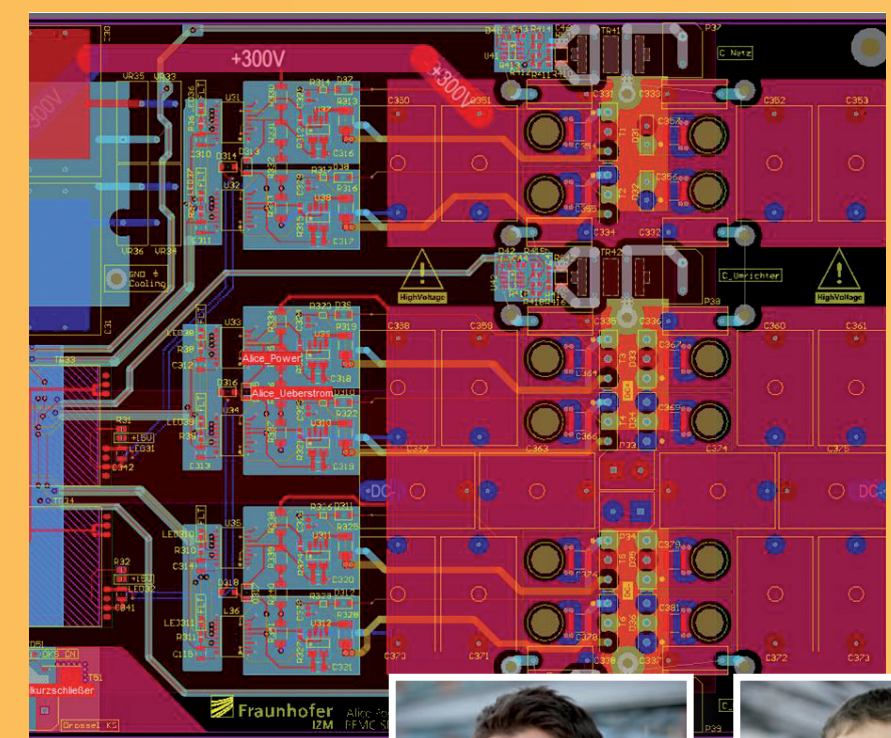


Prototype manufacturing at Fraunhofer IZM

Development, production and qualification steps for Power electronic devices at Fraunhofer IZM

