

48 V auxiliaries: High integration with chip embedding



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가상부스에 오신 걸 환영합니다!



48 V auxiliaries: High integration with chip embedding

Products

Broadest MOSFET portfolio for your 48 V applications

System approach

- › **Broadest 80 V and 100 V MOSFET package portfolio for 48 V applications:** Solutions starting from tiny SMD packages for low-power 48 V requirements extending up to high-power packaging solutions offering best thermal performance for 48 V battery main switches and main inverters. Alongside the standard SMD packages for copper substrates, variants for top-side cooling or AI-based insulated metal substrates (IMS) complement the broad MOSFET offering.
- › **High integration with chip embedding for 48 V applications:** Innovative embedding of Infineon's OptiMOS™ 5 technology leading to lowest $R_{DS(on)}$ combined with best-in-class heat dissipation and high power efficiency. Enables high integration of the power electronics for 48 V applications. As well as meeting the high power requirements of 48 V starter generators and 48 V battery main switches, chip embedding also offers a highly integrated solution for 48 V auxiliaries like fans, pumps and heaters.

Success stories

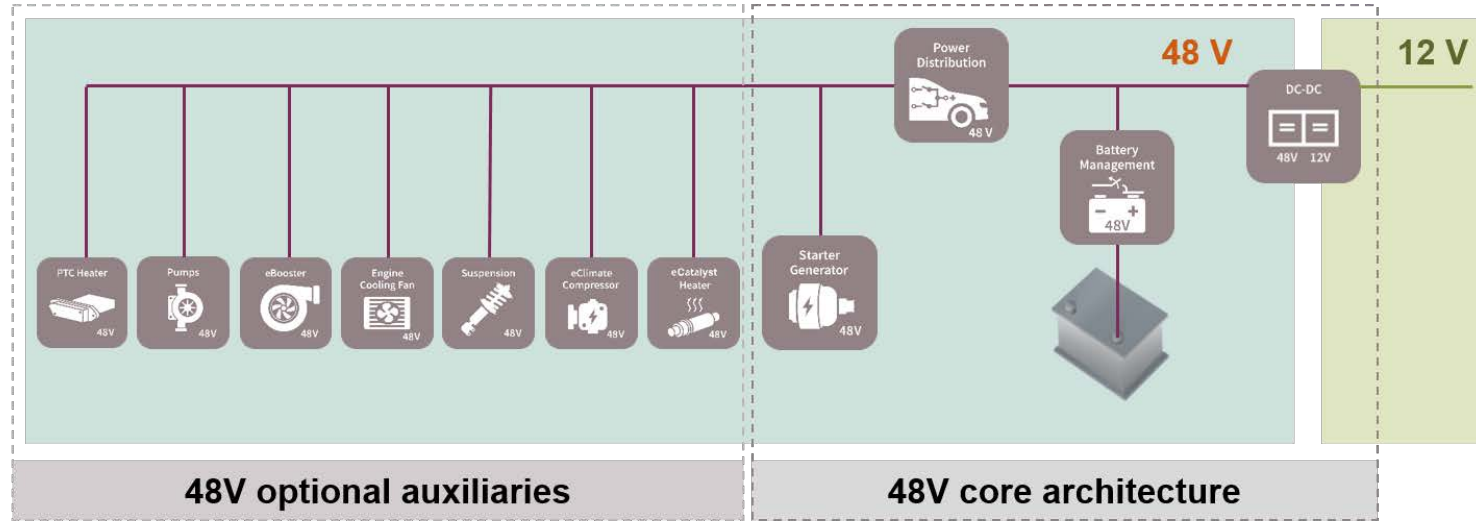
Your trusted partner for 48 V applications

Key benefits

- › Strong footprint in 48 V application segment
- › High-performance OptiMOS™ 5 technology
- › Lowest $R_{DS(on)}$ MOSFETs
- › Parallel MOSFET designs for lowest $R_{DS(on)}$ and minimum component count. Pin-compatible TOLL and TOLG packages enable high scalability and re-use of ECU designs
- › Fully prepared for the xEV ramp-up with 300 mm chip factories
- › Proven track record worldwide with widespread usage in xEV applications

