PRODUCT BRIEF

OptiMOS™ 7 100 V SSO8 Automotive MOSFETs



The new benchmark for lowest on-resistance

Infineon introduces a portfolio of MOSFETs in our next, leading edge, power semiconductor technology; OptiMOS™ 7 100 V. These products are offered in a versatile, robust, high current SSO8 5x6mm^2 SMD package.

These MOSFETs are designed specifically for the high performance, high quality and robustness needed for demanding automotive applications.

Key features

- Low on-resistance, $R_{DS(on)}$
- Industry's best on-resistance, $R_{DS(on)}$
- Fast switching times (turn on/off)
- Leading edge FOM ($R_{DS(on)}$ x Q_g)
- Low package resistance and inductance
- High avalanche current capability
- Tight threshold voltage, $V_{GS(th)}$, range
- Drain current improved 75 % over prior
- Extended qualification beyond AEC-Q101

An advantage of OptiMOS™ 7 100 V technology is significantly reduced on-resistance, $R_{DS(on)}$. In fact Infineon's best 100 V SSO8 $R_{DS(on)}$ was improved 47 % from the previous generation, down to 2.1 mΩ maximum. This is now the industry's best-in-class product! The benefit of the lower on-resistance is reduced conduction losses.

Another advantage of OptiMOS™ 7 100 V technology is improved switching performance. The benefits are reduced switching losses and faster switching times. So OptiMOS™ 7 100 V SSO8 MOSFETs are great fits for motor drive and power conversion circuit applications. The reduced switching losses, coupled with the reduced conduction losses, bring the benefit of high energy efficiency.

Infineon's SSO8 (PG-TDSON-8) 5x6 mm^2 package MOSFETs has an improved continuous drain current of up to 175 A. The higher current capability and the high energy efficiency of OptiMOS™ 7 100 V SSO8 MOSFETs mean customers enjoy higher power density. Infineon's SSO8 package has a unique feature. The fused source pins improve solder joint reliability and lower current density into the source, reducing the risk of hot spots. This JEDEC-listed package is pin-to-pin and footprint compatible to other 5x6 mm^2 packages.

OptiMOS™ 7 100 V technology is designed to be more rugged with our highest single-avalanche capability yet in a trench MOSFET.

Another advantage of the new technology is a narrower threshold voltage, $V_{GS(th)}$, range. This makes OptiMOS™ 7 100 V SSO8 products quite well-suited for parallel MOSFET operation.

Key benefits

- Minimized conduction losses
- Superior switching performance
- High power efficiency
- Highest power density in 5x6mm package
- Increased design ruggedness
- Well-suited for parallel placement
- High quality for Automotive applications

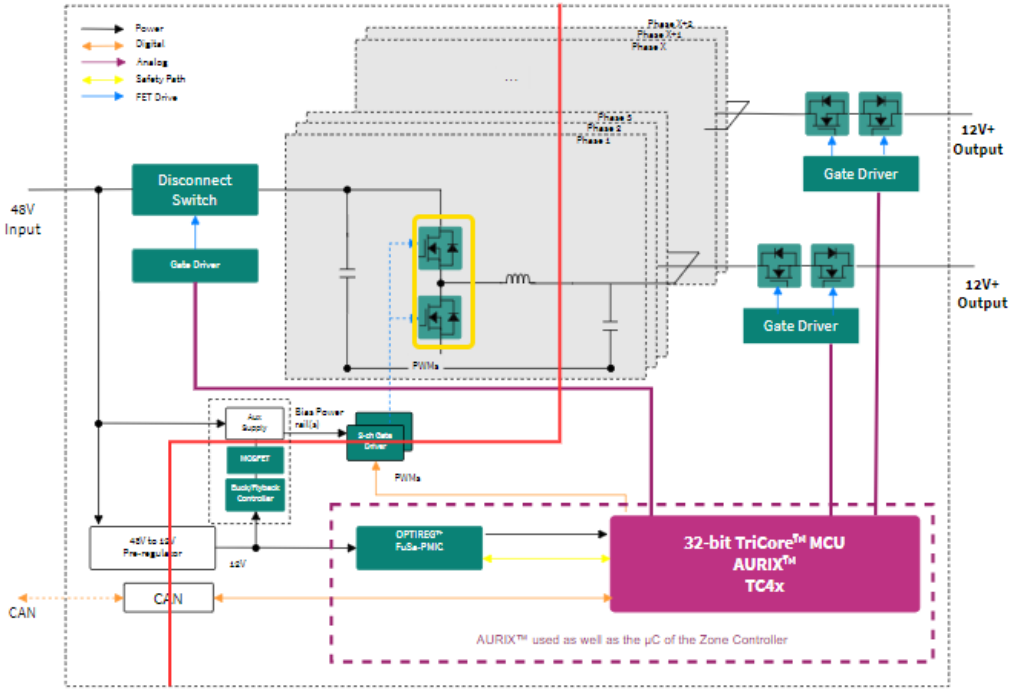
Infineon offers a broad portfolio of 80V SSO8 package automotive-qualified MOSFETs. Customers can choose from many options to select the best product for their needs.

Key applications for these products in automotive systems are DC-DC converters (HV/48 V, 48 V/12 V, HV/24 V), 48 V motor control (i.e. EPS, pumps, fans, and braking), LED lighting and 48 V power distribution. Commercial and Agricultural Vehicles are others.



www.infineon.com/automotivemosfet

Example: automotive zonal 48 V to 12 V DC-DC converter block diagram



OptiMOS™ 7 100 V SSO8 MOSFETs are used here on for the buck switch and the 48 V input disconnect switch.

Product Table

Product Name	Orderable Part Number (OPN)	Ordering Code	V_{DS} [V]	$R_{DS(on)}$ max at V_{GS} 10V [mΩ]	Q_G typ. [nC]	R_{thJC} max. [K/W]	FOM [mΩ*nC]	I_D max. at 25°C [A]
IAUCN10S7N021	IAUCN10S7N021ATMA1	SP005402875	100	2.1	81	0.69	170	175
IAUCN10S7L040	IAUCN10S7L040ATMA1	SP006059885	100	3.95	50.6	1.06	199.87	120
IAUCN10S7N040	IAUCN10S7N040ATMA1	SP005923824	100	4.0	39.3	1.06	157	120
IAUCN10S7N074	IAUCN10S7N074ATMA1	SP005402862	100	7.4	21.4	1.56	158	78
IAUCN10S7L180	IAUCN10S7L180ATMA1	SP005402873	100	18.0	11.0	2.6	198	39

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