

Power train and automotive

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Industry trends

- Demand for catalog electronic content across the entire vehicle continues to grow.
- TI has the full portfolio and is committed to meet that need.
 - Most common automotive packages: SOIC, TSSOP, SOT, TQFP, and **QFN (growing)**
- The industry is evolving – zero *really* means zero.
 - DPPM (was) → DPPB (is) → Single events (moving to)
- Observing major architecture changes in the power train space.
 - Combustion → Hybrid electric → Electric
 - Autonomous vehicle = higher reliability demand



Challenges

- Traditional challenges still exist around 150C/Grade 0 reliability
 - Impact on materials: bondability, delamination, board level reliability
 - Impact on die: T_A vs. T_J , thermal shutdown
- New challenges anticipated
 - Higher voltage, isolation
- Change is complex

Product



Product family



Portfolio



Points to Ponder

- Can we really achieve zero defects?
- Cost pressure is the norm, but is there really a tradeoff between cost and quality?
- Will we care about 150C performance in 10 years?
- Will liability and infrastructure issues prevent autonomous vehicle technology from going mainstream?
- What's scarier – autonomous vehicles driving about...

... or my 13 year old?

