

Product Brief

600 V CoolMOS™ P7 power MOSFET

Power MOSFET with optimized balance of ease-of-use and highest energy efficiency

The 600 V CoolMOS™ P7 is the successor of the 600 V CoolMOS™ P6 series targeting a broad range of applications ranging from low power SMPS up to highest power levels. The 600 V CoolMOS™ P7 is Infineon's most well-balanced CoolMOS™ technology in terms of combining ease-of-use (e.g. low ringing) with excellent efficiency performance and reasonable price.

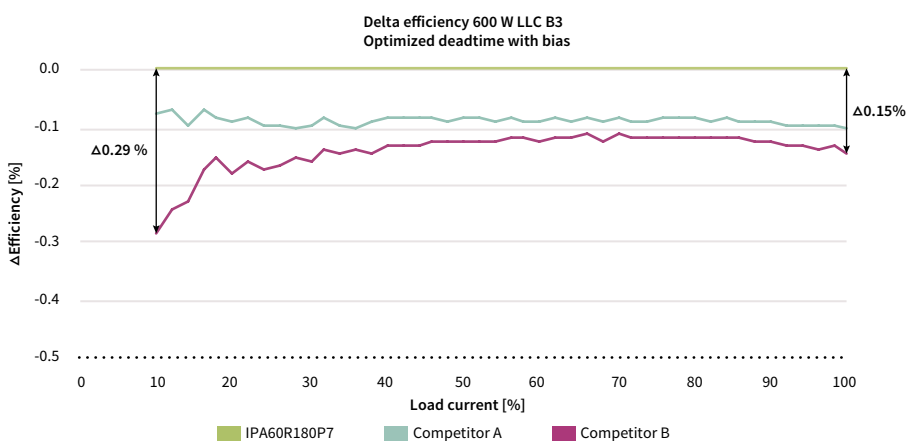
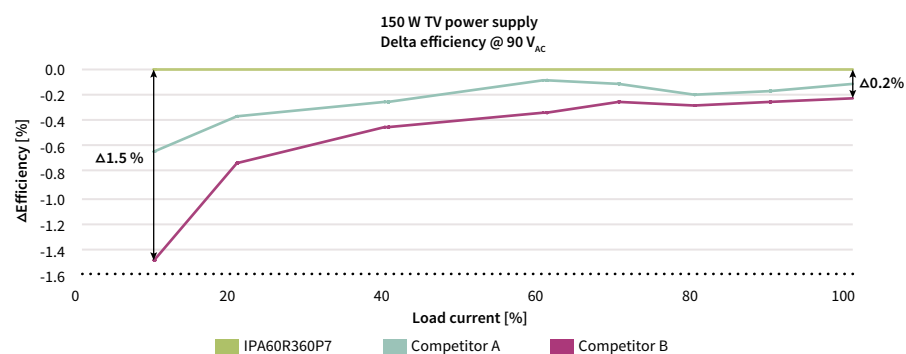
600 V CoolMOS™ P7 achieves up to 1.5 percent better efficiency and 4.2°C lower MOSFET temperature versus competitor offerings. Its gate charge Q_g and E_{oss} are 30 – 60 percent lower compared to previous CoolMOS™ families and competition, which leads to reduced driving and switching losses that allow high efficiency in various power classes. Furthermore, the optimized $R_{DS(on)}$ enables smaller footprints and higher power density.

