Open-Cavity Plastic Packages Deliver Robustness, Cost Efficiency for Hi-Rel Environments

Matt Hansen
QP Technologies, Inc.
mhansen@qptechnologies.com

Non-hermetic packaging standards are paving the way for use of commercial off-the-shelf (COTS) devices in high-reliability military and aerospace applications. Plastic encapsulated microcircuit, flip-chip, air-cavity plastic, chip-scale, and more packaging constructs/approaches are all on the table. One such approach, open-cavity plastic packaging (OCPP), is proving highly advantageous for the mil-aero arena, where robustness and cost-effectiveness are paramount.

For many years, ceramic packages were the preferred solution for mil-aero semiconductor prototype assembly due to their ability to withstand high temperatures, but they can be costly Moreover, because the final product is typically a plastic package, ceramic prototypes don't serve as an accurate representation of what the customer will actually end up with.

The need for a viable, cost-efficient alternative to ceramic was a key to the development of OCPP – it has proven an ideal platform for new IC prototypes because the packages are mechanically and electrically identical to a chipmaker's future transfer molded production parts. And because they can be prepared in advance and stored for assembly as soon as the wafers and/or die are ready, OCPP is made to withstand the test of time.

This presentation will look at the benefits and advantages of OCPP, as well as describe a real-world project that illustrates why utilizing OCPP for device designs offers a cost-effective solution for low- to mid-volume packaging destined for mil-aero end applications.