Design

Electrical Design

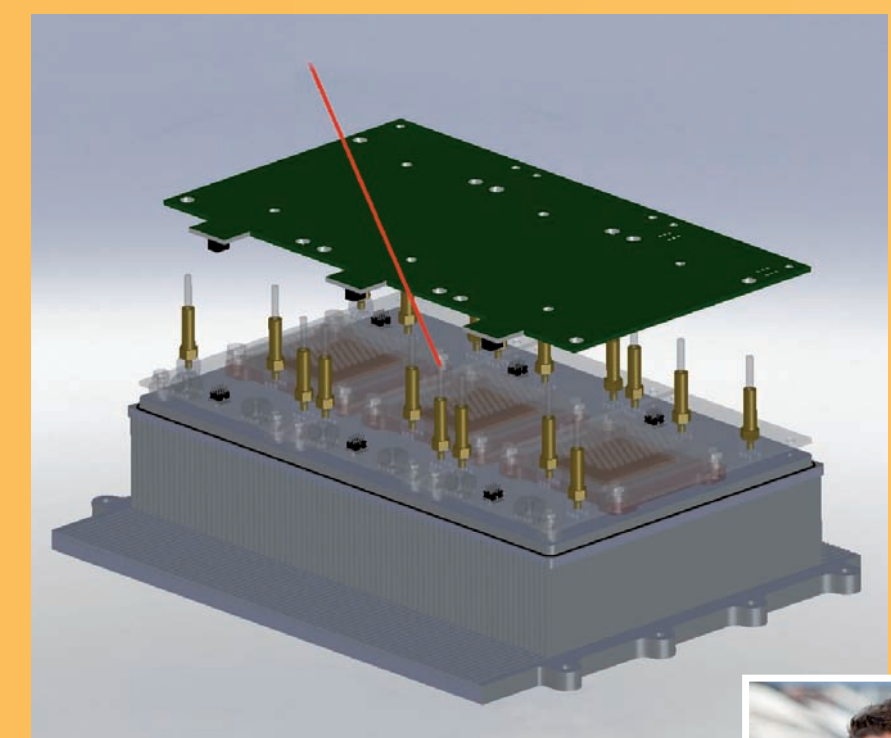


- ▶ calculation
- ▶ shape
- ▶ layout
- ▶ simulation



CONTACT
Dr. Eckart Hoene, Oleg Zeller
Bldg. 25, 2nd Floor

Mechanical Design

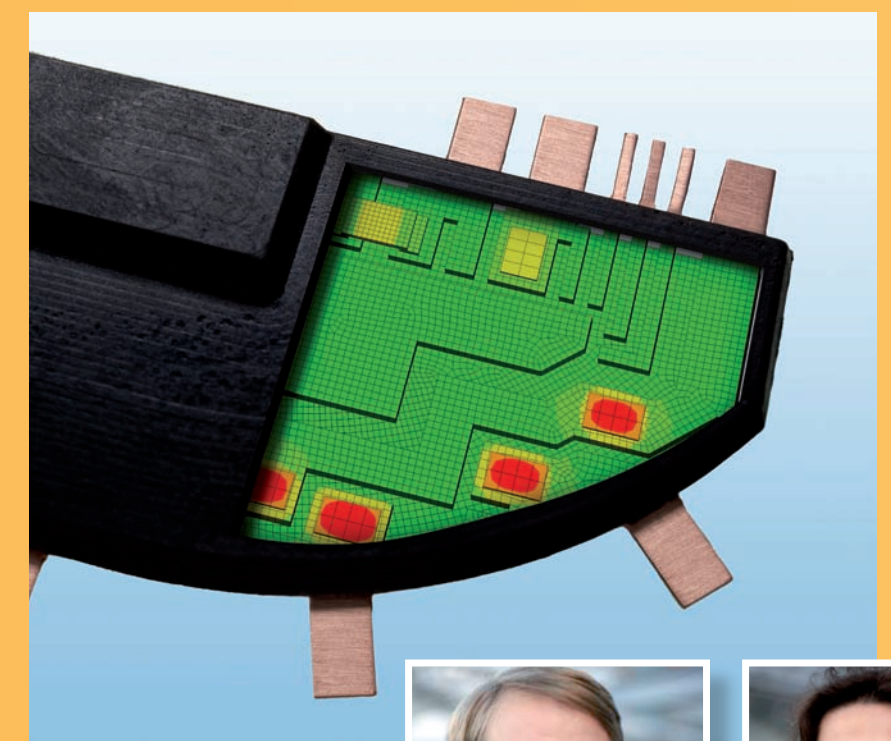


- ▶ calculation
- ▶ shape
- ▶ simulation

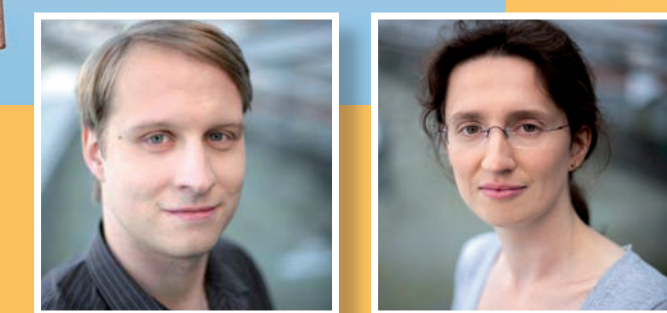


CONTACT
Christoph Marczok
Bldg. 25, 2nd Floor

