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Nota di contenuto	1. Introduction to 3D microelectronic packaging -- 2. 3D packaging architecture and assembly process design -- 3. Fundamentals of TSV processing and reliability -- 4. Mechanical properties of TSV -- 5. Atomistic View of TSV Protrusion/Intrusion -- 6. Fundamentals and failures in Die preparation for 3D packaging -- 7. Direct Cu to Cu bonding and other alternative interconnects in 3D packaging -- 8. Emerging hybrid bonding techniques for 3D packaging -- 9. Fundamental of Thermal Compressive Bonding process, advanced epoxy, and flux materials in 3D packaging -- 10. Fundamentals of solder alloys in 3D packaging -- 11. Fundamentals of electro migration in interconnects of 3D packages -- 12. Fundamentals of heat dissipation in 3D packaging -- 13. Fundamentals of advanced materials and process in substrate technology -- 14. New substrate technologies for 3D packaging. -15. Thermal mechanical and moisture modeling in 3D packaging -- 16. Stress and Strain measurements in 3D packaging

-- 17. Processing and Reliability of Solder Interconnections in Stacked Packaging -- 18. Interconnect Quality and Reliability of 3D Packaging -- 19. Fundamentals of automotive reliability of 3D packages -- 20. Fault isolation and failure analysis of 3D packaging.

Sommario/riassunto

This book offers a comprehensive reference guide for graduate students and professionals in both academia and industry, covering the fundamentals, architecture, processing details, and applications of 3D microelectronic packaging. It provides readers an in-depth understanding of the latest research and development findings regarding this key industry trend, including TSV, die processing, micro-bumps for LMI and MMI, direct bonding and advanced materials, as well as quality, reliability, fault isolation, and failure analysis for 3D microelectronic packages. Images, tables, and didactic schematics are used to illustrate and elaborate on the concepts discussed. Readers will gain a general grasp of 3D packaging, quality and reliability concerns, and common causes of failure, and will be introduced to developing areas and remaining gaps in 3D packaging that can help inspire future research and development. .
