浙江大学 电气工程学院
COLLEGE OF ELECTRICAL ENGINEERING, ZHEJIANG UNIVERSITY

第七届（上海）新能源汽车电驱动与BMS技术研讨会

新能源汽车车载电源（OBC）技术方案

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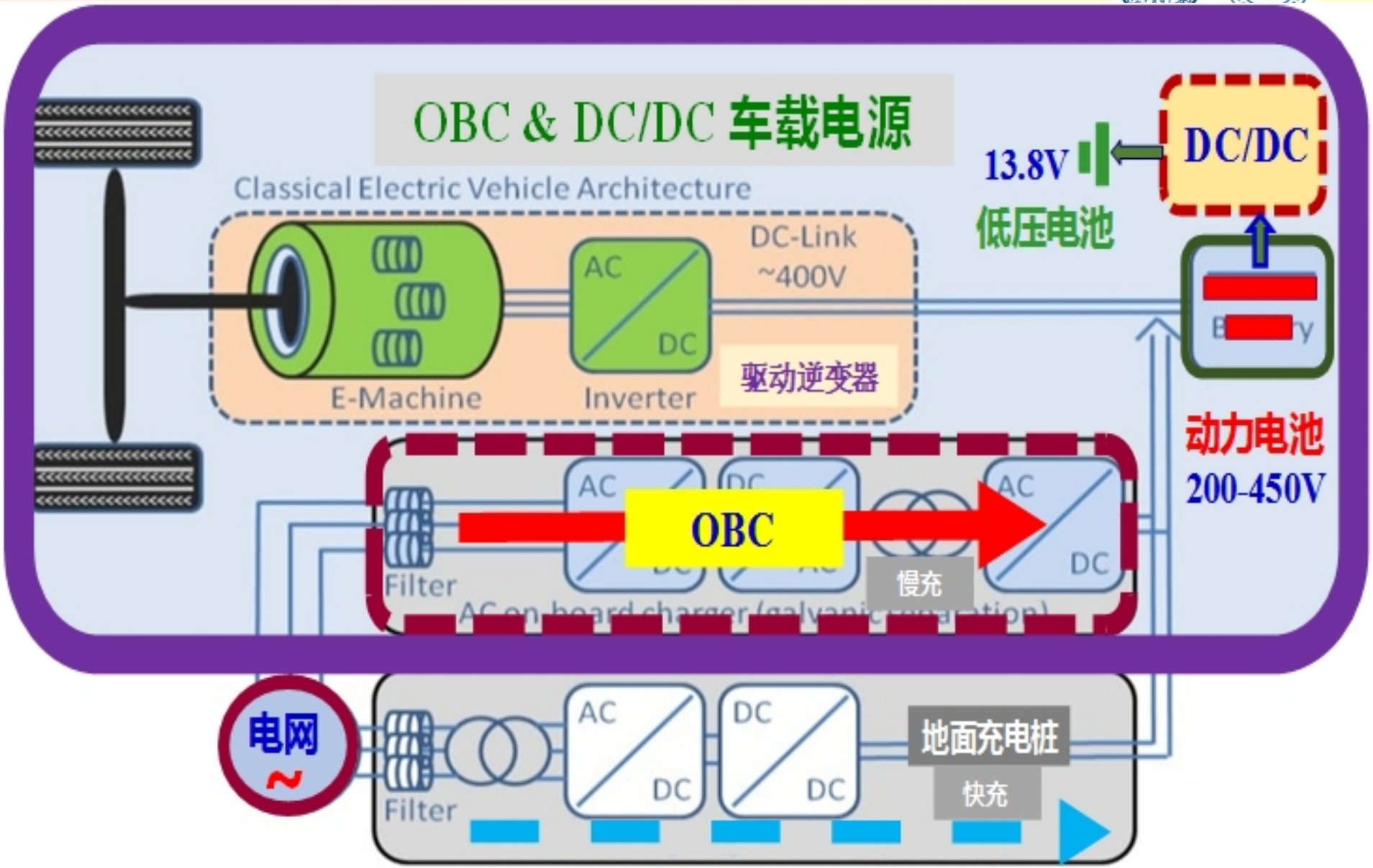
上海宝丰大酒店（50’），2019年11月8日

