

General Information

The University of Applied Sciences in Kiel is the largest Applied Science Institution in the State of Schleswig Holstein. In 2011 more than 6000 students were enrolled with more than 1000 students in the Faculty of Computer Science and Electrical Engineering. The Institute for Mechatronics as a part of the faculty is offering education and research participation for about 150 Bachelor and Master Students.

The Key Aspect is E-Mobility

The Institute for Mechatronics has a strong focus on E-Mobility and its hardware components which led to the establishment of the Schleswig Holstein Competence Centre for E-Mobility (www.fh-kiel.de/kesh). In research projects e.g. the daily use of electric vehicles (Peugeot Ion, EcoCarrier) is analyzed and a new battery management system is developed. 5 Professors in the Institute are offering specialized educational contents like electrical traction and drives, electrical circuit design, technical optics, mechanical design, system modeling and control techniques.

The Bonding and Joining Lab

Professor Ronald Eisele is part of the E-Mobility-Team and his courses and research capabilities in the labs are consisting of:

- Thermal modeling, simulation and design of systems and components
- Electrical and thermal design of power modules
- Professional assembly processes for bonding joining tasks
- Testing and characterizing of power electronic components

These capabilities are also offered for industrial development demands e.g. in bilateral projects. By participating in regional and nationwide research projects these capabilities are constantly further developed.

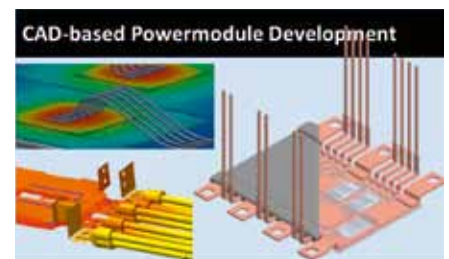
The scientific team includes experienced engineers, Ph.D. Students (cooperative graduations with other universities), Bachelor and Master Students working on their theses.

The team is designing and manufacturing powermodule samples in industry-like quality by applying:

- Process-Development for Low-Temperature Sintering of power semiconductors and passive components, terminals, buffers and heatsinks
- Multiple design approaches based on different substrates (DBC, IMS, Lead-frame)
- Final encapsulation in frames or hard epoxies

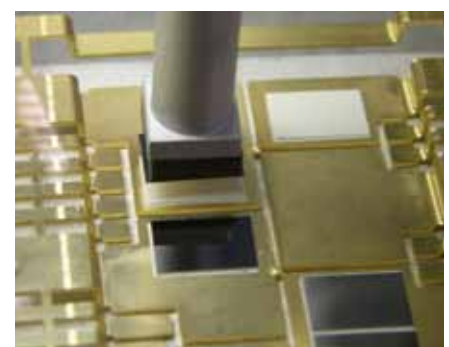


Bonding and Joining Technologies



CAD Power Module Development

In the bonding and joining labs the team is running a number of specially modified equipment in order to support the industrial partners in applying low temperature sintering. A very promising new investment and research target is the combination of sintering and Cu-heavy wire bonding (Orthodyne 3600+ new Cu-Version).



Sintered die attach on Leadframe