Registration (Fax Reply)

To: ECPE e.V.
Att.: Ingrid Bollens

Fax: +49 (0)911 / 81 02 88 – 28

Register before **6 October 2009**

Participation fee:

Part II
13 – 14 Oct.

☐ 580.00 € Industry

☐ 480.00 € University

The fee includes the tutorial dinner, lunch, coffee/soft drinks and handouts.

With the confirmation of seminar registration you will receive the invoice. (* plus 19 % VAT); 50 % discount for ECPE Member Companies. In case of cancellation after 6 October 2009 or non-attendance 50 % of the participation fee are payable.

Number of participants is limited to 30 attendees.

Sender:

_____
title, given name, name

_____
company, department

_____
full address

_____
phone, fax

_____
e-mail

_____
date, signature

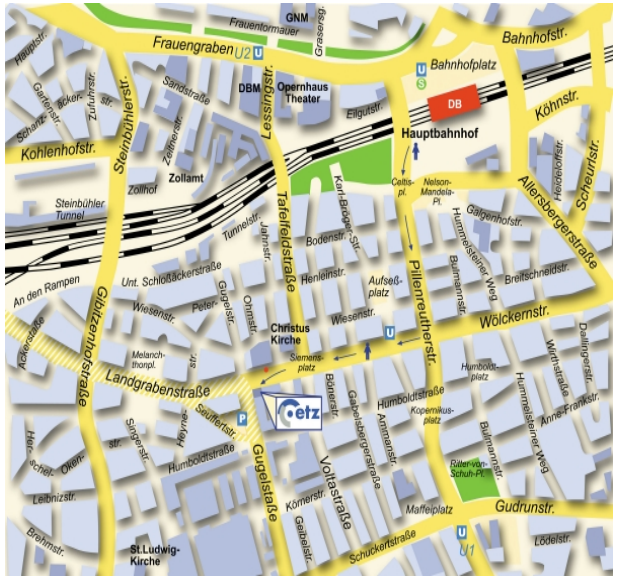
Organisational information

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

Course instructor: Prof. Eckhard Wolfgang
ECPE e.V.
Dr. Uwe Scheuermann
Semikron Elektronik

Organisation: Ingrid Bollens, ECPE e.V.
+49 (0)911 / 81 02 88 – 10
ingrid.bollens@ecpe.org

Place of seminar: ECPE e.V. (in etz-building)
Landgrabenstrasse 94
90443 Nuremberg, Germany



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

Cluster Leistungselektronik

ECPE

ECPE European Center for Power Electronics e.V.

ECPE Tutorial

Thermal Engineering of Power Electronic Systems

Part 2: Thermal Management and Reliability

13 - 14 October 2009
at ECPE (etz-Building)
Nuremberg, Germany

Introduction

ECPE Tutorial
"Thermal Engineering of Power Electronics Systems"
Part 2: Thermal Management and Reliability

13 -14 October 2009
Nuremberg, Germany

Thermal engineering of power electronic systems is a key to achieve high performance and reliability. In the focus of the new ECPE tutorial is the thermal simulation and verification of the SEMIKUBE IGBT converter which is equipped with thermal sensors for verification.
Part 1: At first the topology of the IGBT converter and it's components are described as well as the data sheet. Then the results of the electrical simulation are presented in regard to performance and thermal losses. The following sections deal with basics of heat conduction, convection and exchange. Practical examples will be used for a good understanding of cooling the hot parts in the system. After an introduction to analytical and FEM methods five groups are formed to exercise thermal simulations and measurements.
Part 2: After a detailed description of the results of the first part the impact of thermal behavior of the converter on the reliability is discussed in detail. The knowledge of functional requirements, mission profiles, physics of failure, thermal measurements (thermal images and impedance) are needed for building-in reliability and for the robustness validation process.

All presentations and discussions will be in English.

Programme

Tuesday, October 13, 2009

9:30 *Start of registration*

10:00 **Welcome, Opening**
T. Harder, ECPE

10:15 **Introduction:**
Programme of Tutorial
E.Wolfgang, ECPE

10:30 **Results of Tutorial Part 1**
A. Wintrich, Semikron Elektronik

11:30 **Requirements, Mission Profile**
E. Wolfgang, ECPE e.V.

12:15 Lunch

13:15 **Temperature and Reliability: Failure Mechanisms**
U. Scheuermann, Semikron Elektronik

14:15 **Thermal Measurements**
U. Scheuermann, Semikron Elektronik

15:15 **Introduction to the Experiment**
A. Wintrich, Semikron Elektronik

15:30 Coffee Break

16:00 **Experiment: Thermal Impedance of System**
A. Wintrich, Semikron Elektronik

16:30 **Model for Thermal Impedance**
U. Scheuermann, Semikron Elektronik

17:30 **Wrap-up 1st day**

17:45 **End of 1st Day**

19:30 Dinner

Programme

Wednesday, October 14, 2009

8:30 **Thermal Impedance: FEM Simulation**
E. Rudnyi, CADFEM

9:30 **Thermo-mechanical Simulation**
E. Rudnyi, CADFEM

10:30 Coffee Break

11:00 **Design for Reliability**
U. Scheuermann, Semikron Elektronik

12:15 Lunch

13:15 **Robustness Validation**
E. Wolfgang, ECPE

14:15 **Cooling Technologies**
E. Wolfgang, ECPE

15:00 Wrap up2nd day,
Final discussion

15:30 **End of Tutorial**