电动汽车的充电方式

充电桩：地面（车外）

车载充电机（OBC）：车载(车上）

电动汽车的电气系统——电能变换



Demo 案例

EPCOS for xEV application

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A TDK Group Company
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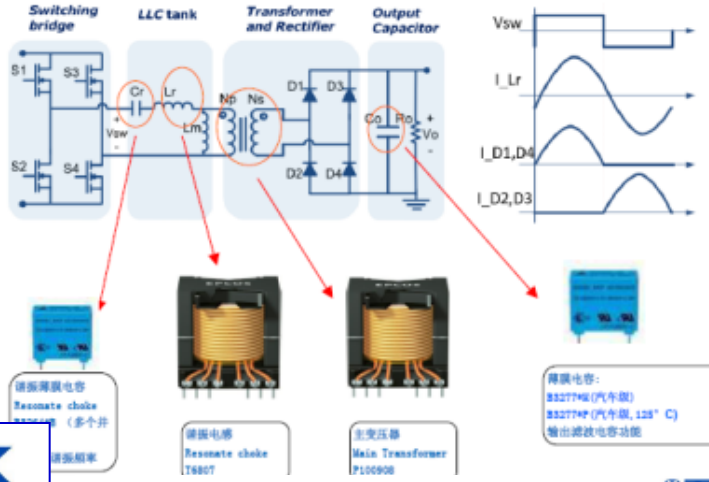
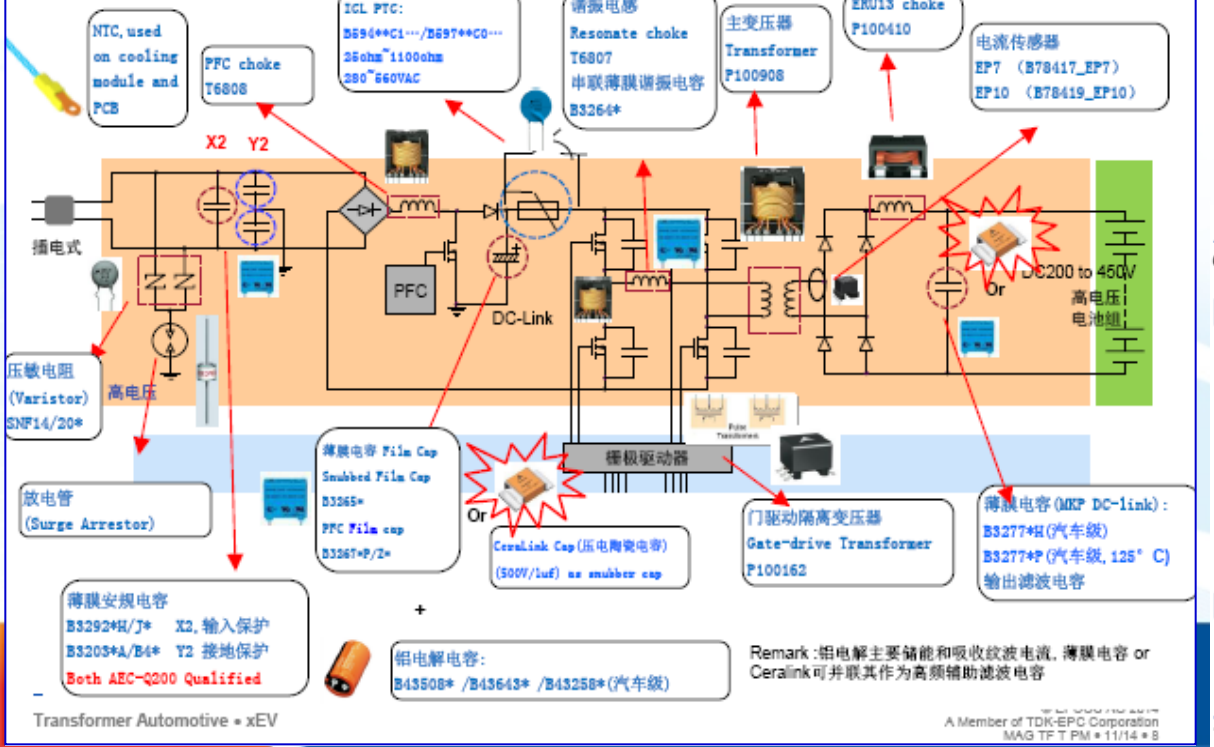
Shanghai, China
Feb 2018