Key features

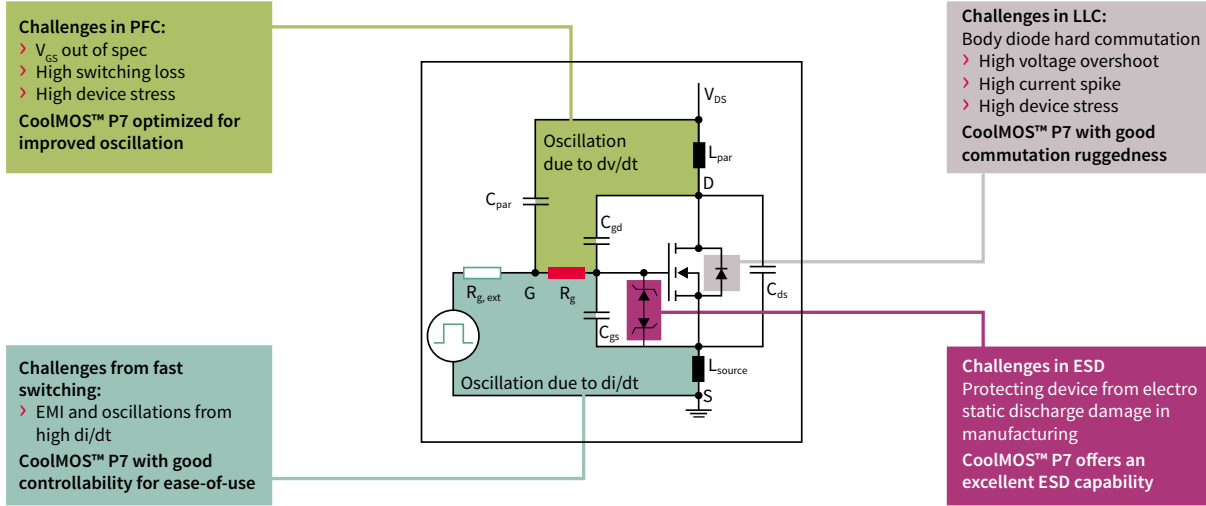
- > Outstanding commutation ruggedness
- > Optimized balance between efficiency and ease-of-use
- > Significant reduction of switching and conduction losses
- > Excellent ESD robustness > 2 kV (HBM) for all products
- > Better $R_{DS(on)}$ /package products compared to competition enabled by a low $R_{DS(on)} \times A$ (below $1 \Omega \times \text{mm}^2$)
- > Large portfolio with granular $R_{DS(on)}$ selection qualified for a variety of industrial and consumer grade applications

Key benefits

- > Suitable for hard and soft switching (PFC and LLC)
- > Ease-of-use and fast design-in through low ringing tendency and usage across PFC and PWM stages
- > Simplified thermal management due to low switching and conduction losses
- > Higher manufacturing quality due to > 2 kV ESD protection
- > Increased power density solutions enabled by using products with smaller footprint
- > Suitable for a wide variety of applications and power ranges



The excellent ease-of-use level of the 600 V CoolMOS™ P7 results from carefully selected integrated gate resistors. In addition, 600 V CoolMOS™ P7 comes along with an outstanding body diode ruggedness which makes it the perfect fit for hard and soft switching applications. Finally, the 600 V CoolMOS™ P7 offers an excellent ESD robustness of > 2 kV (HBM) over the whole portfolio in order to improve our customers' assembly yield. For products with $R_{DS(on)}$ values higher than 100 mΩ the high ESD level is guaranteed by an integrated Zener diode.



The wide variety of $R_{DS(on)}$ from 37 mΩ to 600 mΩ in both through-hole and surface mount (SMD) packages makes 600 V CoolMOS™ P7 suitable for applications such as lighting, TV sets, notebook adapters, PC power, solar inverters, servers, telecom rectifiers and for EV charging. For the first time products are qualified for standard and industrial grade allowing the customer to choose the correct type for the application requirements.

Product portfolio 600 V CoolMOS™ P7*

Industrial grade									
$R_{DS(on)}$ [mΩ] max.	DPAK	D ² PAK	ThinPAK 8x8	TO-220 FullPAK	TO-220	TO-220 FullPAK Wide Creepage	TO-247	TO-247 4pin	SOT-223
600	IPD60R600P7			IPA60R600P7	IPP60R600P7				
360/365	IPD60R360P7	IPB60R360P7	IPL60R365P7	IPA60R360P7	IPP60R360P7				
280/285	IPD60R280P7	IPB60R280P7	IPL60R285P7	IPA60R280P7	IPP60R280P7				
180/185	IPD60R180P7	IPB60R180P7	IPL60R185P7	IPA60R180P7	IPP60R180P7		IPW60R180P7	IPZ60R180P7	
120/125		IPB60R120P7	IPL60R125P7	IPA60R120P7	IPP60R120P7		IPW60R120P7	IPZ60R120P7	
99/104		IPB60R099P7	IPL60R104P7	IPA60R099P7	IPP60R099P7		IPW60R099P7	IPZ60R099P7	
80		IPB60R080P7	IPL60R085P7	IPA60R080P7	IPP60R080P7		IPW60R080P7	IPZ60R080P7	
60/65		IPB60R060P7	IPL60R065P7	IPA60R060P7	IPP60R060P7		IPW60R060P7	IPZ60R060P7	
37							IPW60R037P7	IPZ60R037P7	
Standard grade									
600	IPD60R600P7S			IPA60R600P7S		IPAW60R600P7S			IPN60R600P7S
360/365	IPD60R360P7S			IPA60R360P7S		IPAW60R360P7S			IPN60R360P7S
280/285	IPD60R280P7S			IPA60R280P7S		IPAW60R280P7S			
180/185	IPD60R180P7S			IPA60R180P7S		IPAW60R180P7S			

Wave 1 Coming in waves within 2017 *Further portfolio extension planned

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