



Industrial Invited speaker:

Name: Nicolae Gross

Job position: Test engineer and hardware development engineer

Company: Continental Automotive Systems

Presentation: Impact of package technology differences in power MOSFETs application

Abstract:

Since the introduction of so-called Copper clip package (or clip bond package) in the early 2000s, the influence of packaging technology on overall resistance and inductance of the power MOSFET device is significantly reduced. Moreover, higher power density is available and better current spreading avoids the hotspot formation. This packaging technology is known as LPAK and it was developed by NXP and Hitachi starting 2002.

We are currently seeing a trend to migrate from older DPAK/D2PAK technology to newer LPAK in the Automotive industry. In a way this is understandable, due to a global miniaturization trend, seen in all industries. But, for specific products which are constrained by other driving forces, a change in transistor packaging is not needed. Therefore, we will try to explain what are the various motivations that push the adoption of LPAK technology, which currently has a higher price. We will compare the two competing technologies, from business point of view.

Several dimensions shall be touched upon:

- PCB complexity and surface impact,
- design impact (e.g. schematic changes),
- thermal regime and thermal modeling and solutions,
- soldering and inspection processes,
- software adaption (e.g. change of control strategy)
- and last but not least the economic impact, in short and long term.

At the end of this presentation there should be a better understanding of the interrelations and interactions that drive today's choices, affecting more than one industry.

Bio:

Nicolae Gross – 50 years old, Electronic engineer, graduated in 1996 the Technical University of Cluj-Napoca, Applied Electronics. He works in automotive industry, as test engineer and hardware development engineer, with more than 19 years experience. Since 2006 is employee of Continental Automotive Systems Sibiu. His activity was focused mostly on test equipment development, from concept definition to final assembly and delivery to the customer. He is in charge of coordinating a team of development engineers which develop not only the hardware equipment, but also the automation sequences for prototype testing and production line test equipment.