

Registration (Fax Reply)

To: ECPE e.V.
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Please **e-mail** a scanned copy of the completed form or
send a fax to: +49 (0)911 / 81 02 88 – 28

Register before **25 November 2014**

Participation fee:

- € 530,- * for industry
- € 395,- * for universities/institutes
- € 120,- * for students/PhD's
(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 (€ 50-*).

With the confirmation of registration you will receive the invoice (* plus VAT). In case of cancellation after 18 November 2014 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

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Organisational information

Organiser	ECPE e.V. 90443 Nuremberg, Germany www.ecpe.org
Chairmen	Prof. Eckhard Wolfgang, ECPE e.V. Dr. Max H. Poech, Fraunhofer ISIT Andreas Schletz, Fraunhofer IISB
Organisation	Ingrid Bollens, ECPE e.V. +49 (0)911 / 81 02 88 – 10 ingrid.bollens@ecpe.org
Venue	NH Hotel Nuremberg City Bahnhofstrasse 17-19 90402 Nuremberg, Germany



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



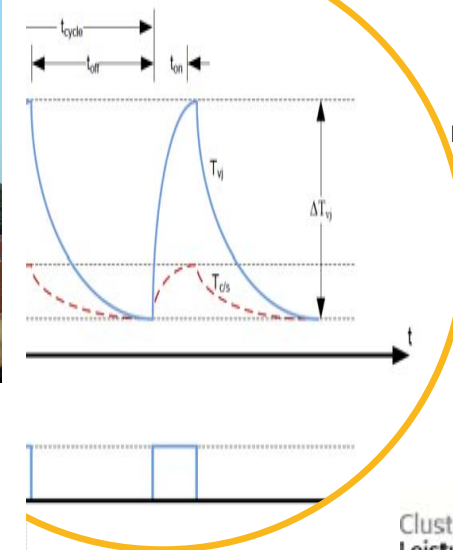
Programme

ECPE Workshop

Intelligent Reliability Testing

2 – 3 December 2014
NH Hotel Nuremberg City
Nuremberg, Germany

in cooperation with



Fraunhofer
ISIT

Fraunhofer
IISB

Cluster
Leistungselektronik



ECPE Workshop

Intelligent Reliability Testing

2 – 3 December 2014

Nuremberg, Germany

In continuation of the ECPE Workshop “Lifetime Modeling and Simulation” held last year in Dusseldorf reliability testing is in focus this time. One of the major challenges is that with increasing quality and reliability of products, test times are increasing as well. Another one is to get knowledge about mission profiles in the field. Although automotive power and microelectronics are pushing processes and standards the test philosophy remains the same for all branches.

Guidance on Relationship of Robustness Validation to AEC-Q101 (REV-D1 September 6, 2013)

A qualification method has recently been developed with the intent of addressing application specific operations. Called **Robustness Validation**, this method considers the specific environmental and operational application conditions and the customer lifetime requirements to calculate the minimum required set of qualification test conditions, durations and sample sizes. It also utilizes a reliability knowledge matrix that identifies likely failure mechanisms associated with the application and part specifics.

The **AEC qualification requirements** are used as a baseline of test conditions and durations in the field of automotive electronics. It is intended to cover the majority of the application areas in terms of use time and loading.

Test results, however, cannot stand alone – lifetime simulations have to be available for comparisons and further extended simulations.

The workshop is chaired by Prof. Eckhard Wolfgang (ECPE), Andreas Schletz (Fraunhofer IISB), Dr. Max Poech (Fraunhofer ISIT) and Thomas Harder (ECPE).

All presentations and discussions will be in English.

There will be a table top exhibition in the frame of the workshop:

- Testinverter for Film Capacitors, Alpitronic
- High Voltage HRTB and PC Testing, SET GmnH
- Power Cycling Tester, Ingenieurbüro Schletz
- T3Ster, TIM Tester, Mentor Graphics
- Nondestructive SOA Testing, University of Cassino and Southern Lazio

Programme

Tuesday, 2 December 2014

9:00	Start of Registration / Welcome Coffee
9:30	Welcome, Opening Thomas Harder, Eckhard Wolfgang, ECPE e.V.
Mission Profiles	
9:45	Qualification of Power Electronics Modules for Use in Motor Vehicle Components A. Aal, Volkswagen (D)
10:15	Mission Profile Translation to the Reliability of Power Electronics for Renewables K. Ma, CORPE – Aalborg University (DK)
10:45	Combined Loads and Mechanisms O. Wittler, Fraunhofer IZM (D)
11:15	Presentations of Table Top Exhibitors
12:15	Lunch
Reliability Testing of Systems	
13:30	Dynamic Lifetime Test under Real Application Conditions H.-P. Feustel, Conti temic microelectronic (D)
14:00	Highly Accelerated Life Test (HALT): Theory and Praxis S. Schmitt, Semikron Elektronik (D)
Power Modules 1	
14:30	Overview of Published Power Cycle Test Results A. Schletz, Fraunhofer IISB (D)
15:00	Wind Turbine Power Module Tests and Lifetime Estimation S. Munk-Nielsen, Aalborg University (DK)Discussion
15:30	Coffee break
16:00	<u>Case Study:</u> Reliability Testing of High-T Resistant Electronics A. Otto, Fraunhofer ENAS (D)
16:20	<u>Case Study:</u> Impact of Different Failure Modes on Active Power Cycling Lifetime U. Scheuermann, Semikron Elektronik (D)
16:40	<u>Case Study:</u> Reliability Results of Danfoss Bond Buffer Technology J. Rudzki, Danfoss Silicon Power (D)
17:00	<u>Case Study:</u> High voltage HTRB and Power Cycle testing – a real automotive example F. Heidemann, SET GmbH (D)
17:20	Discussion
17:30	Table top Exhibition
18:00	End of 1 st workshop day
20:00	Dinner at Restaurant “Bratwurst Röslein” Rathausplatz 6, 90403 Nuremberg

Programme

Wednesday, 3 December 2014

Power Modules 2	
8:30	Identification of Concurrent Failure Modes during Power Cycling Tests A. Vass-Varnai, Mentor Graphics (HU)
9:00	Power Cycling Failures explained by Modelling the Materials Behaviour M. Poech, Fraunhofer ISIT (D)
9:30	Lead-free Solder Reliability Experiment and Modeling for High Power Applications J.-M. Morelle, Valeo (F)
10:00	Discussion
10:20	Coffee break
Single Power Devices	
10:50	Active Cycling Test of Smart Power Devices A. Nelhiebel, Infineon Technologies Austria (A)
11:20	Power Package Ageing Effects - Influence of Humidity & Temperature on Material & and Device Reliability T. Thomas, Fraunhofer IZM (D)
11:50	Electrical Stresses Effects during Reliability Testing on Smart Power Devices S. Lefebvre, SATIE (F)
12:20	Lunch
Passive Devices	
13:30	Overview on Reliability of Film Capacitors W. Grimm, EPCOS (D)
14:00	<u>Case Study:</u> Corona Discharge in Film Capacitors for AC Applications P. Jacob, EMPA (CH)
14:20	Drop Testing of Inductive Components J. Schlieue, EPCOS (D)
14:50	<u>Case Study:</u> Reliability Testing of the ShowerPower Cooler K. Olesen, Danfoss Silicon Power (D)
15:10	Testing of TIM Reliability F. Jin, Consulting (D)
15:40	Final Discussion
16:00	End of Workshop