应用简介

用于电池化成的英飞凌全频谱电源系统解决方案

日常生活所用的无线和电池供电设备越来越多，电动汽车也同样如此。不同充电容量的电池产量需求本就稳步增加，在上述趋势推动下更是动力十足。因此，电池制造商也就必须提高整个生产过程的效率，满足需求。

电池化成是电池生产必经的阶段，电池化成时，新组装的电池先以极为精确的电压和精确的电流来充放电，以便激活电池材料。化成循环对电池寿命，质量和成本都有很大的影响，但目前由于它成本高，耗时长，是目前生产的瓶颈。

英飞凌全频谱电源系统解决方案，含全面的效率和性价比双优化产品组合，能充分满足高精度，高效率和高功率密度的应用要求。

关键性能：
- 充放电周期内的高电压和电流精度（高达0.01%）
- 高功率密度
- 高效率
- 运行期间的最佳热管理
- 系统24/7运行，极为可靠

英飞凌的主要使能产品：
- 低压功率MOSFET – OptiMOS™和StrongIRFET™
- 高压功率 MOSFET – CoolMOS™
- 栅极驱动器 IC – EiceDRIVER™
- 分立 IGBT – TRENCHSTOP™
- 微控制器 – XMC™

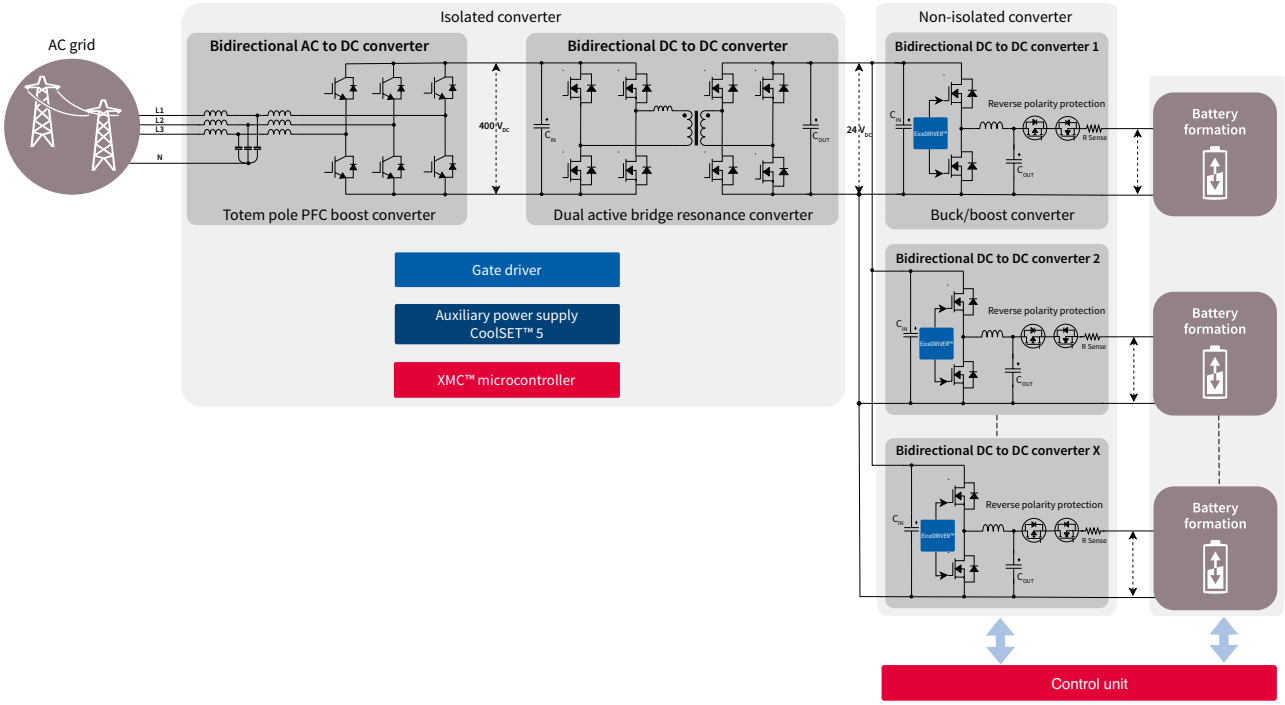
主要优点

- 高效，创新，低成本的解决方案，可节省整体BOM
- 高功率密度半导体缩减外形尺寸
- 完整系统加快产品上市：
  - 仿真模型
  - 设计文档
  - 演示板
- 英飞凌的质量提高了产品的使用寿命和可靠性
- 一站式产品组合

