

Automotive Electronics Packaging Trends

Klaus-Juergen Wolter

Technische Universitaet Dresden, Electronics Packaging Laboratory
wolter@avt.et.tu-dresden.de

Automotive electronics toward autonomous driving has to meet the following general requirements:

- Higher performance (more safety, more comfort, more environmental friendly)
- Further miniaturization (for placing more electronics in the same or less space)
- High reliability and safety (the required operation time for electronic components in vehicles ranging from 6000 hours in cars and up to 20,000 hours in commercial vehicles).
- Lower cost (the required lower cost can be only ensured if the applied technologies meet the following demands:
 - robust and proven technologies
 - appropriate for mass production
 - reliable miniaturized packaging.)

Automotive electronics packaging integrate devices and components into electronics module by considering the automotive requirements. Taking in account the latest developments in automotive electronics the electronics packaging technologies are faced with the following trends:

- Increasing pin count and finer pitch for high performance ICs / processors
- System in Package for higher functionality of module
- Bare dies on inorganic and organic substrates for miniaturization of modules
- Packages as CSP, BGA, QFN for high component density on PCB
- Optical fibers with transceivers and connectors for bus systems
- Optimized thermal management for power devices
- Protection against environment through reliable encapsulation materials.

The keynote talk will especially focus on new packaging approaches for miniaturized external sensors for automated driving.