Product Brief

650V CoolMOS™ CFDA

Automotive Technology in Pole Position

Introducing the new market leading 650V Automotive CoolMOS™ technology with integrated Fast Body Diode aimed at Battery Charging and On-Board DC-DC

With the new 650V CoolMOS™ CFDA, Infineon launches its second generation of market leading Automotive qualified high voltage CoolMOS™ MOSFET. In addition to the well-known attributes of high quality and reliability required by the automotive industry, the new CoolMOS™ CFDA series provides now also an integrated Fast Body Diode.

This Fast Body Diode is the key for addressing resonant switching topologies resulting in lower switching losses due to the low gate charge. The softer commutation behavior and consequent reduced EMI appearance gives the CoolMOS™ CFDA series a clear advantage in comparison with competitor parts. Furthermore, limited voltage overshoot during hard commutation of the body diode enables easier implementation of layout and design.

The broad 650V CoolMOS™ CFDA portfolio provides all benefits of fast switching Superjunction MOSFET fulfilling the enhanced reliability requirements for automotive applications realized with special screening measures in Front End and Back End as well as the qualification compliant to AEC Q101.

Therefore, the new 650V CoolMOS™ CFDA technology is the best choice for switching topologies in Automotive applications.

Features

- First 650V Automotive qualified technology with integrated Fast Body Diode on the market
- Limited voltage overshoot during hard commutation – self limiting di/dt and dv/dt
- Low gate charge value Q_g
- Low Q_{rr} at repetitive commutation on body diode & low Q_{oss}
- Reduced turn on and turn off delay times
- Compliant to AEC Q101 standard

Benefits

- Increased safety margin due to higher breakdown voltage
- Reduced EMI appearance and easy to design in
- Better light load efficiency
- Lower switching losses
- Higher switching frequency and/or higher duty cycle possible
- High quality and reliability

Applications

- Unidirectional and bidirectional DC/DC Converter
- Battery Charger
- HID Lighting

www.infineon.com/CFDA

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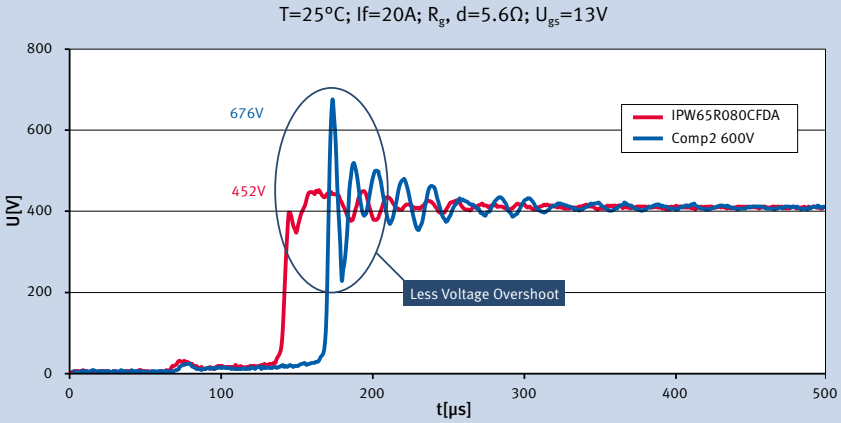
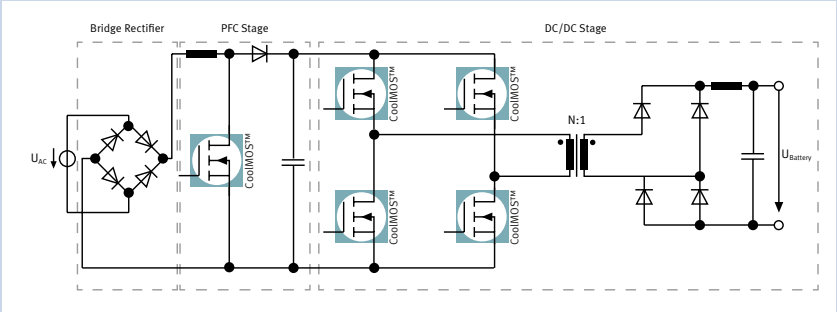
Limited voltage overshoot by CoolMOS™ CFDA during hard commutation of conducted body diode



- Limited voltage overshoot due to soft commutation behavior of CFDA contributes to higher reliability
- Significantly less voltage overshoot of CFDA compared to competition enables easier design in

Example for Automotive Topology using CoolMOS™ CFDA

On-board battery charger with ZVS phase shifted topology



650V CoolMOS™ CFDA Product Portfolio

$R_{DS(on)}$ [mΩ]	DPAK	D²PAK	TO-220	TO-247
660mΩ	IPD65R660CFDA	IPB65R660CFDA	IPP65R660CFDA	
420mΩ	IPD65R420CFDA			
310mΩ		IPB65R310CFDA	IPP65R310CFDA	
190mΩ		IPB65R190CFDA	IPP65R190CFDA	IPW65R190CFDA
150mΩ		IPB65R150CFDA	IPP65R150CFDA	IPW65R150CFDA
110mΩ		IPB65R110CFDA	IPP65R110CFDA	IPW65R110CFDA
80mΩ				IPW65R080CFDA
48mΩ				IPW65R048CFDA

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