更多信息

- www.infineon.com/batteryformation
- www.infineon.com/optimos
- www.infineon.com/coolmos
- www.infineon.com/eicedriver

系统框图 - 电池化成



AC-DC 层级：双向变换器*			
功率	层级	CoolMOS™ 和 IGBT	Eice DRIVER™
2 kW	PFC	IPW60R090CFD7 TRENCHSTOP™ H5	2EDFx 2EDSx 2EDNx 1EDIx
4 kW	PFC	IPW60R040CFD7 TRENCHSTOP™ H5	2EDFx 2EDSx 2EDNx 1EDIx
2 kW	隔离DC-DC 初级侧	IPW60R105CFD7	2EDFx 2EDSx 2EDNx 1EDIx
4 kW	隔离DC-DC 初级侧	IPW60R090CFD7	2EDFx 2EDSx 2EDNx 1EDIx
辅助电源		CoolSET™ 5 - ICE5QR4780AZ	
微控制器		XMC™ 4000 系列	

隔离 DC-DC 次级侧*					
V_{out}	MOSFET 击穿电压	SMD 封装 OptiMOS™ 6 和 OptiMOS™ 5			
		D²PAK	SSO8	TOLL	D²PAK-7
12 V	40 V	IPB015N04L G (1.5 mΩ)	BSC007N04LS6 (0.7 mΩ)	IRL40T209 (0.7 mΩ)**	IPB011N04L (1.1 mΩ)
24 V	60 V	IPB019N06L3 G (1.9 mΩ)	BSC012N06NS (1.2 mΩ)	IPT007N06N (0.75 mΩ)	IPB014N06N (1.4 mΩ)
48 V	100 V	IPB020N10N5 (2.0 mΩ)	BSC027N10NS5 (2.7 mΩ)	IPT015N10N5 (1.5 mΩ)	IPB017N10N5 (1.7 mΩ)
96 V	150 V	IPB048N15N5 (4.8 mΩ)	BSC093N15NS5 (9.3 mΩ)	IPT059N15N3 (5.9 mΩ)	IPB044N15N5 (4.4 mΩ)
96 V	200 V	IPB107N20N3 (10.7 mΩ)	BSC220N20NSFD (22 mΩ)	IPT111N20NFD (11.1 mΩ)	
驱动器		1EDN7550B / 2EDF7275X			
微控制器		XMC™ 4000 系列			

非隔离双向 DC-DC 层级*							
V_{in}	MOSFET 击穿电压	SMD 封装 OptiMOS™ 6 和 OptiMOS™ 5				插件封装 OptiMOS™ 和 StrongIRFET™	
		D²PAK	SSO8	TOLL	D²PAK-7	TO-220	TO-247
12 V	30 V	IRLS3813PbF (1.95 mΩ)	BSC011N03LS (1.1 mΩ)	IPT004N03L (0.4 mΩ)	IPB009N03L (0.95 mΩ)	IRLB3813 (1.95 mΩ)	IRFP3703 (2.8 mΩ)
24 V	40 V	IPB015N04L G (1.5 mΩ)	BSC007N04LS6 (0.7 mΩ)	IRL40T209 (0.7 mΩ)**	IPB011N04L (1.1 mΩ)	IRLB3034 (2.0 mΩ)	IRFP7430PBF (1.3 mΩ)
24 V	60 V	IPB019N06L3 G (1.9 mΩ)	BSC012N06NS (1.2 mΩ)	IPT007N06N (0.75 mΩ)	IPB014N06N (1.4 mΩ)	IPP020N06N (2.0 mΩ)	IRFP7530 (2.0 mΩ)
48 V	100 V	IPB020N10N5 (2.0 mΩ)	BSC027N10NS5 (2.7 mΩ) BSC093N15NS5 (150 V, 9.3 mΩ)	IPT015N10N5 (1.5 mΩ)	IPB017N10N5 (1.7 mΩ)	IPP023N10N5 (2.3 mΩ)	IRF100P219 (1.7 mΩ)
96 V	200 V	IPB107N20N3 (10.7 mΩ)	BSC220N20NSFD (22 mΩ)	IPT111N20NFD (11.1 mΩ)		IPP110N20N3 (11 mΩ)	IRF200P222 (6.6 mΩ)
驱动器		1EDN7550B / 2EDF7275X					

*针对特定封装的业界最佳产品　**StrongIRFET™

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