Thermal Design



- ▶ calculation
- ▶ simulation

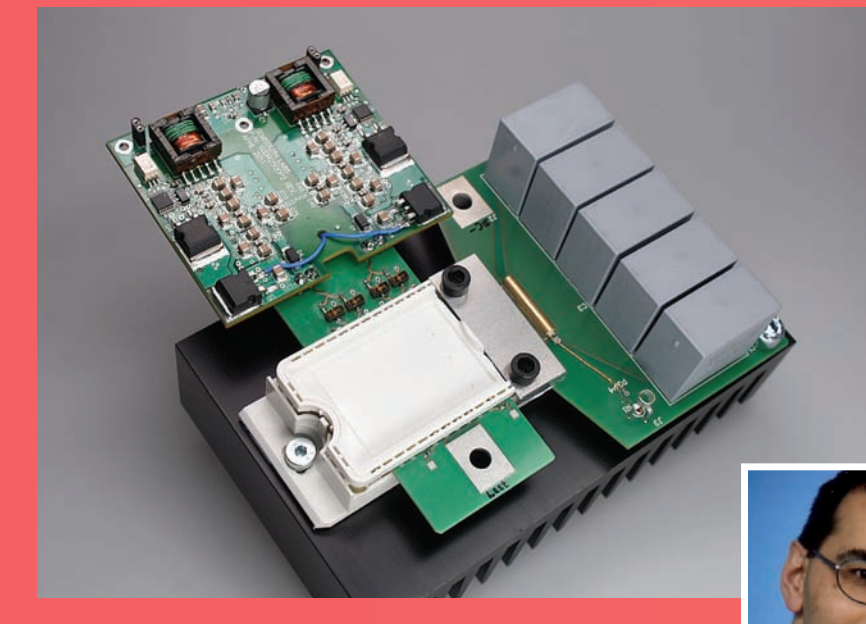


CONTACT
Torsten Nowak
Bldg. 17, 2nd Floor
Gudrun Felix
Bldg. 25, 2nd Floor

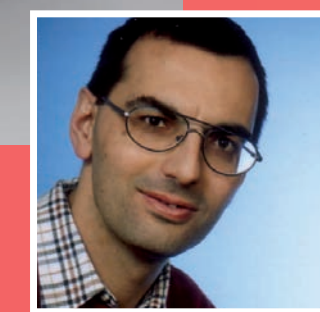
Production

Mechanical parts

WORKSHOP



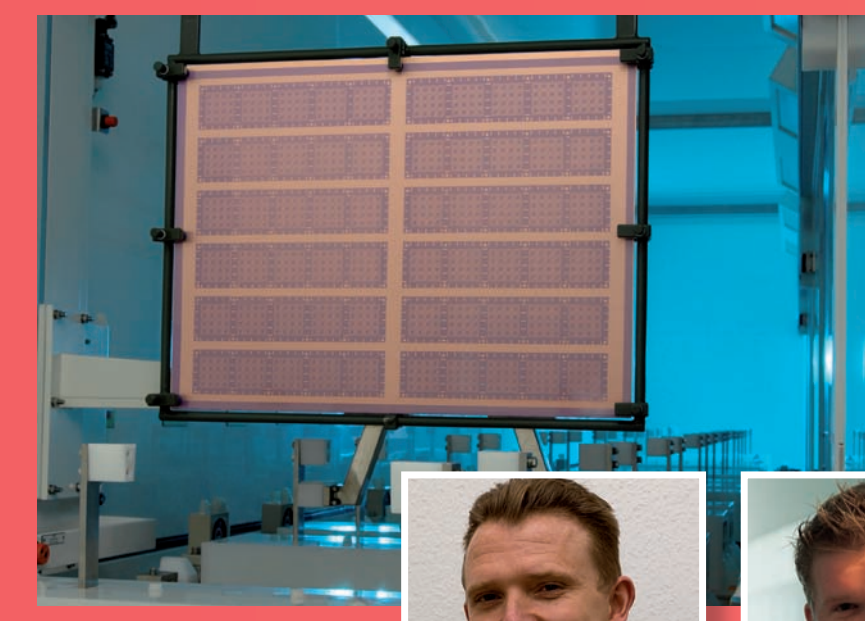
- ▶ cutting, shaping, and forming of precision parts and assemblies in a maximum size 500 mm



