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Titolo	Handbook of multilevel metallization for integrated circuits : materials, technology, and applications / / edited by Syd R. Wilson and Clarence J. Tracy, John L. Freeman, Jr
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Descrizione fisica	1 online resource (912 p.)
Collana	Materials science and process technology series
Altri autori (Persone)	WilsonSyd R TracyClarence J FreemanJohn L
Disciplina	621.3815
Soggetti	Integrated circuits - Design and construction Metallizing
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	""Preface""; ""Contributors""; ""Table of Contents""; ""1 INTRODUCTION""; ""2 SILICIDES AND CONTACTS FOR ULSI""; ""3 ALUMINUM BASED MULTILEVEL METALLIZATIONS IN VLSI/ULSICs""; ""4 INORGANIC DIELECTRICS""; ""5 ORGANIC DIELECTRICS IN MULTILEVEL METALLIZATION OF INTEGRATED CIRCUITS""; ""6 PLANARIZATION TECHNIQUES""; ""7 LITHOGRAPHY AND ETCH ISSUES FOR A MULTILEVEL METALLIZATION SYSTEM""; ""8 ELECTRO- AND STRESS MIGRATION IN MLM INTERCONNECT STRUCTURES""; ""9 MULTILEVEL METALLIZATION TEST VEHICLE""; ""10 MANUFACTURING AND ANALYTIC METHODS"" ""11 CHARACTERIZATION TECHNIQUES FOR VLSI MULTILEVEL METALLIZATION""""12 ELECTRONIC PACKAGING AND ITS INFLUENCES ON INTEGRATED CIRCUIT DESIGN AND PROCESSING""; ""13 FUTURE INTERCONNECT SYSTEMS""; ""INDEX""
Sommario/riassunto	This book covers all aspects of physical vapor deposition (PVD) process technology from the characterizing and preparing the substrate material, through deposition processing and film characterization, to post-deposition processing. The emphasis of the book is on the aspects of the process flow that are critical to economical deposition of

films that can meet the required performance specifications. The book covers subjects seldom treated in the literature: substrate characterization, adhesion, cleaning and the processing. The book also covers the widely discussed subjects of vacuum technology and the fundamentals of individual deposition processes. However, the author uniquely relates these topics to the practical issues that arise in PVD processing, such as contamination control and film growth effects, which are also rarely discussed in the literature. In bringing these subjects together in one book, the reader can understand the interrelationship between various aspects of the film deposition processing and the resulting film properties. The author draws upon his long experience with developing PVD processes and troubleshooting the processes in the manufacturing environment, to provide useful hints for not only avoiding problems, but also for solving problems when they arise. He uses actual experiences, called war stories, to emphasize certain points. Special formatting of the text allows a reader who is already knowledgeable in the subject to scan through a section and find discussions that are of particular interest. The author has tried to make the subject index as useful as possible so that the reader can rapidly go to sections of particular interest. Extensive references allow the reader to pursue subjects in greater detail if desired. The book is intended to be both an introduction for those who are new to the field and a valuable resource to those already in the field. The discussion of transferring technology between R&D and manufacturing provided in Appendix 1, will be of special interest to the manager or engineer responsible for moving a PVD product and process from R&D into production. Appendix 2 has an extensive listing of periodical publications and professional societies that relate to PVD processing. The extensive Glossary of Terms and Acronyms provided in Appendix 3 will be of particular use to students and to those not fully conversant with the terminology of PVD processing or with the English language.
