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Altri autori (Persone)	SuhirEphraim YuT. X <1941-> (Tongxi) SteinbergDavid S
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Nota di contenuto	Structural Dynamics of Electronic and Photonic Systems; Contents; Preface; Contributors; 1 Some Major Structural Dynamics-Related Failure Modes and Mechanisms in Micro- and Opto-Electronic Systems and Dynamic Stability of These Systems; 2 Linear Response to Shocks and Vibrations; 3 Linear and Nonlinear Vibrations Caused by Periodic

Impulses; 4 Random Vibrations of Structural Elements in Electronic and Photonic Systems; 5 Natural Frequencies and Failure Mechanisms of Electronic and Photonic Structures Subjected to Sinusoidal or Random Vibrations
6 Drop/Impact of Typical Portable Electronic Devices: Experimentation and Modeling7 Shock Test Methods and Test Standards for Portable Electronic Devices; 8 Dynamic Response of Solder Joint Interconnections to Vibration and Shock; 9 Test Equipment, Test Methods, Test Fixtures, and Test Sensors for Evaluating Electronic Equipment; 10 Correlation between Package-Level High-Speed Solder Ball Shear/Pull and Board-Level Mechanical Drop Tests with Brittle Fracture Failure Mode, Strength, and Energy
11 Dynamic Mechanical Properties and Microstructural Studies of Lead-Free Solders in Electronic Packaging12 Fatigue Damage Evaluation for Microelectronic Components Subjected to Vibration; 13 Vibration Considerations for Sensitive Research and Production Facilities; 14 Applications of Finite Element Analysis: Attributes and Challenges; 15 Shock Simulation of Drop Test of Hard Disk Drives; 16 Shock Protection of Portable Electronic Devices Using a "Cushion" of an Array of Wires (AOW); 17 Board-Level Reliability of Lead-Free Solder under Mechanical Shock and Vibration Loads
18 Dynamic Response of PCB Structures to Shock Loading in Reliability Tests19 Linear Response of Single-Degree-of-Freedom System to Impact Load: Could Shock Tests Adequately Mimic Drop Test Conditions?; 20 Shock Isolation of Micromachined Device for High-g Applications; 21 Reliability Assessment of Microelectronics Packages Using Dynamic Testing Methods; 22 Thermal Cycle and Vibration/Drop Reliability of Area Array Package Assemblies; 23 Could an Impact Load of Finite Duration Be Substituted with an Instantaneous Impulse?; Index

Sommario/riassunto

"The proposed book will offer comprehensive and versatile methodologies and recommendations on how to determine dynamic characteristics of typical micro- and opto-electronic structural elements (printed circuit boards, solder joints, heavy devices, etc.) and how to design a viable and reliable structure that would be able to withstand high-level dynamic loading. Particular attention will be given to portable devices and systems designed for operation in harsh environments (such as automotive, aerospace, military, etc.) In-depth discussion from a mechanical engineer's viewpoint will be conducted to the key components' level as well as the whole device level. Both theoretical (analytical and computer-aided) and experimental methods of analysis will be addressed. The authors will identify how the failure control parameters (e.g. displacement, strain and stress) of the vulnerable components may be affected by the external vibration or shock loading, as well as by the internal parameters of the infrastructure of the device. Guidelines for material selection, effective protection and test methods will be developed for engineering practice" --
"The proposed book will offer comprehensive and versatile methodologies and recommendations on how to determine dynamic characteristics of typical micro- and opto-electronic structural elements (printed circuit boards, solder joints, heavy devices, etc.) and how to design a viable and reliable structure that would be able to withstand high-level dynamic loading"--