1. Record Nr. UNINA9910299940603321

Autore	Seok Seonho
Titolo	Advanced Packaging and Manufacturing Technology Based on Adhesion Engineering : Wafer-Level Transfer Packaging and Fabrication Techniques Using Interface Energy Control Method / / by Seonho Seok
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-77872-2
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (119 pages)
Collana	Springer Series in Advanced Manufacturing, , 1860-5168
Disciplina	658.51
Soggetti	Manufactures Nanotechnology Materials science Tribology Corrosion and anti-corrosives Coatings Manufacturing, Machines, Tools, Processes Nanotechnology and Microengineering Characterization and Evaluation of Materials Tribology, Corrosion and Coatings
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Overview of MEMS packaging technologies -- Adhesion control techniques for debonding -- FEM modeling of debonding -- Polymer cap transfer packaging technologies -- Thin film cap transfer packaging technology -- Other related manufacturing technologies. .
Sommario/riassunto	This book introduces microelectromechanical systems (MEMS) packaging utilizing polymers or thin films – a new and unique packaging technology. It first investigates the relationship between applied load and opening displacement as a function of benzocyclobutene (BCB) cap size to find the debonding behavior, and then presents BCB cap deformation and stress development at different opening displacements as a function of BCB thickness, which is a

criterion for BCB cap transfer failure. Transfer packaging techniques are attracting increasing interest because they deliver packaging caps, from carrier wafers to device wafers, and minimize the fabrication issues frequently encountered in thin-film or polymer cap encapsulation. The book describes very-low-loss polymer cap or thin-film-transfer techniques based on anti-adhesion coating methods for radio frequency (RF) (-MEMS) device packaging. Since the polymer caps are susceptible to deformation due to their relatively low mechanical stiffness during debonding of the carrier wafer, the book develops an appropriate finite element model (FEM) to simulate the debonding process occurring in the interface between Si carrier wafer and BCB cap. Lastly, it includes the load–displacement curve of different materials and presents a flexible polymer filter and a tunable filter as examples of the applications of the proposed technology.