CONTACT
Anton Sattelmayer
Bldg. 25, 1st Floor

PCB Production line

PCB PRODUCTION

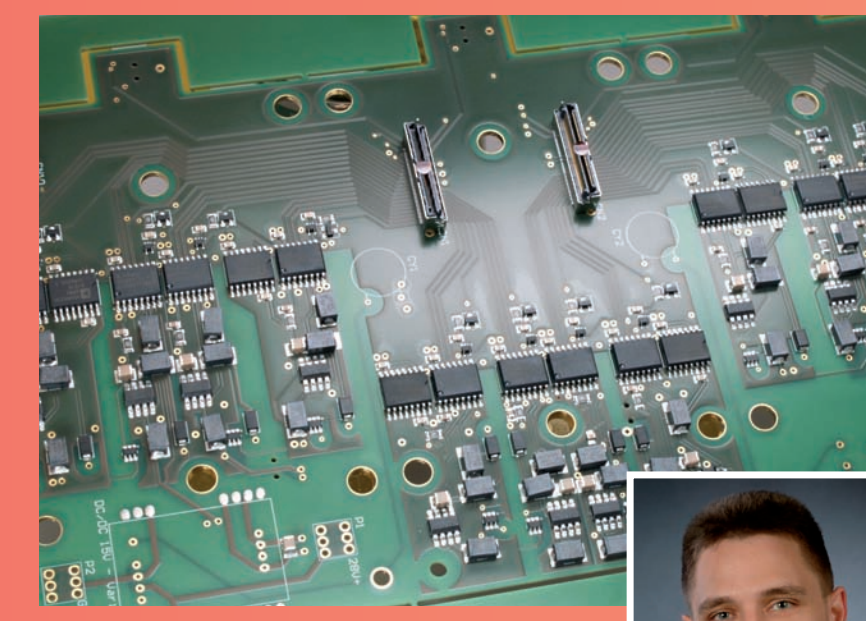


- ▶ multilayer
- ▶ embedding
- ▶ flex

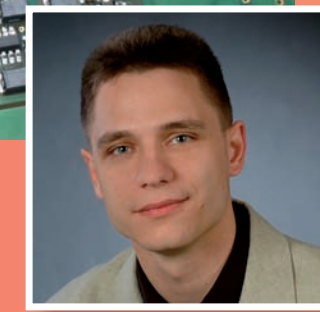


CONTACT
Lars Böttcher
Bldg. 17, 2nd Floor
Stefan Karaszkiwicz
Bldg. 17, 3rd Floor

