



## Product brief

# 600 V CoolMOS™ CFD7 SJ MOSFET

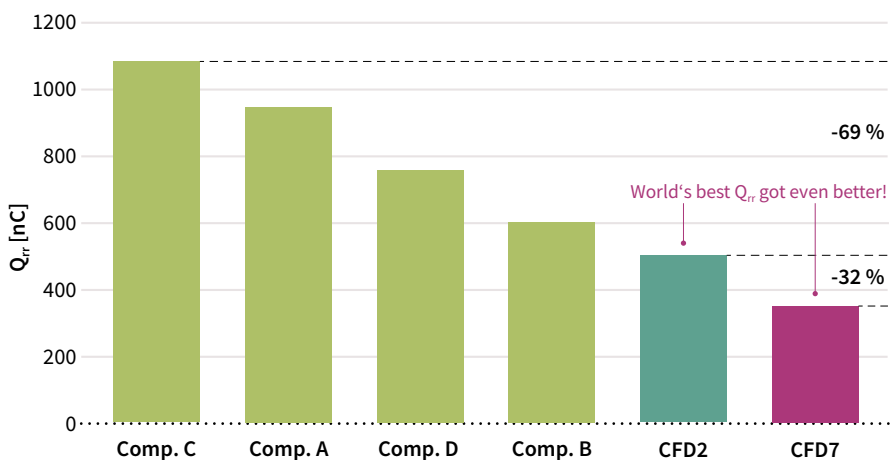
## Infineon's answer to resonant high-power topologies

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

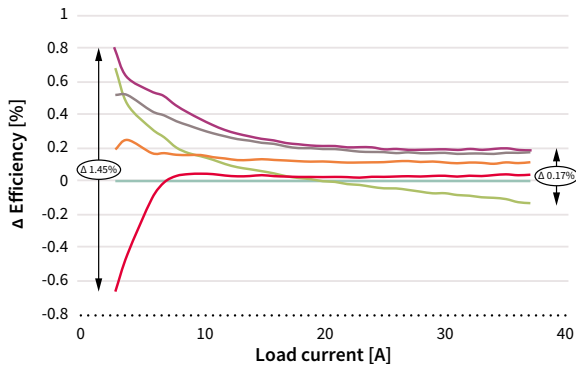
- > Best-in-class hard commutation ruggedness
- > Highest reliability for resonant topologies
- > Highest efficiency with outstanding ease-of-use/performance trade-off
- > Enabling increased power density solutions

# 600 V CoolMOS™ CFD7 SJ MOSFET

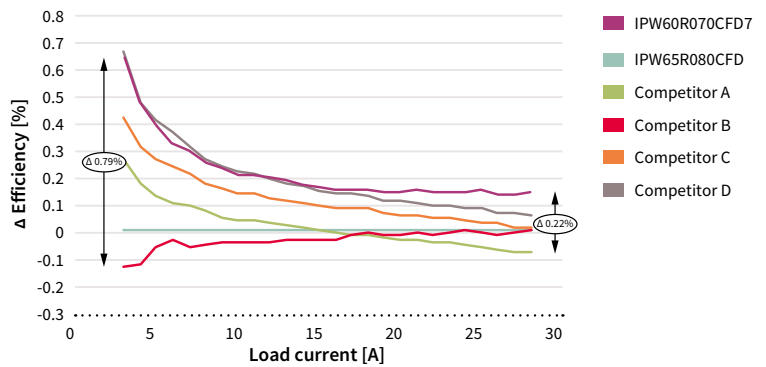
Infineon's answer to resonant high power topologies

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)



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