

ABSTRACT:

Stress Challenges for High Bandwidth Memory (HBM) Packaging

Generative AI based on large language models capable of producing human like text and images have becomes mainstream for artificial intelligence technology industries. In order to run the increased model sizes without performance degradation, a large amount of memory needs to be integrated in a system. High bandwidth memory (HBM) is a perfect solution to meet the system requirements like high bandwidth and low power consumption together with concurrent integrations of the logic chips in 2.5D and 3D advanced packaging technologies. The continued scaling of HBM to increase memory capacity and to enhance thermal performance necessitates the evolutions of 3D stacking technologies. In addition, how to ensure that HBM is compatible to the stress associated with packaging processes and reliability in advanced packaging technologies such as CoWoS-S and CoWoS-L will be presented.