MOUNTING



- ▶ semiautomatic
- ▶ fully automatic
- ▶ for mass-production



CONTACT
Steve Voges
Bldg. 26, 2nd Floor

Power Package

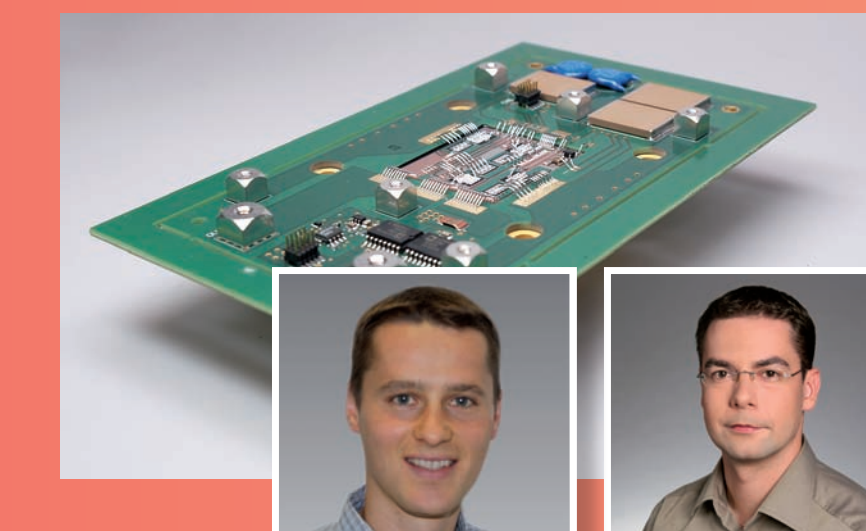
DCB PRODUCTION



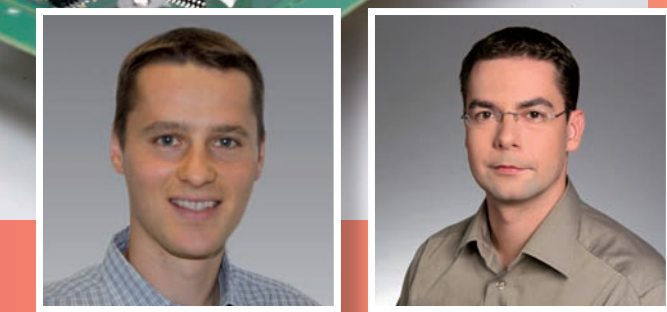
- ▶ all available materials

CONTACT
external Partner

WIRE BONDING

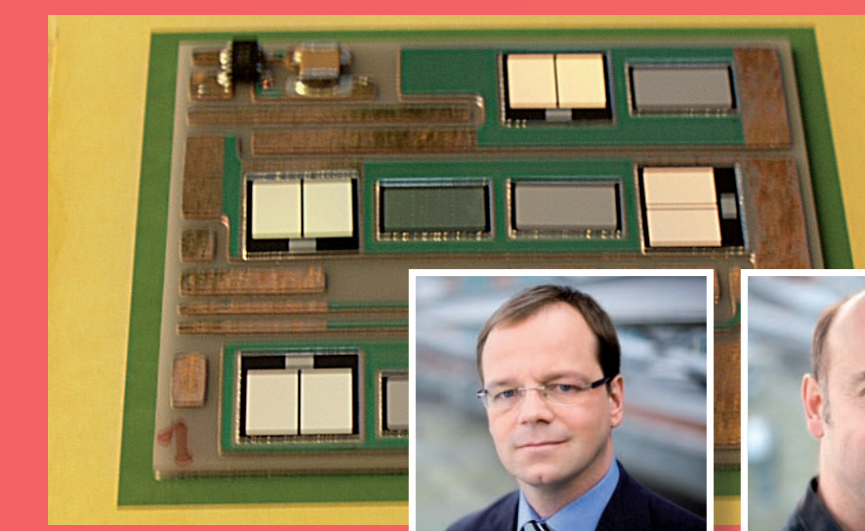


- ▶ fully automatic
- ▶ heavy wire bonding up to 500 µm
- ▶ ribbon bonding up to 3 mm
- ▶ thin wire bonding



