

产品简介

OptiMOS™ 6 功率 MOSFET 40 V 系列

英飞凌首款新一代尖端MOSFET产品系列

创新和一流的性能是英飞凌成功向市场推出优秀产品的关键。而OptiMOS™ 6 系列 40 V器件再次在分立功率MOSFET领域树立了新的技术标准。与其他替代产品相比，英飞凌领先的薄晶圆技术带来了显著的性能优势。

英飞凌的OptiMOS™ 6功率MOSFET 40 V系列产品针对各种应用和电路进行了优化，例如，针对服务器，台式电脑，无线充电器，快速充电器等开关电源的同步整流和ORing电路进行优化。导通电阻($R_{DS(on)}$)和品质因数(FOM - $R_{DS(on)} \times Q_g$ 和 Q_{gd})的改善使设计人员能够提高效率，简化热设计，减少并联，进而降低系统成本。

关键性能

- > 与替代产品相比：
 - $R_{DS(on)}$ 降低了 30%
 - FOM $Q_g \times R_{DS(on)}$ 提高了 29%
 - FOM $Q_{gd} \times R_{DS(on)}$ 提高了 46%
- > 针对同步整流进行了优化
- > 适合ORing电路
- > 符合RoHS标准 - 无卤素
- > MSL1等级

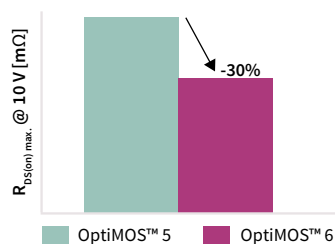
主要优点

- > 最高系统效率
- > 减少并联
- > 增加功率密度
- > 极低的电压过冲
- > 减少了对缓冲吸收电路的需求
- > 降低系统成本

目标应用

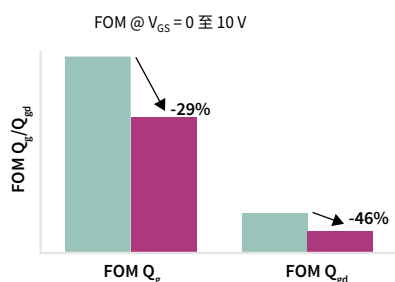
- > SMPS
- > 服务器
- > 电信
- > 充电器
- > 低压马达驱动
- > 多轴飞行器
- > 无线充电

$R_{DS(on)}$ 比较



OptiMOS™ 6 和上一代最低可用的 $R_{DS(on)}$ 比较

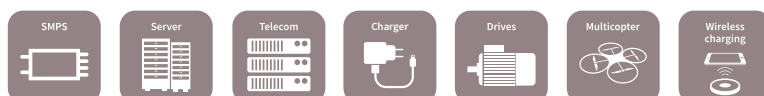
FOM 比较



OptiMOS™ 6 和上一代产品之间 FOM Q_g 和 FOM Q_{gd} 的比较

英飞凌市场领先的OptiMOS™ 6 功率 MOSFET 40V备有两种不同的封装：

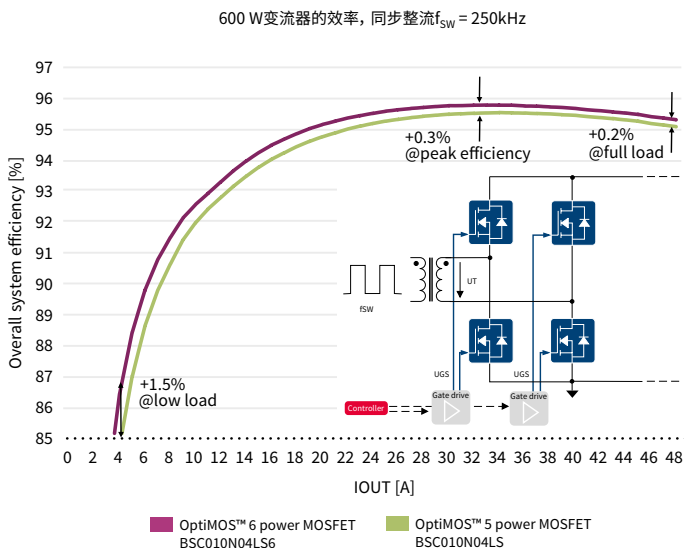
- > SuperSO8 - 5 x 6 mm, $R_{DS(on)}$ 范围从5.9 mΩ降至0.7 mΩ
- > PQFN 3x3 - 3.3 x 3.3 mm, $R_{DS(on)}$ 范围从 6.3 mΩ 降至 1.8 mΩ



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OptiMOS™ 6 40 V 结合了同类最佳的 $R_{DS(on)}$ 以及优越的开关性能



在SMPS应用中, OptiMOS™ 6是完美的选择, 在各种输出功率率范围内优化效率, 可避免在低负载和高负载条件之间进行艰难的权衡。

在低输出功率范围内, 主要损耗来自于开关损耗。由于其优越的开关性能, 与相同的 $R_{DS(on)}$ OptiMOS™ 5相比, OptiMOS™ 6 功率 MOSFET BSC010N04LS6 在此范围内实现了更高的效率。

此外, 在更高的输出功率下, $R_{DS(on)}$ 损耗越来越占主导, OptiMOS™ 6可以保持优势, 在整个工作范围内提供更好的性能。

产品组合

封装	器件型号	V_{DS} [V]	$R_{DS(on)}$ max. @VGS = 10 V [mΩ]
SuperSO8 5 x 6 mm	BSC007N04LS6	40	0.7
	BSC010N04LS6	40	1.0
	BSC022N04LS6	40	2.2
	BSC059N04LS6	40	5.9
PQFN 3x3 3.3 x 3.3 mm	BSZ018N04LS6*	40	1.8
	BSZ021N04LS6*	40	2.1
	BSZ024N04LS6*	40	2.4
	BSZ063N04LS6*	40	6.3

*将于2019年第二季度发布

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