Source Listing. 6. Film Deposition. Evaporation. Spraying. Chemical vapor deposition. Epitaxial. Next Reading. 7. Connections and contacts. Connections in integrated schemes. Metal relationships and contact technologies. Diffuse relationships. Polysilicon relationships and buried contacts. Silicides and multi-layered contact technologies. The start process. Multi-level metallization. Copper compounds and Damascene processes. Next Reading. 8. Packaging and yield. Testing. Waffle thinner and die division. Die joining. The connection of the wires. Packages. and tape-Automated-Bonding processes. Processes. Next Reading. 9. Integrating MOS processes. The main considerations of the MOS device. MOS Transistor Layout and Design Rules. Additional MOS (CMOS) technology. Silicon on the insulator. 10. The integration of the bipolar process. A structure isolated from a crossroads. Current profit. Transit time. Base. Voltage breakdown. Other elements of SBC technology. Review of the layout. Advanced bipolar structures. Other methods of bipolar isolation. BiCMOS. 11. Processes of microelectromechanical systems-MEMS. Mechanical properties of silicon. A massive micromachine. Silicon Etchants. Surface micromachine. High-factor micromanagement: LIGA casting process. Silicon wafer. IC Compatibility Process. Responses to selected problems. Index. Back Cover Introduction to Microelectronic Manufacturing, Second Edition, by Richard K. Jaeger, is a brief overview of the most modern methods in this area. It is devoted exclusively to processing and is emphasized by careful explanations, pure, simple language and numerous fully solved examples of problems. The second edition includes a whole new chapter on MEMS, as well as significant changes in chapters on MOS and the integration of the bipolar process. Also included are new or expanded coverage of lithography and exposure systems, trench insulation, chemical mechanical polishing, small compounds, transient enhanced diffusion, copper damascene processes and process modeling. Big save on! Catch hot savings while you can. This item We aim to show you accurate product information. Manufacturers, suppliers and others provide what you see here and we haven't checked it out. This introductory book suggests minimal knowledge of the existence of integrated circuits and terminal behavior of electronic components such as resistors, diodes, and MOS and bipolar transistors. It provides readers with the basic information they need to better process and design books. The focus is on the main processes used in manufacturing, including lithography, oxidation, diffusion, ion implementation and thin film deposition. Covers joining technology, packaging and yield. Suitable for readers interested in the manufacture of hard-to-dry devices and integrated circuits. Language English Series Title Modular Series on Solid State Devices Publisher Pearson Education Book Format Paperback Original Languages English intended pages 336 Author Richard Jaeger Title Modular Series on Solid Devices: Introduction to Microelectronic Manufacturing: Volume 5 Modular Series on Solid State Devices ISBN-13 9780201444449 Publication Date October 2001 Selected Product Sizes (L x W x H) 9.20 x 7.00 x 0.48 Inches ISBN-10 020144949 Customer AS Gets specific details about this product from customers who own it. At all. 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