

Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

- 1 October 2019

Participation Fee:

- € 660,- * for industry
- € 490,- * for universities/institutes
- € 165,- * for students/PhD students (limited spaces; copy of students ID required; dinner € 50,-* extra)

* plus VAT

- The regular participation fee includes dinner, lunches, coffee/soft drinks and a flash drive with presentations. The reduced (PhD) students fee includes all the above except for dinner (can be booked for an extra fee of € 50,-*)
- A printed version of the workshop handout is available on request (€ 50,-*).
- Upon receipt of registration confirmation via email you are signed-up for the event. The invoice will be sent via letter post.
- Three participants from each ECPE member company free of charge. Allocation in sequence of registration.
- 10% discount on university/institute fee for participants from ECPE competence centres.
- Further information (hotel list and maps) will be provided after registration and can be found on the ECPE web page.
- Cancellation policy: Full amount will be refunded in case of cancellation upon to 2 weeks prior to the event. After this date and in case of no-show 50 % of the fee is non-refundable (replacement is possible).

27/08/19

Organisational Information

Organiser ECPE e.V.
90443 Nuremberg, Germany

www.ecpe.org

Chairmen **Prof. Cyril Buttay**
Université de Lyon, Laboratoire Ampère (France)

Prof. Frank Osterwald
Danfoss Silicon Power (Germany)

Dr. Andreas Ostmann
Fraunhofer IZM (Germany)

Organisation Lena Somschor, ECPE e.V.
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Venue Katholische Akademie Hamburg
Herrengaben 4
20459 Hamburg
www.kahh.de

Dinner Block Bräu
9 Oct. 2019 Bei den St. Pauli Landungsbrücken 3
19.30 h 20359 Hamburg
www.block-braeu.de



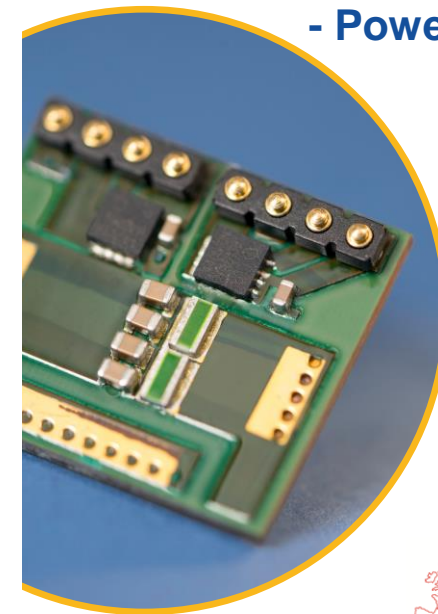
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European Center for
Power Electronics e.V.

ECPE Workshop

Advanced Power Packaging - Power Modules 2.0



09 - 10 October 2019
Katholische Akademie
Hamburg
Germany

in cooperation with



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LYON

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IZM

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ECPE Workshop

Advanced Power Packaging - Power Modules 2.0

9 - 10 October 2019
Hamburg, Germany

In power electronics packaging, a lot of new developments are taking place. Wide bandgap devices with their possibilities for fast switching and higher temperatures, or more robust and reliable power electronics systems for transport and renewables push the limits. That means that new materials need to be developed, new cooling technologies are investigated, functional integration of peripheral devices into so called power electronics building blocks is used for reducing parasitics, 3D-printing and additive manufacturing offer possibilities to think power electronics in a totally different way.

This workshop presents new developments and ongoing research from industry and universities. System developers, packaging and material specialists, researchers and engineers from industry companies may use this workshop to get new ideas for their daily work.

The workshop is chaired by Prof. Cyril Buttay from Université de Lyon - Laboratoire Ampère (France), Prof. Frank Osterwald from Danfoss Silicon Power (Germany) and Dr. Andreas Ostmann from Fraunhofer IZM (Germany).

All presentations and discussions will be in English.

Programme

Wednesday, 9 October 2019	
09:30	Start of Registration / Welcome Coffee
10:00	Welcome, Opening Gudrun Feix, ECPE (D)
10:10	Introduction Frank Osterwald, Danfoss Silicon Power (D)
10:30	On Wide Bandgap Semiconductor Packaging Eckart Hoene, Fraunhofer IZM (D)
System Integration	
11:15	Challenges of a Motor Integrated PE in an Automotive Traction Application Ulf Schümann, Univ. of Applied Sciences Kiel (D)
11:45	Power Modules based on Multi-layer Lead Frame Assemblies with Organic Insulation Aylin Bicakci, Danfoss Silicon Power (D)
12:15	Power System in Package based on Multilayer Ceramic Substrates Tilo Welker, Rogers (D)
12:45	Lunch
Die attach	
13:45	Evolution of Sinter Paste Jacek Rudzki, Danfoss Silicon Power (D)
14:15	Silver Sintering – New Form Factors for Next Generation Power Modules Gyan Dutt, Alpha Assembly (NL)
Top Die Connection	
14:45	Novel Die Top Connections using Cu-wires and Ribbons Robert Woehl, Danfoss Silicon Power (D)
15:15	Reliability of Sintered DieTopSystems in Power Cycling Tests Andreas Hinrich, Heraeus, Martin Becker, Danfoss Silicon Power (D)
15:45	Coffee Break
16:15	Laserbonding – A Novel Solution for High Power Application Challenges Georg von Ribbeck, F&K DELVOTEC Bondtechnik (D)
Future Die Connection	
16:45	Direct Press Die Peter Beckedahl, Semikron (D)
17:15	Die Interconnection for Power Module 3.0 Vincent Bley, Laplace Laboratory (F)
17:45	End of 1st Workshop Day
19:30	Dinner at Block Bräu

Programme

Thursday, 10 October 2019	
08:30	Start of 2nd Workshop Day
High Voltage Applications	
08:30	Planar Power Modules for High Voltage Applications Mark Johnson, Univ. of Nottingham (UK)
Encapsulation	
09:00	New Developments in Resin Encapsulated Power Module Shiori Idaka, Mitsubishi Electric Europe (D)
09:30	New Thermal Designs of Power Modules with Inorganic Encapsulation Ronald Eisele, Univ. of Applied Sciences Kiel (D)
10:00	Coffee Break
Cooling	
10:30	Novel Design and Manufacturability of Advanced Cooling Structures Klaus Olesen, Danfoss Silicon Power (D)
11:00	Recent Advances in 2-phase Cooling of Power Electronics Klaus Olesen, Danfoss Silicon Power (D)
Embedding Power Electronics	
11:30	Ceramic Embedding as Packaging Solution for Future Power Electronic Applications Zechun Yu, Fraunhofer IISB (D)
12:00	60% Performance Increase by Power MOSFET Embedding Thomas Gottwald, Schweizer Electronic (D)
12:30	Lunch
Materials	
13:30	Power Modules – Enhanced Solder Solutions for Mechanical & Thermal Reliability Karthik Vijay, Indium Corporation (UK)
14:00	Sintering Copper Bonding Paste and its Bonding Reliability Hideko Nakako, Hitachi Chemical (JP)
14:30	Additive Manufacturing for Power Electronics Substrate Technologies Thomas Stoll, Univ. of Erlangen-Nuremberg, FAPS (D)
15:00	Final Discussion
15:30	End of Workshop