

Organisational Information

For registration please use the registration form which is available on the ECPE web page: www.ecpe.org
> ECPE Events > ECPE Workshops: ECPE Workshop: Drivers, Control and Protection Circuits for MOSFETs and IGBTs> Registration Form

www.ecpe.org/ecpe-events

Deadline for registration:

- **12 October 2015**

Participation fee:

- **€ 595,-** * for industry
- **€ 445,-** * for universities/institutes
- **€ 150,-** * for students/PhD students
(copy of student ID requested)
(limited number only)
(optional dinner: € 50,-* extra fee)

*plus 19 % German VAT

- The participation fee includes dinner, lunch, coffee/soft drinks and a CD with the workshop presentations. Students/PhD students can book the dinner for an extra fee of € 50,-*.
- A printed version of the workshop handout is available on request (€ 50,-*).
- With the confirmation of registration by email you are registered for the workshop and the invoice will be sent by post.
- Three participants from each ECPE member company free of charge. Allocation in sequence of registration.
- Further information (hotel list and maps) will be provided after registration and is available on the ECPE web page.
- In case of cancellation later than two weeks before beginning or non-attendance 50 % of the participation fee is payable.

Organisational Information

Organiser ECPE e.V.
90443 Nuremberg, Germany
www.ecpe.org

Chairmen Prof. Dr. Axel Mertens,
Leibniz Universität Hannover
Dr. Samuel Araujo,
University of Kassel / KDEE
Jochen Koszescha,
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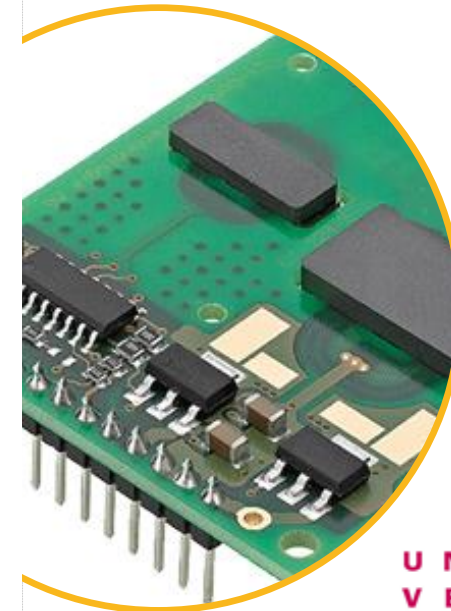
Venue Sheraton Hannover Pelikan Hotel
Pelikanplatz 31
30177 Hannover
Germany

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ECPE Workshop

Drivers, Control and Protection Circuits for MOSFETs and IGBTs



21 – 22 October 2015
Sheraton Pelikan Hotel
Hannover
Germany

in cooperation with

UNIKASSEL
VERSITÄT

Leibniz
Universität
Hannover



ECPE Workshop

Drivers, Control and Protection Circuits for MOSFETs and IGBTs

21 – 22 October 2015
Hannover, Germany

Progress in microelectronics and in the implementation of cheap sensors allows to increase the functionality of gate drive units for MOSFETs and for IGBTs. Functions like gate current control, closer observation of voltages and of current slopes can be implemented on gate drivers at low incremental cost. Advanced solutions for the isolation barrier with enhanced bi-directional communication lead to completely new possibilities. They can be used for better switching performance, better protection or for condition monitoring of the power semiconductors and modules. In the context of the development and adoption of innovative Wide-Band-Gap semiconductors, new challenges concerning robust operation at very fast switching speed and frequencies also need to be addressed in order to attain the expected gains at system level. Nevertheless, without the necessary level of robust operation under all foreseen operating conditions, new and future solutions will be not accepted by developers and users. With this workshop we want to highlight again the state-of-the-art of advanced gate drive technology, and we will discuss what we can expect in the near future.

The workshop is chaired by
Prof. Dr. Axel Mertens (Leibniz Universität Hannover)
Dr. Samuel Araujo (University of Kassel)
Jochen Koszescha (ECPE e.V.)

All presentations and discussions will be in English language.

Programme

Wednesday, 21 October 2015

9:00 Start of Registration / Welcome Coffee

9:30 **Welcome, Opening**
A. Mertens, Univ. Hannover / S. Araujo, Univ. Kassel
J. Koszescha, ECPE e.V.

Introduction

9:45 **Enhanced Functionality of Gate Units by Progress of Analog and Digital Electronics**
A. Mertens, Leibniz Universität Hannover

Session - Advanced Gate Control (& Protection)

10:30 **IGBT Gate Drive with Current Control**
C. Hornstein, Conti Temic microelectronic

11:00 **Digital Communication via Pulse Transformers**
M. Kettler, Semikron Elektronik

11:30 **Protection Concept for PV Inverter Power Stages**
U. Stickelmann, SMA Solar Technology

12:00 **Discussion**

12:20 **Lunch**

Session - Monitoring

13:20 **Reliable Short Circuit Turn-off**
M. Hornkamp, Power Integrations

13:50 **High Power, Fast Switching Gate Driver with Isolated NTC Interface**
C. Balke, Maccon

14:20 **Gate Driver with integrated IGBT Temperature sensing**
L. Beurenaut, Infineon Technologies

14:50 **Discussion**

15:10 **Coffee break**

Session - Temperature Measurement

15:40 **Estimation of the IGBT Junction Temperature with Temperature Sensitive Parameters**
S. Weber, Leibniz Universität Hannover

16:10 **In-service Model-based Health Monitoring of IGBT Power Modules**
M.A. Eleffendi, University of Nottingham

16:40 **T_J-IGBT-Driver: Junction Temperature Measurement during Operation**
M. Denk, University of Bayreuth

17:10 **Discussion**

17:30 **End of 1st workshop day**

19:30 **Dinner at XII Apostel / Hannover**

Programme

Thursday, 22 October 2015

9:00 Start of 2nd Day

Introduction

9:00 **Gate Driver for WBG - Challenges of the Future**
S. Araujo, University of Kassel

Session – MOSFET and Wide Band Gap

High Side Driving under High-Switching Speeds
S. Araujo, University of Kassel

10:00 **Discussion**

10:15 **Coffee break**

10:45 **WBG Drive Value Proposition**
F. Gringore, Rohm Semiconductor

11:05 **Advanced Gate Driver for IGBT and SiC MOSFet**
M. Lauria, STMicroelectronics

Session - Robustness

11:35 **High Temperature Semiconductor Solutions for Gate Driver Applications**
P. Delatte, CISSOID

12:05 **250°C High Temperature Gate Driver for GaN Power Devices**
N. Kordas, Fraunhofer IMS

12:35 **Discussion**

12:45 **Lunch**

Session – Advanced & Future Concepts

14:00 **“Smart Converter” Technology and Intelligent Gate Drives: Challenges & Benefits**
A. Bryant, Amantys / Maschinenfabrik Reinhausen

14:30 **Automotive IGBT-Driver for Ignition Applications**
J. Pianka, Fairchild Semiconductor

15:00 **Case Study: Driver for WBG**
M. Hornkamp, Power Integrations

15:20 **Final Discussion**

16:00 **End of Workshop**

16:00 **Optional: Lab Tour**
Institute for Drive Systems and Power Electronics - Leibniz Universität Hannover
A. Mertens, Leibniz Universität Hannover