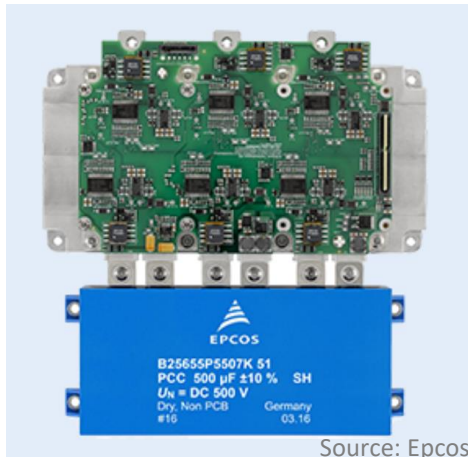


Master Thesis



DC-Link film capacitors for advanced xEV converters

Insulated-gate bipolar transistors (IGBT) represent main components of state-of-the art inverter in electric vehicles (xEV). Besides high performance capability and reliability, the modules are designed to provide an excellent efficiency behavior over the entire operation range. The project topics include a study and testing of low inductance, high performance film capacitors that are able to operate at high frequency and under hard switching applications with optimized losses. The master thesis is to be performed at EPCOS Electronics Components in Málaga, España in co-operation with the Institute of Automotive Engineering at Graz University of Technology.

Working packages:

- Literature review of automotive converter technologies and capacitor DC-link solutions
- Study of expected influences on WBG semiconductors in automotive applications
- Definition of main characteristics for high frequency capacitors for xEV
- Electrical and thermal FEA simulation
- Prototype testing of DC-link (current distribution vs. frequency, double pulse, switching waveforms, thermal stability)
- Transcription and presentation of the work

Duration: 6 Months
Start: From June 2018
Workplace: EPCOS ELECTRONIC COMPONENTS S.A.U., Málaga, España

An allowance is offered after successful accomplishment of the master thesis.

Contact: Associate Prof. Dr. Mario Hirz, mario.hirz@tugraz.at
 Institute of Automotive Engineering @ Graz University of Technology