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Titolo	Die-Attach Materials for High Temperature Applications in Microelectronics Packaging : Materials, Processes, Equipment, and Reliability // edited by Kim S. Siow
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Descrizione fisica	1 online resource (XX, 279 p. 175 illus., 122 illus. in color.)
Disciplina	620.11295 620.11297
Soggetti	Optical materials Electronic materials Electronics Microelectronics Metals Materials science Engineering—Materials Quality control Reliability Industrial safety Optical and Electronic Materials Electronics and Microelectronics, Instrumentation Metallic Materials Characterization and Evaluation of Materials Materials Engineering Quality Control, Reliability, Safety and Risk
Lingua di pubblicazione	Inglese
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Nota di contenuto	Chapter 1: Silver Sintering and Soldering: Bonding Process and Comparison -- Chapter 2: Sintered Silver for LED Applications -- Chapter 3: Process Control of Sintered Ag Joint in Production for Die-

Attach Applications -- Chapter 4: Thermomechanical Modeling of High-Temperature Bonded Interface Materials -- Chapter 5: Reliability and Failure Mechanisms of Sintered Ag as Die Attach Joint -- Chapter6: Morphological changes in sintered silver due to atomic migration -- Chapter 7: Doctrine of Equivalents and Sintered Silver (Ag) Paste as Bonding Materials -- Chapter 8: Sintered Copper : Chemistry, Process and Reliability -- Chapter 9: Transient Liquid Phase Bonding -- Chapter 10: Die attach materials for extreme conditions and harsh environments.

Sommario/riassunto

This book presents the scientific principles, processing conditions, probable failure mechanisms, and a description of reliability performance and equipment required for implementing high-temperature and lead-free die attach materials. In particular, it addresses the use of solder alloys, silver and copper sintering, and transient liquid-phase sintering. While different solder alloys have been used widely in the microelectronics industry, the implementation of sintering silver and transient liquid-phase sintering remains limited to a handful of companies. Hence, the book devotes many chapters to sintering technologies, while simultaneously providing only a cursory coverage of the more widespread techniques employing solder alloys. Addresses the differences between sintering and soldering (the current die-attach technologies), thereby comprehensively addressing principles, methods, and performance of these high-temperature die-attach materials; Emphasizes the industrial perspective, with chapters written by engineers who have hands-on experience using these technologies; Baker Hughes, Bosch and ON Semiconductor, are represented as well as materials suppliers such as Indium; Simultaneously provides the detailed science underlying these technologies by leading academic researchers in the field.