CONTACT
Jens-Martin Göhre
Bldg. 26, 4th Floor
Stefan Schmitz
Bldg. 26, 4th Floor

DIE ATTACH

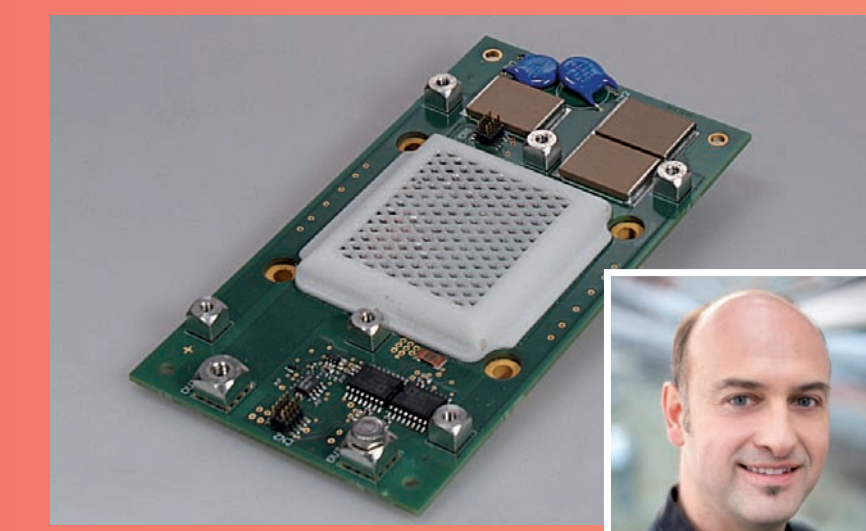


- ▶ soldering
- ▶ sintering
- ▶ gluing



CONTACT
Dr. Matthias Hutter
Bldg. 17, 4th Floor
Karl-Friedrich Becker
Bldg. 26, 2nd Floor

ENCAPSULATION



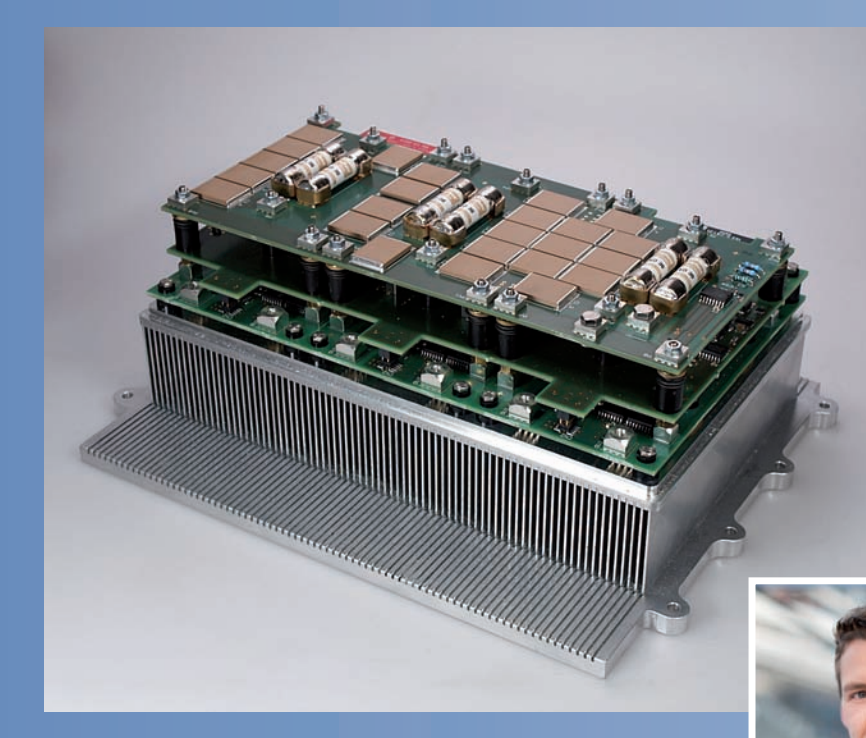
- ▶ automatic grouting
- ▶ potting, GlobTop, moulding
- ▶ handling with silicone, epoxy resins, PU, u.a.
- ▶ package analysis (destructive and non destructive)



