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## Product brief

# 600 V CoolMOS™ CFD7 SJ MOSFET

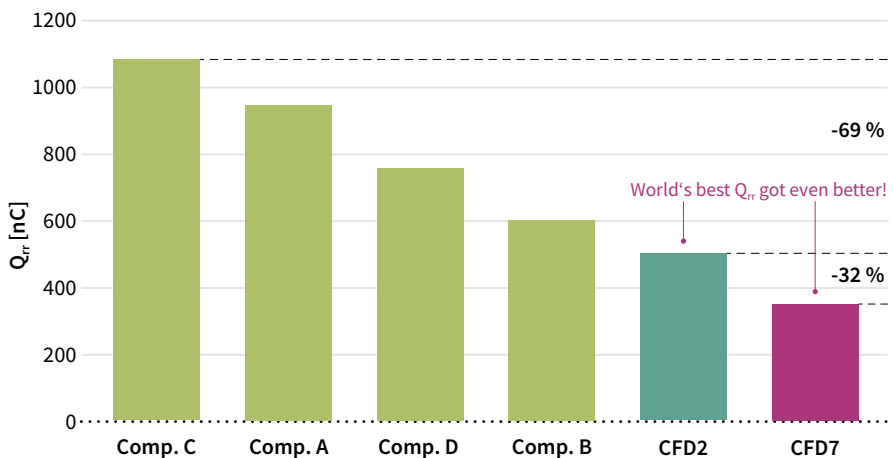
## Infineon's answer to resonant high-power topologies

The 600 V CoolMOS™ CFD7 is Infineon's latest high voltage superjunction MOSFET technology with integrated fast body diode, completing the CoolMOS™ 7 series. It is the ideal choice for resonant topologies in high power SMPS applications, such as server, telecom and EV charging stations.

The new CoolMOS™ CFD7 is the successor to the CoolMOS™ CFD2 family. CoolMOS™ CFD7 comes with reduced gate charge ( $Q_g$ ), improved turn-off behavior and a reverse recovery charge ( $Q_{rr}$ ) of up to 69 percent lower compared to the competition, as well as the lowest reverse recovery time ( $t_{rr}$ ) in the market. Due to these features CoolMOS™ CFD7 offers highest efficiency and best-in-class reliability in soft switching topologies such as LLC and ZVS phase-shift full-bridge. In addition, CoolMOS™ CFD7 enables higher power density thanks to its optimized  $R_{DS(on)}$ .

All together, this latest fast body diode series brings clear benefits compared to competitor offerings by combining the advantages of a fast switching technology with superior commutation ruggedness without sacrificing easy implementation in the design-in process.

### $Q_{rr}$ comparison of 170 mΩ CFD vs. 190 mΩ range competition\*



\*Comparison based on datasheet values

### Key features

- > Ultrafast body diode
- > Best-in-class reverse recovery charge ( $Q_{rr}$ )
- > Improved reverse diode  $dv/dt$  and  $dif/dt$  ruggedness
- > Lowest FOM  $R_{DS(on)} \times Q_g$  and  $E_{oss}$
- > Best-in-class  $R_{DS(on)}$ /package combinations

### Key benefits

- > Best-in-class hard commutation ruggedness
- > Highest reliability for resonant topologies
- > Highest efficiency with outstanding ease-of-use/performance trade-off
- > Enabling increased power density solutions

