Registration (Fax Reply)

To: ECPE e.V.
Att.: Sabrina Haberl, sabrina.haberl@ecpe.org
Please **e-mail** a scanned copy of the completed form or send a fax to: +49 (0)911 / 81 02 88 – 28

Register before **05 December 2012**

Participation fee:
○ **€ 490,–** * for industry
○ **€ 365,–** * for universities/institutes
○ **€ 100,–** * for students (shortened workshop package)

The fee includes dinner, lunch, coffee/soft drinks and a CD with the workshop presentations. A printed version of the workshop handout is available on request (€ 42,–*).

With the confirmation of registration you will receive the invoice. (* plus VAT) In case of cancellation after 05 December 2012 or non-attendance 50 % of the participation fee are payable.

Three participants from each ECPE member company free of charge. Allocation in sequence of registration.

Sender:

_____
Title, given name, name

_____
Company, department

_____
Full address

_____
Phone, fax

_____
E-mail

_____
Date, signature

V08 - 12.10.2012

Organisational information

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Organiser	ECPE e.V. 90443 Nuremberg, Germany www.ecpe.org
Chairmen	Prof. Dieter Silber, University of Bremen Prof. Leo Lorenz, ECPE e.V. Thomas Harder, ECPE e.V.
Organisation	Sabrina Haberl, ECPE e.V. +49 (0)911 / 81 02 88 – 13 sabrina.haberl@ecpe.org
Workshop venue	Commundo Tagungshotel Ismaning Seidl-Kreuz-Weg 11 85737 Ismaning/Munich Germany

Further information (hotel list and maps) will be provided after registration.

ECPE
European Center for
Power Electronics e.V.

Programme
ECPE Workshop

Power Semiconductor Robustness:
What Kills Power Devices?
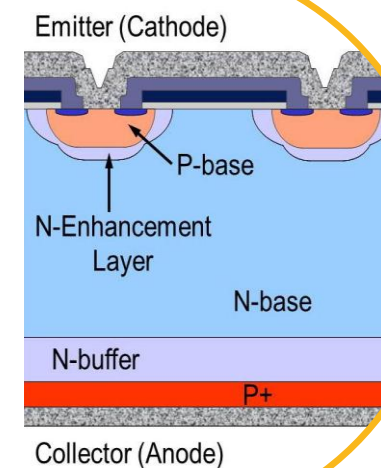
12 Dec. (afternoon session)
– 13 December 2012
Commundo Tagungshotel
Ismaning-Munich
Germany

In cooperation with

Cluster
Leistungselektronik

EPE

ECPE Workshop

Power Semiconductor Robustness: What Kills Power Devices?
12 Dec. (afternoon session) – 13 December 2012, Ismaning-Munich, Germany

The robustness or "ruggedness" of devices and systems characterizes their capability to cope with incidental stress and operation beyond normal conditions without or with only minimal damage. The main focus of the workshop concerns discrete power devices. Robustness can be achieved by suitable device layout, smart control and auxiliary components. All methods are closely interrelated with each other.

This Workshop was organised the first time in 2009. Since that time, system, device and device control have been developed to increased power density, device temperatures and ruggedness. Therefore we have decided to repeat it in 2012.

We have added a new topic which is related to the previous one, concerning the states of "killed" devices or modules. This topic was estimated as especially important for system safety. Therefore we have provided time for both a panel discussion and general comments.

The workshop is intended as a forum for discussions of both the system requirements and the device limitations. The system engineer will describe the worst case operating mode and the device specialists will explain the device destruction mechanisms and also, which problems might be solved by future device development. It should also be considered which new problems might occur due to ongoing developments in power electronic systems and devices. This could also help to specify appropriate research topics.

There will be about 5–10 min. of discussion after each lecture and additionally general discussions. We encourage active contributions of attendees. If attendees would like to present additional viewgraphs for discussion, they should tell us before.

The workshop is organized by Prof. Dieter Silber (University Bremen, Germany), Prof. Dr. Leo Lorenz (ECPE e.V.) and Thomas Harder (ECPE e.V.). All presentations and discussions will be in English.

Programme

Wednesday, 12 December 2012

16:00	Start of Registration / Welcome Reception

16:40 Welcome, Opening
D. Silber, University of Bremen (D)
L. Lorenz, ECPE e.V. (D)
T. Harder, ECPE e.V. (D)

General Lectures

17:00 Reliability, Robustness, Life Expectancy: Expectations and Emotions of Large Infrastructure Owners
S. Linder, ABB Power Systems (CH)

17:30 Robustness Validation or Total Reliability?
U. Scheuermann, Semikron Elektronik (D)

18:00 Role of Robustness within the General Frame of Reliability
G. Coquery, IFSTTAR (FR)

18:30 What stresses Power Semiconductors in Photovoltaic Applications?
E. Kiel, SMA Solar Technology (D)

19:00 Discussion

20:00	Dinner at Commundo Tagungshotel

Thursday, 13 December 2012

Requirements Concerning Robustness and Safe Operation Area from System Development

8:15 Robustness Requirements on Semiconductors for High Power Applications
M. Bakran, University of Bayreuth (D)

8:45 Transient Stress Situations of Power Semiconductor Devices in Switched-Mode Power Supplies (SMPS)
T. Reimann, Ilmenau University of Technology (D)

Physical Limitations of Safe Operation Areas, Expected Improvements

9:15 Aspects of Power Semiconductor Device Ruggedness: Examples from MOS – Transistors, IGBTs, and Diodes.
F.-J. Niedernostheide, Infineon Technologies (D)

9:45 Switching Ruggedness of High Voltage IGBTs and IGCTs
M. Rahimo, ABB Switzerland (CH)

10:15	Coffee Break

Programme

Thursday, 13 December 2012

10:45 Ruggedness of Wide Bandgap Devices
J. Lutz, Chemnitz University of Technology (D)

11:15 Device Simulation at the Rim of the Safe Operation Area
G. Wachutka, TU Munich (D)

11:45 Improved Robustness by Intelligent Control
A. Wintrich, Semikron Elektronik (D)

12:15 Discussion

12:30	Lunch

Special Session: System Based Requirements Concerning Destruction Process and State of Failed Devices

13:30 When the Device has been Killed - Failure Behaviour of Inverters in Drive Applications
H.-G. Eckel, University of Rostock (D)

13:55 How can we Deal with Device Failure Situations in the Circuit?,
M. Liserre, F. Blaabjerg, Aalborg University (DK)

14:20 Diverse Failure Mechanism in Power Devices
J. Puntigam, F/A Fehleranalyse Elektronik (D)

14:45	Coffee Break

15:05 Measures against Unwanted Torque as a Result of Power Device Failure
M. El Yaakoubi, Conti Temic microelectronic (D)

15:25 Prevention of Electrical Overstress in Semiconductors for Automotive Applications
C. Thienel, Robert Bosch (D)

15:45 Panel Discussion: Contributions from Automotive Industries, Aircraft Systems and Research Institute

Comments of Power Semiconductor Industry
(Various speakers from industry and acdemia)

ca. 16:30 Final Discussion

ca. 17:00	End of Workshop