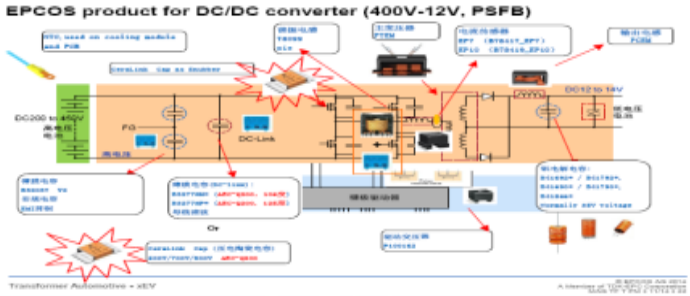
7. LLC Unit product solution（ LLC单元产品应用）



EPCOS for On board Charger / 车载充电器



EPCOS product for DC/DC converter (400V-12V, PSFB)



6. MAG for OBC (CTCEM series) 变压器及电感 OBC上应用简介

OBC

Features

- PQ 35 / 40 / 50 cores
- PTH
- Switching Frequency 100kHz
- Operating Temperature : -40°C to +150°C
- Typical creepage and clearance distances according IEC 60664 and IEC 61558 (Uop 500V ; PU2 ; CTI3)
- **Transformer** typ. Output Power 3.3kW
- **PFC Choke** typ. IPeak 23A, 2 phase interleaving
- **Resonance Choke** ZVS - fullbridge: L_{typ} 3 - 5 µH , IPeak 25 A
  LLC - topology: L_{typ} 50 µH , IPeak 25 A