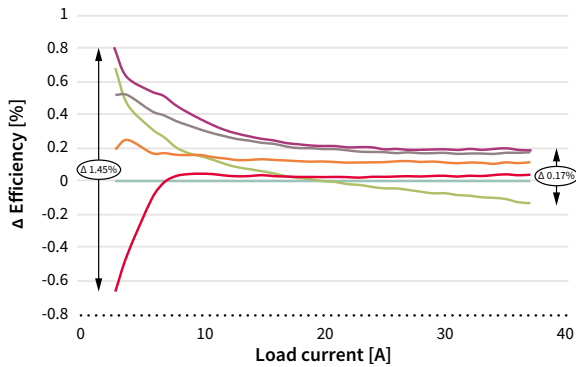


# 600 V CoolMOS™ CFD7 SJ MOSFET

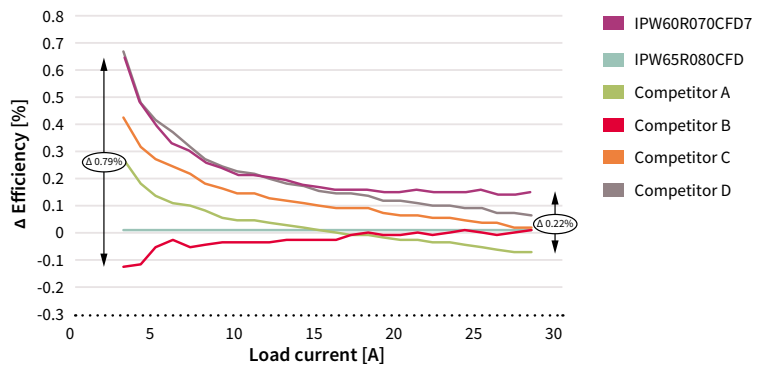
Infineon's answer to resonant high power topologies

The application measurements shown below illustrate that the features of the latest CoolMOS™ CFD7 family result in significant efficiency improvements in resonant switching topologies. CoolMOS™ CFD7 offers up to 1.45 percent increased energy efficiency over the main competition on the market and exceeds the requirements of the targeted applications.

Efficiency comparison of CFD7 vs. CFD2 and competition in 2 kW ZVS



Efficiency comparison of CFD7 vs. CFD2 and competition in 3 kW LLC



## 600 V CoolMOS™ CFD7 product portfolio

R <sub>DS(on)</sub> max. [mΩ]	TO-263 D <sup>2</sup> PAK	TO-252 DPAK	ThinPAK 8x8	TO-220	TO-220 FullPAK	TO-247	TOLL	DDPAK	QDPAK
360	IPB60R360CFD7	IPD60R360CFD7		IPP60R360CFD7	IPA60R360CFD7				
280	IPB60R280CFD7	IPD60R280CFD7		IPP60R280CFD7	IPA60R280CFD7				
210/215	IPB60R210CFD7	IPD60R210CFD7	IPL60R225CFD7	IPP60R210CFD7	IPA60R210CFD7				
170/185	IPB60R170CFD7	IPD60R170CFD7	IPL60R185CFD7	IPP60R170CFD7	IPA60R170CFD7	IPW60R170CFD7		IPDD60R170CFD7	
145/160	IPB60R145CFD7	IPD60R145CFD7	IPL60R160CFD7	IPP60R145CFD7	IPA60R145CFD7	IPW60R145CFD7	IPT60R145CFD7	IPDD60R145CFD7	
125/140	IPB60R125CFD7		IPL60R140CFD7	IPP60R125CFD7	IPA60R125CFD7	IPW60R125CFD7	IPT60R125CFD7	IPDD60R125CFD7	
105/115	IPB60R105CFD7		IPL60R115CFD7	IPP60R105CFD7		IPW60R105CFD7	IPT60R105CFD7	IPDD60R105CFD7	
90/95	IPB60R090CFD7		IPL60R095CFD7	IPP60R090CFD7		IPW60R090CFD7	IPT60R090CFD7	IPDD60R090CFD7	
70/75	IPB60R070CFD7		IPL60R075CFD7	IPP60R070CFD7		IPW60R070CFD7	IPT60R075CFD7	IPDD60R075CFD7	IPDQ60R075CFD7*
55/60	IPB60R055CFD7		IPL60R060CFD7			IPW60R055CFD7	IPT60R055CFD7	IPDD60R055CFD7	IPDQ60R055CFD7*
40/45	IPB60R040CFD7					IPW60R040CFD7	IPT60R045CFD7	IPDD60R045CFD7	IPDQ60R045CFD7*
31/35						IPW60R031CFD7	IPT60R035CFD7		IPDQ60R035CFD7*
24/26						IPW60R024CFD7			IPDQ60R025CFD7*
18/20						IPW60R018CFD7			IPDQ60R020CFD7*
15									IPDQ60R015CFD7*

\* Coming soon

By combining the 600 V CoolMOS™ CFD7 with the 2EDN EiceDRIVER™ family, Infineon enables optimized system solutions for high-power designs. For more information visit: [www.infineon.com/edn](http://www.infineon.com/edn)



Published by  
Infineon Technologies Austria AG  
9500 Villach, Austria

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