Infiniteon's OptiMOS™ 5 80 V & 100 V automotive MOSFETs

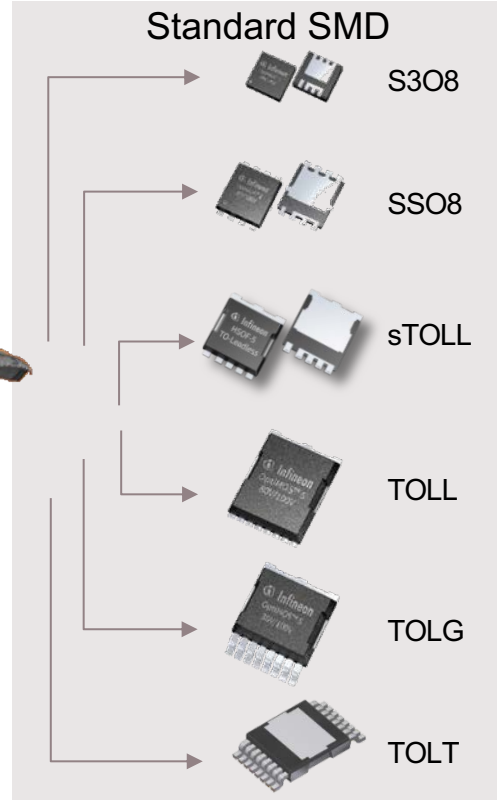
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- › enables better comfort (heating, suspension)
- › supports emission reduction with electrically heated catalyst (e.g. EURO7)
- › reduces CO₂ with load electrification

- › reduces CO₂ between 5% and 15%
- › improves driving performance
- › reduces emissions with torque boost (e.g. EURO7)

Infiniteon's OptiMOS™ 5 80 V & 100 V automotive MOSFETs 48 V auxiliaries: High integration with chip embedding



- › Low- / medium-power SS08, S308 and sTOLL for 48 V auxiliaries



- › Medium-power sTOLL, TOLL and TOLG for 48 V auxiliaries and DC/DC

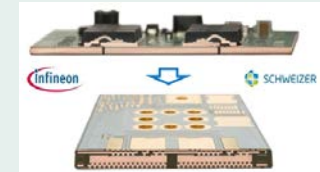


- › High-power TOLL, TOLG and TOLT for paralleling of starter generators and battery disconnect switches

