Organisational Information

Sign up at: www.ecpe.org/events

Registration Deadline:

17 March 2026

Participation Fee:

€ 490,– *	for industry
€ 360,– *	for universities/institutes
€ 140,– *	for students/PhD student (limited spaces; copy of students ID required)

* plus VAT

- The participation includes dinner, lunches, coffee/soft drinks and digital proceedings. The reduced (PhD) students fee includes all except for dinner (can be booked for an extra fee of € 50,-*)
- Digital proceedings will be provided by download link latest one day before start of the event. A printed 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 email.
- 15 % discount for participants from ECPE member companies.
- 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 50 % of the fee is non-refundable (replacement is possible).
- The number of participants is limited to 35 attendees.

05/01/26

Organisational Information

Organiser	ECPE e.V. Ostendstrasse 181 90482 Nuremberg, Germany www.ecpe.org
Technical Chair	Prof. Dr.-Ing. Ingmar Kallfass, University of Stuttgart (DE)
Technical Contact	Gudrun Feix, ECPE e.V. +49 911 81 02 88 – 15 Gudrun.feix@ecpe.org
Organisation	Krista Schmidt, ECPE e.V. +49 911 81 02 88 – 16 krista.schmidt@ecpe.org
Venue	Caritas-Pirckheimer-Haus CPH Königsstraße 64 90402 Nürnberg https://www.cph-nuernberg.de

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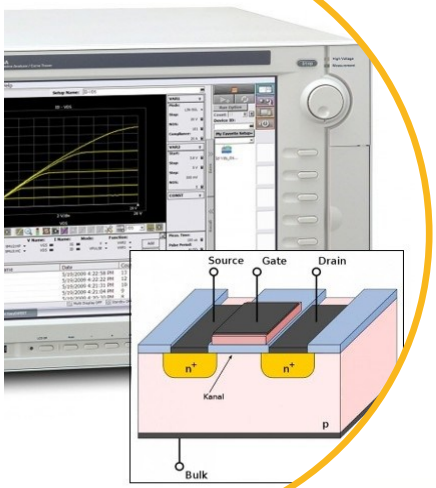
European Center for Power Electronics e.V.

ECPE Tutorial

Testing and Electrical Characterisation of Power Semiconductor Devices - Basics -



24 - 25 March 2026
Nuremberg,
Germany

Cluster Leistungselektronik

ECPE Tutorial

Testing and Electrical Characterisation of Power Semiconductor Devices – Basics

24 - 25 March 2026
Nuremberg, Germany

This tutorial aims to provide an introduction to the basic measurement techniques used to test and characterize power semiconductor devices. Participants will gain a fundamental understanding of which measurements are needed to characterize a power electronic semiconductor and the measurement principles that are used as the basis. We will also discuss the relevance and informational value of data sheet parameters and provide insight into how to use this information.

During the presentations, experiments will be demonstrated to provide practical examples.

Aims

- Basic knowledge of switching and commutation of power semiconductor devices in real circuit environment
- Knowledge of relevant physical dimensions for testing/characterising power semiconductor devices
- Competence to interpret relevant data sheet information
- Knowledge of physical and technological basics of different measuring techniques
- Knowledge of advantages and disadvantages of different measuring techniques

Target group

This tutorial is mainly meant for

- Developers of power electronic systems
- Employees working in quality management
- Semiconductor manufacturers
- Universities and research facilities

Course Instructors:
Dr.-Ing. Daniel Domes, Infineon Technologies AG (DE)
Prof. Dr.-Ing. Ingmar Kallfass, University of Stuttgart (DE)
Prof. Dr.-Ing. Tobias Reimann, ISLE Steuerungstechnik und Leistungselektronik GmbH (DE)

All presentations and discussions will be in English.

Programme

Tuesday, 24 March 2026

12:00 **Start of Registration**

12:15 **Lunch**

13:00 **Welcome, Opening**
Gudrun Feix, ECPE e.V.

13:10 **Data sheet parameters of power semiconductor devices**
Ingmar Kallfass
- Overview and classification of data sheet parameters

13:30 **Static measurements I**
Daniel Domes
- Static characteristics
- Transfer characteristics and different methods for their determination
- V_{th} measurement for SiC devices

14:25 **Break**

14:55 **Static measurements II**
Daniel Domes
- Parasitic capacitances
- …and their influence on switching behaviour
- Parasitic turn-on
- 3rd quadrant behaviour of WBG devices
  - Influence on on-state voltage of GaN devices
  - Influence on on-state voltage and dynamic behaviour of SiC MOSFETs

16:25 **Basics of Switching and Commutation**
Tobias Reimann
- How to understand and interpret measurement results

17:25 **End of 1st Day**

19:00 **Dinner**

Programme

Wednesday, 25 March 2026

09:00 **Start of 2nd Day**

09:00 **Dynamic measurement of data sheet parameters for Si based devices**
Ingmar Kallfass
- Double pulse test principle
- Switching on/off IGBTs, diodes and MOSFETs

10:30 **Break**

10:50 **Dynamic measurement of data sheet parameters for Si based devices - cont.**
Ingmar Kallfass
- Parasitic inductance in the double-pulse test
- Switch node capacitance in the double-pulse test

11:20 **Relevance of certain data sheet parameters for the application**
Tobias Reimann
- Characterization vs. application
- Circuit environment of power device
- Operating point of power device
- Operating mode of power device (hard switching, ZCS, ZVS)
- Specification of avalanche capability (unclamped inductive switching, UIS)
- Interpretation of non-linear output capacitance

12:15 **Final Discussion**

12:30 **Lunch**

13:30 **End of Tutorial**