

MATERIALS AND STRUCTURES SYMPOSIUM (C2)

Space Structures II - Development and Verification (Deployable and Dimensionally Stable Structures) (2)

Author: Dr. Wei Zhang

China Academy of Launch Vehicle Technology(CALT), China, 18310820691@163.com

THE RESEARCH OF THE VIBRATION RELIABILITY OF THE CERAMIC PACKAGING BGA AND
CGA DEVICES**Abstract**

With the advance of the semiconductor technology, large-scale surface mount devices are universally adopted throughout the aerospace equipments, but the assembly reliability of these devices is troubling. In this paper, the performance of the Ceramic Column Grid Array (CCGA) devices under vibration environment is compared with that of the Ceramic Ball Grid Array (CBGA) device. The identical vibration condition is imposed on BGA devices with different ball-materials. It is found that the CCGA structure which is supposed to be more reliable under thermal environment may not be that under vibration environment. It is also supposed that the vibration reliability of the CBGA structure with Sn37Pb63 ball-material (Not Sn63Pb37) is better than that of the CBGA with traditional Sn90Pb10 ball-material, because of the re-fusion phenomenon of the former under the process of the reflow soldering. To improve the reliability of the electrical system, it is suggested that the appropriate packaging style of the device should be chosen according to the specific application environment.