Product Brief

Demonstrating › 93% Efficiency in Voltage Regulation for Power Applications

The New OptiMOS™ 25V/30V Family

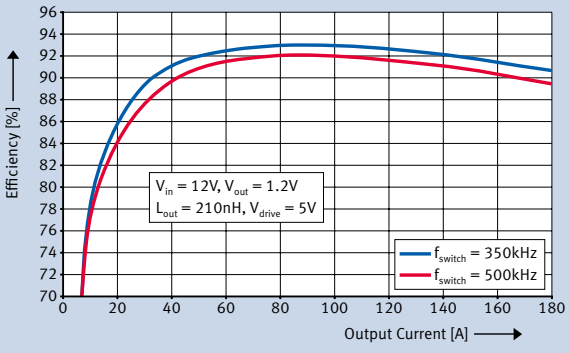
With the new OptiMOS™ 25V and 30V productfamily, Infineon sets new standards in power density and Energy Efficiency for discrete power MOSFETs. Ultra low gate- and output charge together with lowest on state resistance in small footprint packages make OptiMOS™ 25V the best choice for the demanding requirements of voltage regulator solutions in Servers, Datacom and Telecom applications. OptiMOS™ 30V products are taylored to the needs of power management in Notebook by improved EMI behaviour as increased battery life.

The new OptiMOS™ products are available in high performance packages to tackle your most challenging applications giving full flexibility in optimizing space - efficiency and cost. They are disigned to meet and exceed the Energy Efficiency and power density requirements of the sharpened next generation voltage regulation standards in computing applications, such as Intels VR12 specification.

With the new OptiMOS™ products Infineon has the best solution to:

- save overall system costs by reducing the number of phases in multiphase converters
- reduce power losses and increase Energy Efficiency for all load conditions
- save space with smallest packages like CanPAK™[1)] or S3O8
- minimize EMI in the system making external snubber networks obsolete

Efficiency of OptiMOS™ 25V in a six-phase server VRD



Outstanding performance of the new OptiMOS™ 25V and 30V products is exemplified on a six-phase Server V_{core} VRD. 93% peak efficiency and ›90% full load efficiency is demonstrated with new OptiMOS™ 25V products in SuperSO8 package. (HighSide: BSC050NE2LS; LowSide: BSC010NE2LS)

www.infineon.com/optimos

Features

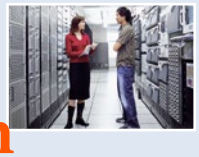
- Best in class on-state resistance
- Benchmark switching performance due to lowest Figure of Merits R_{on} x Q_g and R_{on} x Q_{gd}
- Low gate resistance
- Excellent 5V gate drive performance
- Optimized EMI behaviour based on an integrated damping network
- Super Barrier Diode may improved efficiency by upwards of 2%.
- RoHS compliant and halogen free

Benefits

- Save overall system costs by reducing the number of phases in multiphase converters
- Highest efficiency
- Smallest footprint and highest power density with S3O8 & CanPAK™
- Easy to design-in
- Can be driven from 5V system rail giving excellent performance

Applications

- On board power for server
- Power management for mobile computing
- Synchronous rectification
- High power density point of load converters



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Six phase standard SuperSO8 solution compared to six phase S3O8 power density optimized design and four phase CanPAK™ cost optimized design based on OptiMOS™ 25V product family.

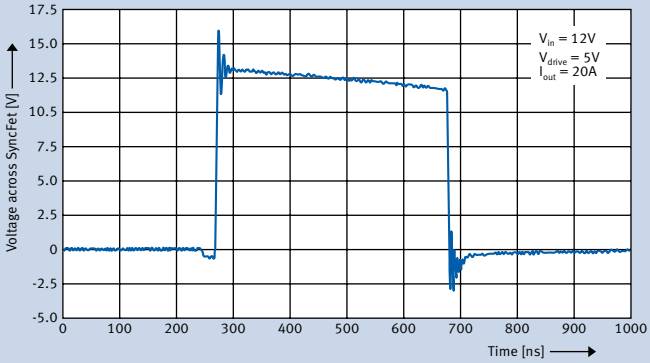
SuperSO8 solution 6 phases

S3O8 solution 6 phases

CanPAK solution 5 phases

Best in class on state resistance of R_{dson}(max@V_{gs}=10V)=1.8mΩ in S3O8 package (3.3 x 3.3mm²) enable highest power density solutions as demonstrated for a 130W high efficiency voltage regulator for Server application. Top side cooling capability of CanPAK™ enables ›35A/phase and allows to reduce the overall system cost by reduction of phases.

Clean waveforms for optimized EMI behavior make new OptiMOS™ 25V/30V products easy to use



With new OptiMOS™ 25V/30V products short switching times (rise and fall times ‹5ns) go in hand with excellent EMI behaviour. An integrated damping network guarantees low over- and undershoot and minimizes ringing without sacrifycing efficiency

Product Portfolio OptiMOS™ 25 V und 30 V

25 V	SuperSO8	S3O8	CanPAK™ M	CanPAK™ S
‹ 1.0 mΩ	BSC009NE2LS [3]		BSB008NE2LS [3]	
1.0 - 1.5 mΩ	BSC010NE2LS BSC010NE2LSI [1] BSC014NE2LSI [1]		BSB012NE2LX BSB013NE2LXI [1]	
1.6 - 2.0 mΩ	BSC018NE2LSI [1] BSC018NE2LS	BSZ018NE2LSI [1] BSZ018NE2LS		
2.1 - 2.5 mΩ	BSC024NE2LS			
3.0 - 4.0 mΩ	BSC032NE2LS	BSZ036NE2LS		
4.1 - 4.5 mΩ				BSF030NE2LQ
4.6 - 5.0 mΩ	BSC050NE2LS			
5.1 - 5.5 mΩ				
5.6 - 6.0 mΩ		BSZ060NE2LS		

30 V	SuperSO8	S3O8
1.0 - 1.5 mΩ	BSC011N03LS	
1.6 - 2.0 mΩ	BSC0901NS BSC0901NSI [1]	BSZ019N03LS
2.1 - 2.5 mΩ		BSZ0901NSI [1]
2.6 - 3.0 mΩ	BSC0902NS	BSZ0902NS BSZ0902NSI [1]
3.1 - 3.5 mΩ	BSZ0902NSI [1]	
3.6 - 4.0 mΩ	BSC0904NSI [1]	BSZ0904NSI [1]
5.1 - 5.5 mΩ	BSC0906NS BSC052N03LS	
6.1 - 6.5 mΩ		BSZ065N03LS
7.0 - 8.0 mΩ	BSC0908NS	
› 9.0 mΩ	BSC0909NS	BSZ0909NS

30 V	S308 - Dual
7+9 mΩ	BSZ0907ND [2]
9+19 mΩ	BSZ0908ND [2]

1) Product with Infineon® Super Barrier Diode (monolithically integrated Schottky like diode)

2) Upcoming products (SOP) will be released in Q4 2011

3) Special products for Oring/ E-fuse

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