

Reliability and Failure of Electronic Materials and Devices

Second Edition

Milton Ohring
with Lucian Kasprzak



Reliability And Failure Of Electronic Materials And Devices

**Wojtek J. Bock, Israel Gannot, Stoyan
Tanev**



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Corrosion and Reliability of Electronic Materials and Devices Robert B. Comizzoli, Robert Peter Frankenthal, James Douglas Sinclair, 1999

Yield of Electronic Materials and Devices National Research Council (U.S.). Ad Hoc Panel on Yield of Electronic Materials and Devices, 1972

Electronic Materials Handbook, 1989-11-01 Volume 1

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Optical Waveguide Sensing and Imaging Wojtek J. Bock, Israel Gannot, Stoyan Tanev, 2007-12-14 The book explores various aspects of existing and emerging fiber and waveguide optics sensing and imaging technologies including recent advances in nanobiophotonics The focus is both on fundamental and applied research as well as on applications in civil engineering biomedical sciences environment security and defence The book aims to provide a reference of state of the art overviews covering a variety of topics on the interface of engineering and biomedical sciences

Direct Copper Interconnection for Advanced Semiconductor Technology Dongkai Shangguan, 2024-06-28 In the More than

Moore era performance requirements for leading edge semiconductor devices are demanding extremely fine pitch interconnection in semiconductor packaging Direct copper interconnection has emerged as the technology of choice in the semiconductor industry for fine pitch interconnection with significant benefits for interconnect density and device performance Low temperature direct copper bonding in particular will become widely adopted for a broad range of highperformance semiconductor devices in the years to come This book offers a comprehensive review and in depth discussions of the key topics in this critical new technology Chapter 1 reviews the evolution and the most recent advances in semiconductor packaging leading to the requirement for extremely fine pitch interconnection and Chapter 2 reviews different technologies for direct copper interconnection with advantages and disadvantages for various applications Chapter 3 offers an in depth review of the hybrid bonding technology outlining the critical processes and solutions The area of materials for hybrid bonding is covered in Chapter 4 followed by several chapters that are focused on critical process steps and equipment for copper electrodeposition Chapter 5 planarization Chapter 6 wafer bonding Chapter 7 and die bonding Chapter 8 Aspects related to product applications are covered in Chapter 9 for design and Chapter 10 for thermal simulation Finally Chapter 11 covers reliability considerations and computer modeling for process and performance characterization followed by the final chapter Chapter 12 outlining the current and future applications of the hybrid bonding technology Metrology and testing are also addressed throughout the chapters Business economic and supply chain considerations are discussed as related to the product applications and manufacturing deployment of the technology and the current status and future outlook as related to the various aspects of the ecosystem are outlined in the relevant chapters of the book The book is aimed at academic and industry researchers as well as industry practitioners and is intended to serve as a comprehensive source of the most up to date knowledge and a review of the state of the art of the technology and applications for direct copper interconnection and advanced semiconductor packaging in general

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