

Product brief

650 V CoolMOS™ CFD7A

On the fast lane in automotive applications

Electric mobility is no longer just a buzz word. The evident momentum in the car industry reflects the global electric car sales forecasts for the next decade and manifests one clear trend: electrification has arrived on the streets.

Showcasing profound expertise on technology, quality and production

The latest silicon-based 650 V CoolMOS™ SJ power MOSFETs CFD7A are specifically optimized to meet the requirements for electric-vehicle applications such as on-board chargers, HV-LV DC-DC converters, and auxiliary power supplies. With more than 10 years of automotive experience, CoolMOS™ CFD7A combines highest quality going well beyond the AEC Q101 standard with unrivalled technology know-how. The CoolMOS™ CFD7A family is manufactured on the highly automated 300 mm production line, which contributes to reach the zero-defect target in mass production while fulfilling the growing market demand.

Making automotive applications more compact and higher performing.

1. High power density for more compact designs

Boosting efficiency to the next level, CoolMOS™ CFD7A shows improvements in hard- and resonant-switched topologies especially in light-load conditions. Higher switching frequencies can be achieved at gate-loss levels comparable with former generations; and this promising combination makes CFD7A one key enabler for decreased system weight and space to achieve more compact designs.

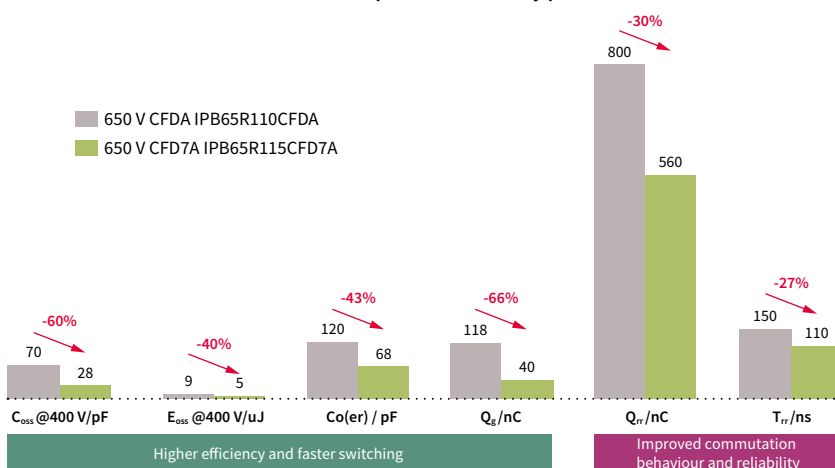
Key features

- > Battery voltages up to 475 V without compromising on reliability standards
- > Efficiency improvements in hard- and soft-switched topologies up to 98.4%
- > Kelvin-source concept for further efficiency improvement
- > Intrinsic fast body diode with -30% lower Q_{rr} compared to CoolMOS™ CFDA

Key benefits

- > Highest reliability in the field meeting automotive lifetime requirements
- > Enabling higher power density designs
- > Scalable as designed for use in PFC and DC-DC stage
- > Granular portfolio available

Performance improvements in key parameters



www.infineon.com/cfd7a

www.infineon.com/coolmos-automotive

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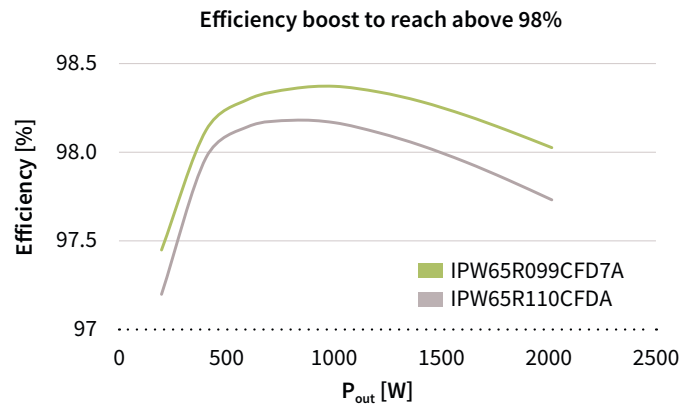
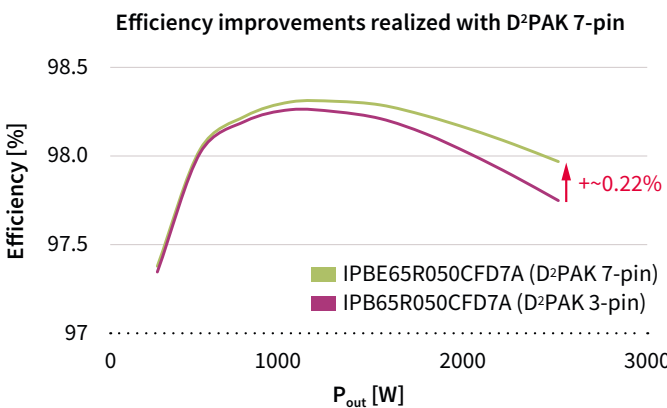
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2. Highest reliability compliant with automotive lifetime requirements

As a result of improved cosmic-radiation robustness, the CoolMOS™ CFD7A technology allows applying higher battery voltages at the same reliability rate as previous generations and other market offerings.

3. Increased design flexibility and scalability

The CFD7A devices can be used in PFC and DC-DC stages thanks to the intrinsic fast body diode and the broad portfolio line-up.

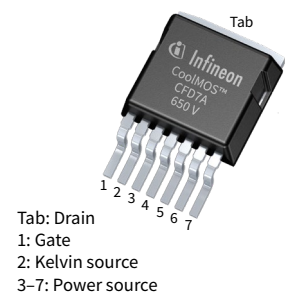


Beyond technology our packages are the key to excellent efficiency and thermal performance

When using Infineon's 650 V CoolMOS™ CFD7A technology in combination with the D²PAK 7-pin package customers benefit from enhanced efficiency and thermal behavior. As compared to the D²PAK 3-pin, the Kelvin-source concept used in the D²PAK 7-pin (driver-source pin) overcomes the limitations caused by the source inductance and improves the switching performance. Resulting advantages at system level, especially at high currents, are the reduction of switching losses and heat. Furthermore, the increased creepage distance of 4.2 mm between drain and source/gate facilitates device usage for higher battery voltage classes up to 475 V.

Product portfolio

R _{DS(on)} max. [mΩ]	TO-263 D²PAK 3-pin	TO-263-7 D²PAK 7-pin	TO-220	TO-247	TO-247 short leads
230	IPB65R230CFD7A	IPBE65R230CFD7A			
190	IPB65R190CFD7A	IPBE65R190CFD7A	IPP65R190CFD7A	IPW65R190CFD7A	
145	IPB65R145CFD7A	IPBE65R145CFD7A	IPP65R145CFD7A	IPW65R145CFD7A	
115	IPB65R115CFD7A	IPBE65R115CFD7A	IPP65R115CFD7A	IPW65R115CFD7A	
99	IPB65R099CFD7A	IPBE65R099CFD7A	IPP65R099CFD7A	IPW65R099CFD7A	
75	IPB65R075CFD7A	IPBE65R075CFD7A	IPP65R075CFD7A	IPW65R075CFD7A	IPWS65R075CFD7A
50	IPB65R050CFD7A	IPBE65R050CFD7A	IPP65R050CFD7A	IPW65R050CFD7A	IPWS65R050CFD7A
35				IPW65R035CFD7A	IPWS65R035CFD7A
22				IPW65R022CFD7A	IPWS65R022CFD7A



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