High integration

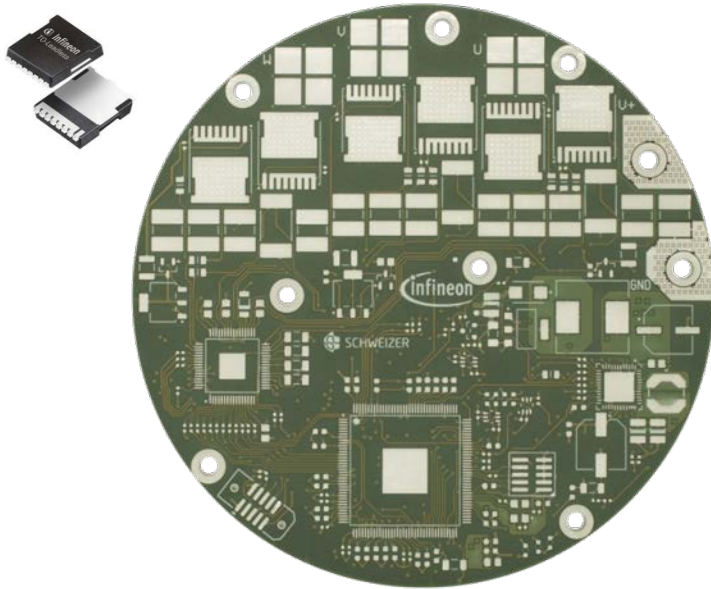


Chip embedding



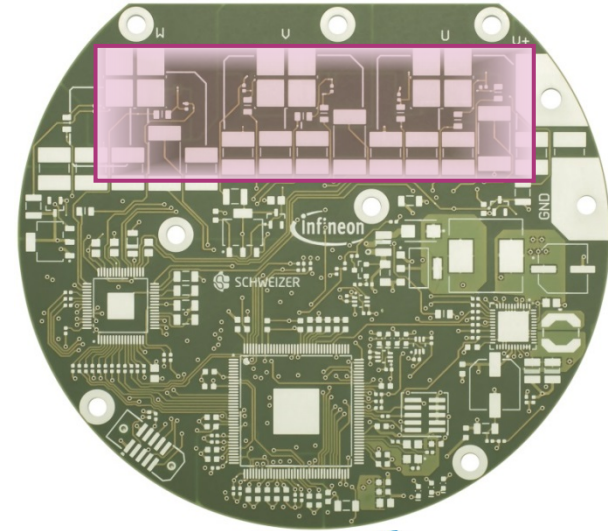
Comparison of a 48 V auxiliary brushless DC motor application

Discrete heavy copper solution



Smart p² pack

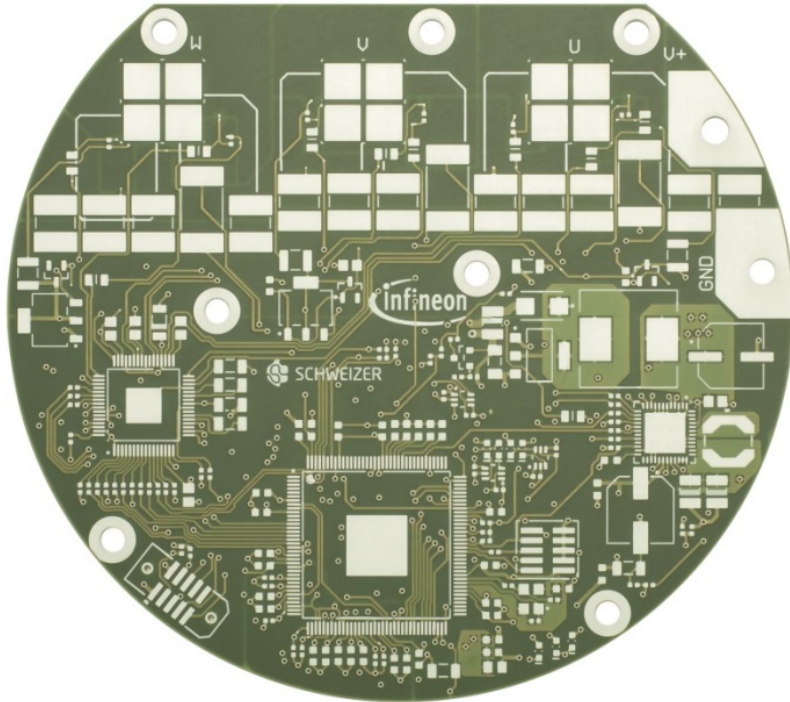
with 6x embedded OptiMOS™ 5





-13.5%

Less space
than discrete solution

Infiniteon's OptiMOS™ 5 80 V & 100 V automotive MOSFETs 48 V auxiliaries: High integration with chip embedding



www.infineon.com/automotivemosfet

Improvement of Chip Embedding		Discrete Package  TOLL+Inlay	Chip Embedding  Smart p ² Pack®
Power-Stage	$R_{DS(on)}$	100%	-30%
	R_{TH}	100%	-30%
	Z_{TH}	100%	-40%
	L	100%	-80%
	Power Capability	100%	+35%
System Inter-connect	Loop-Resistance	100%	+++
	Compact Design	100%	+++
Quality	Reliability	100%	+++



+



SCHWEIZER

Infiniteon's OptiMOS™ 5 80 V & 100 V automotive MOSFETs

The perfect fit for your 48 V applications



Highest power efficiency for 48 V automotive systems with chip embedding into PCB
e.g.: 48 V 3-phase BLDC motor drive for 48 V auxiliaries

System approach

- › Infineon: 6 x OptiMOS™ 5 80 V
- › Schweizer: Embedding power MOS into PCB / Smart p² Pack®
- › 48 V pumps or fans with BLDC motor
~ 2 kW electrical peak power

Customer system benefits

- › Highest power density & performance
- › Highest integration inside the motor
- › Best cooling
- › Lowest inductivity
- › Best robustness, quality, reliability
- › Ease of system assembly
- › Optimized system costs



+



SCHWEIZER



Part of your life. Part of tomorrow.