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Nota di contenuto	Introduction to 3D Microelectronic Packaging.-3D packaging architecture and assembly process design.-Materials and Processing of TSV.-Microstructural and Reliability Issues of TSV -- Fundamentals and failures in Die preparation for 3D packaging.-Direct Cu to Cu bonding and other alternative bonding techniques in 3D packaging -- Fundamental of Thermal Compression Bonding Technology and Process Materials for 2.5/3D Packages -- Fundamentals of solder alloys in 3D packaging.-Fundamentals of Electromigration in interconnects of 3D

packages.-Fundamentals of heat dissipation in 3D IC packaging -- Fundamentals of advanced materials and processes in organic substrate technology -- Die and Package Level Thermal and Thermal/Moisture Stresses in 3-D Packaging: Modeling and Characterization -- Processing and Reliability of Solder Interconnections in Stacked Packaging -- Interconnect Quality and Reliability of 3D Packaging -- Fault isolation and failure analysis of 3D packaging. .

Sommario/riassunto

This volume provides a comprehensive reference for graduate students and professionals in both academia and industry on the fundamentals, processing details, and applications of 3D microelectronic packaging, an industry trend for future microelectronic packages. Chapters written by experts cover the most recent research results and industry progress in the following areas: TSV, die processing, micro bumps, direct bonding, thermal compression bonding, advanced materials, heat dissipation, thermal management, thermal mechanical modeling, quality, reliability, fault isolation, and failure analysis of 3D microelectronic packages. Numerous images, tables, and didactic schematics are included throughout. This essential volume equips readers with an in-depth understanding of all aspects of 3D packaging, including packaging architecture, processing, thermal mechanical and moisture related reliability concerns, common failures, developing areas, and future challenges, providing insights into key areas for future research and development. Provides comprehensive coverage of the state-of-the-art in 3D microelectronic packages Covers advanced materials and processes, quality and reliability concerns, and fault isolation and failure analysis Discusses 3D electronic package architecture and assembly process design Features contributions from both academic and industry authors, for a complete view of this important technology.