Status

- Series parts ; AECQ-200 existing

Ordering code/Type

- Transformer: T100908
- PFC choke: T6808
- Resonance Choke: T6807

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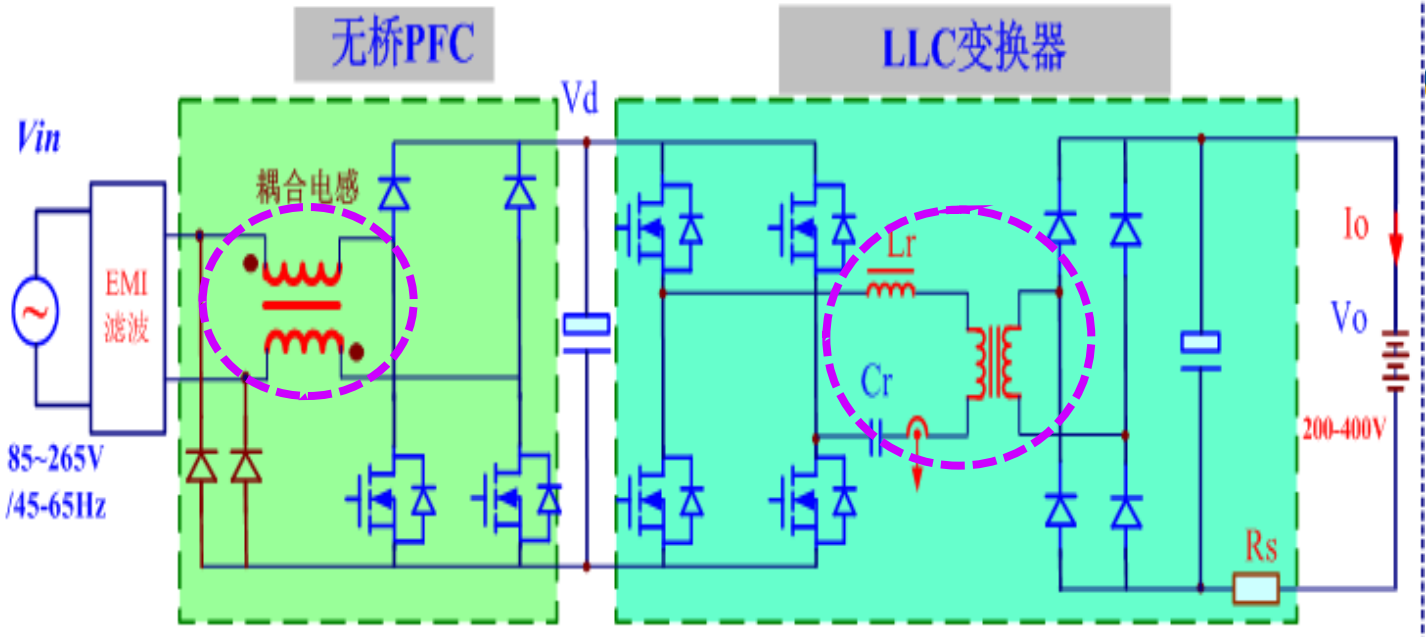
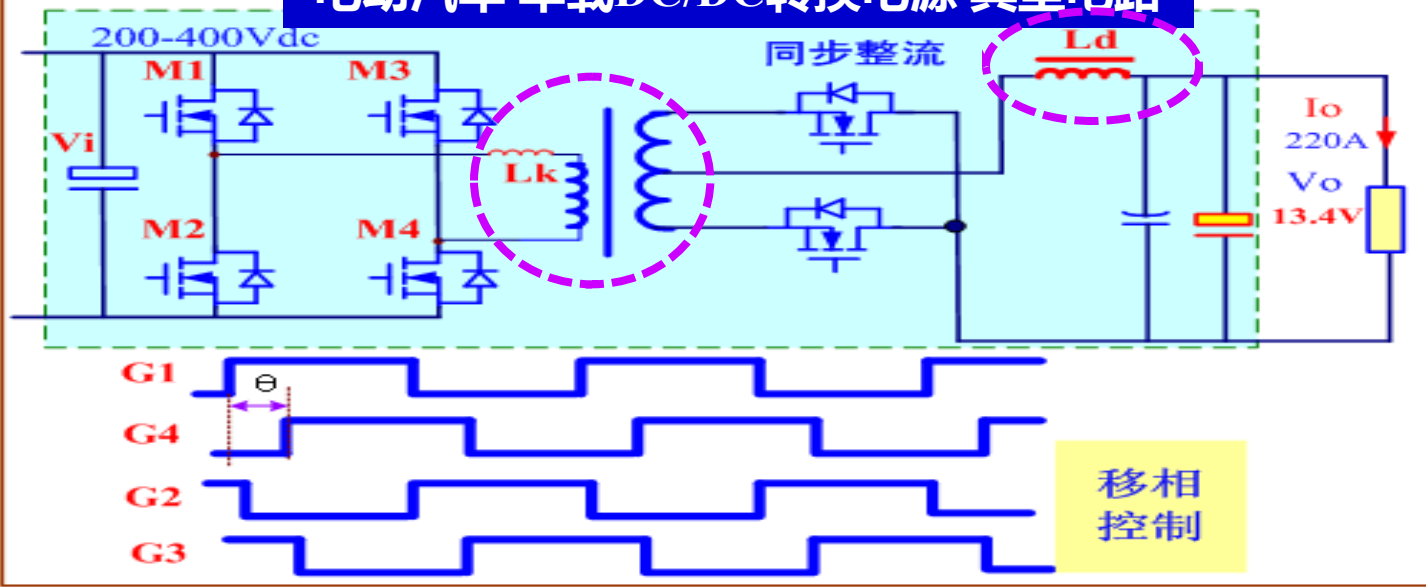
电动汽车车载充电机（OBC）典型电路



电动汽车 车载DC/DC转换电源 典型电路



车载电源要求

损耗低

效率高

体积小

磁芯材料

C95 / 96低磁损

高磁导率

高饱和磁密

PFC电感：粉芯

变压器：铁氧体

Lr: 铁氧体