



Product Brief

900V CoolMOS™ C3

High Voltage Power MOSFET Using Charge Compensation Principle

Infineon continues to deliver energy-saving CoolMOS™ power MOSFETs with extremely low static and dynamic power losses. Based on the device concept of charge compensation the on-resistance ($R_{DS(on)}$) can be drastically reduced by a factor of four or more per package type, compared to other 900V conventional MOSFETs. 900V CoolMOS™ C3 also offers a very low figure-of-merit on-resistance times gate charge ($R_{DS(on)} * Q_g$) of $34W * nC$, translating into low conduction, driving and switching losses. The energy stored in the output capacitance is reduced by a factor of two compared to conventional 900V MOSFETs, which reduces power losses during hard-switched turn-on.

The 900V CoolMOS™ C3 is well suited for high efficiency switch mode power supplies, industry and renewable energies applications. Change of design criteria is possible as designers can allow a higher DC-link or input voltage. High power applications which uses 3-phase PFC and PWM stages with DC-link voltages up to 750V will benefit from 900V CoolMOS™ C3 offering lowest on-resistance in TO-247 package. The high blocking voltage in combination with low conduction losses and switching losses also open up for new design criteria in quasi-resonant flyback and single transistor forward topologies, used in LCD-TV and PC silverboxes for example. Higher efficiency, reduced system costs, and high power density are pointing the way towards future system development.

Key Features

- Lowest conduction losses and reduced paralleling of MOSFETs
- Low gate charge
 - lowest driving and switching losses
- Low energy stored in the output capacitance
 - lowest switching losses in especially hard-switched applications

Key Benefits

- Increased efficiency and switching frequency by replacing IGBTs in 3-phase
- PFC and PWM Stages
- High flyback voltage can be allowed in flyback designs

Applications

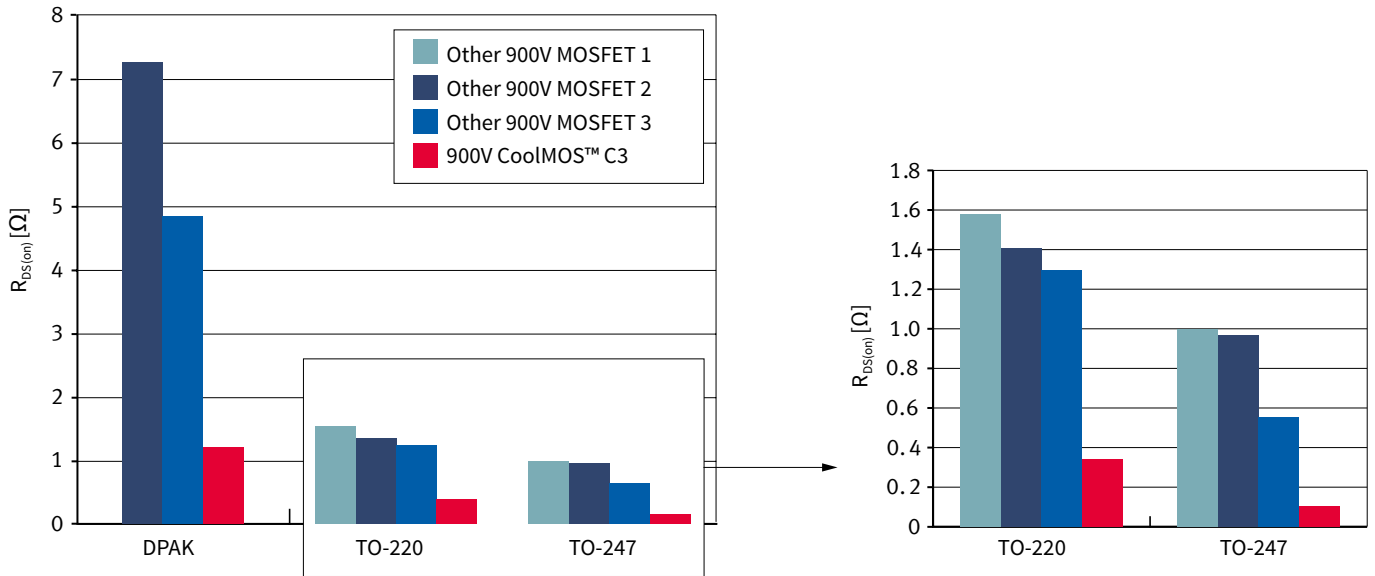
- Photovoltaic converters
- 3-phase PFC and PWM
- PC silverbox using single transistor forward topology
- LCD power supplies using quasi resonant flyback topologies
- Lamp ballasts in comfort lighting, streetlighting and greenhouses



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Comparison of max $R_{DS(on)}$ for best-in-class 900V devices in TO-220 & TO-247 Packages



900V CoolMOS™ C3 Product Portfolio

$R_{DS(on)}$ [mΩ]	TO-220	TO-220 FullPAK	TO-247	DPAK TO-252	I ² PAK TO-262	D ² PAK TO-263
	Halogen-Free	Halogen-Free		Halogen-Free	Halogen-Free	Halogen-Free
1200	IPP90R1K2C3	IPA90R1K2C3	IPW90R1K2C3	IPD90R1K2C3	IPI90R1K2C3	
1000	IPP90R1K0C3	IPA90R1K0C3	IPW90R1K0C3		IPI90R1K0C3 ¹⁾	
800	IPP90R800C3	IPA90R800C3 ¹⁾	IPW90R800C3 ¹⁾		IPI90R800C3 ¹⁾	
500	IPP90R500C3	IPA90R500C3	IPW90R500C3		IPI90R500C3	
340	IPP90R340C3	IPA90R340C3	IPW90R340C3		IPI90R340C3	IPB90R340C3
120			IPW90R120C3			

1) Will be discontinued

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