CONTACT
Karl-Friedrich Becker
Bldg. 26, 2nd Floor

Installation

Assembling



- ▶ mounting of the individual pieces and assemblies to the entire system

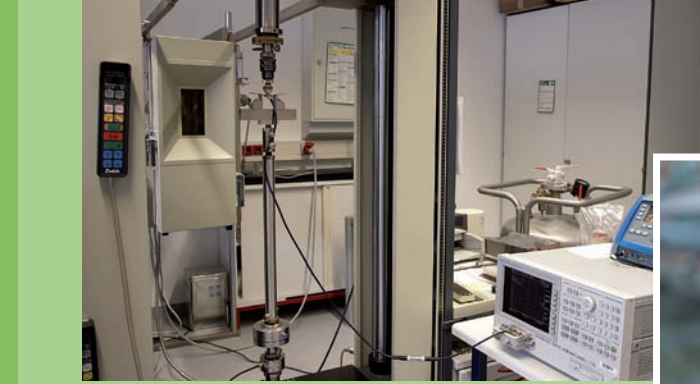


CONTACT
Christoph Marczok
Bldg. 25, 2nd Floor

Qualification

Function

ELECTRICAL TESTING



- ▶ electrical function
- ▶ noise factors



CONTACT
Group PEMO Dr. Eckart Hoene
Bldg. 25, 2nd Floor

THERMAL TESTING



- ▶ hot spots
- ▶ temperature distribution
- ▶ climate testing



CONTACT
Torsten Nowak
Bldg. 17, 3rd Floor
Felix Wöst
Bldg. 17, 2nd Floor

MECHANICAL TESTING



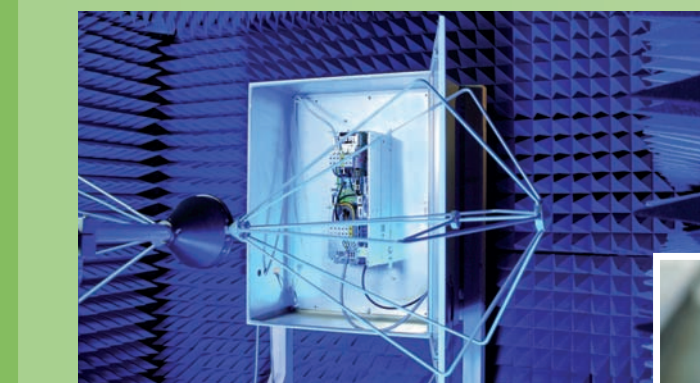
- ▶ static / dynamic
- ▶ shock / vibration
- ▶ HALT / HASS



CONTACT
Olaf Bochow-Neß
Bldg. 17, 2nd Floor

Reliability

ELECTRICAL TESTING

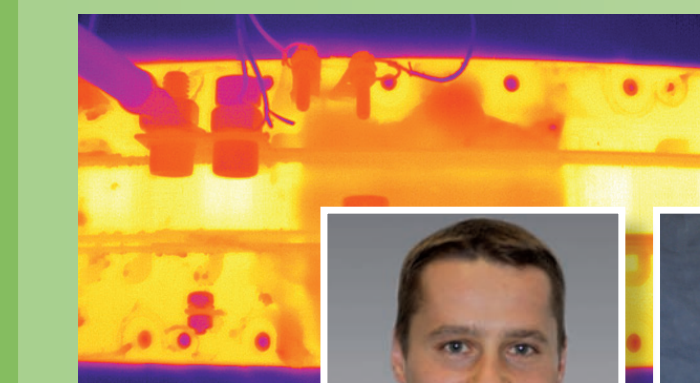


- ▶ EMV
- ▶ various load profiles
- ▶ – at different ambient temperatures



CONTACT
Group PEMO André Domurat-Linde
Bldg. 25, 2nd Floor

THERMAL TESTING



- ▶ active power cycling
- ▶ passive cycling
- ▶ temperature change tests



CONTACT
Jens-Martin Göhre
Bldg. 26, 4th Floor
Felix Wöst
Bldg. 17, 2nd Floor

MECHANICAL TESTING



- ▶ material characterization
- ▶ material modeling
- ▶ simulation



CONTACT
Dr. Hans Walter
Bldg. 17, 2nd Floor
Tobias Prewitz
Bldg. 17, 2nd Floor

Continual support