

## Product Brief

# OptiMOS™ Fast Diode

## Optimized for hard switching topologies

OptiMOS™ Fast Diode (FD), Infineon's latest generation of power MOSFETs in 200 V, 220 V, 250 V and 300 V is optimized for body diode hard commutation.

The improved hard commutation ruggedness of the device allows it to be used under demanding conditions like higher  $dV/dt$ ,  $dI/dt$  and current densities simplifying the design process. This advantage makes OptiMOS™ FD the perfect choice for hard switching applications such as telecom, industrial power supplies, class D audio amplifiers, motor control and DC-AC inverters.

The product family provides a reverse recovery charge ( $Q_{rr}$ ) optimized solution for customers striving for the highest standards of performance. OptiMOS™ FD 200 V, 220 V, 250 V and 300 V achieves up to 40 percent  $Q_{rr}$  reduction compared to OptiMOS™ 3. Low  $Q_{rr}$  improves the system reliability by providing a significant reduction of voltage overshoot which minimizes the need for a snubber circuit, resulting in less engineering cost and effort. The devices in SuperSO8 furthermore offer an enhanced temperature capability of 175°C to support even higher power density designs and improved robustness.

### Key features

- > Improved hard commutation ruggedness
- > Optimized hard switching behaviour
- > Enhanced 175°C capability in SuperSO8
- > Industry's lowest  $R_{DS(on)}$ ,  $Q_g$  and  $Q_{rr}$
- > RoHS compliant – halogen free

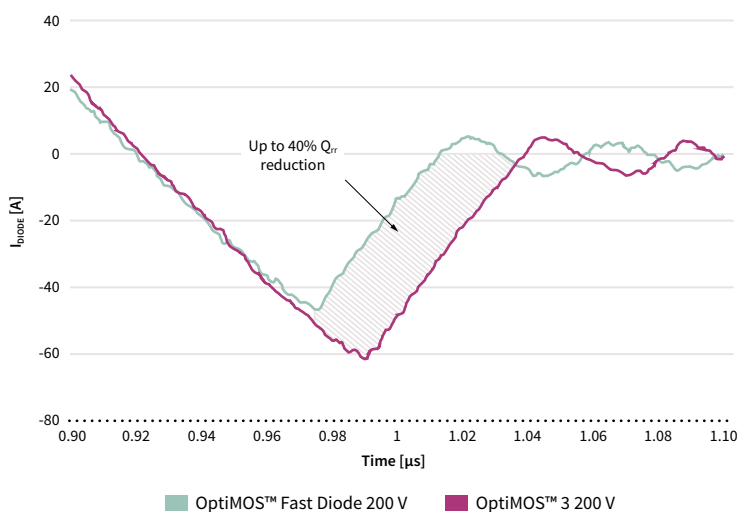
### Key benefits

- > Highest system reliability
- > System cost reduction
- > Thermal robustness
- > Highest efficiency and power density
- > Easy-to-design products

### Target applications

- > Telecom
- > Class D audio amplifier
- > Motor control for 48-110 V systems
- > Industrial power supplies
- > DC-AC inverter
- > Drives for LSEV

### OptiMOS™ Fast Diode offers up to 40 percent $Q_{rr}$ reduction compared to OptiMOS™ 3



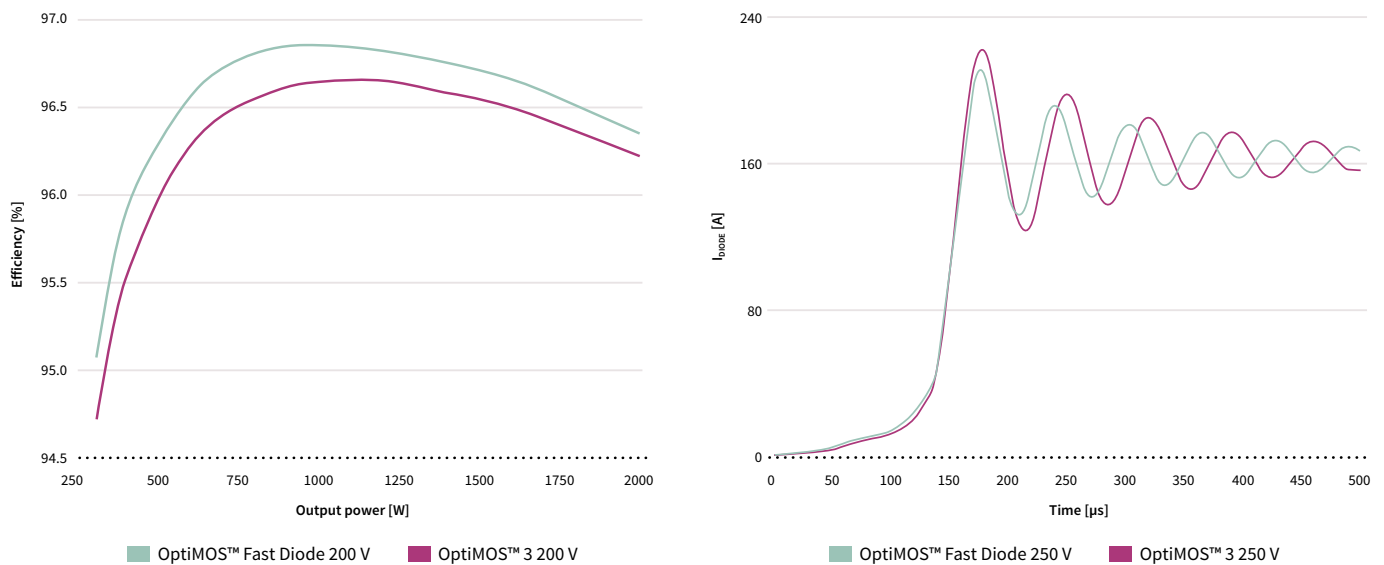
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Comparing the OptiMOS™ FD with the OptiMOS™ 3, the lower  $Q_{rr}$  provides an overall efficiency improvement of up to 0.35 percent for 200 V devices and 0.50 percent for 250 V and a voltage overshoot reduction up to 10 V.

OptiMOS™ FD products are now available in four different packages and four voltage classes. The devices offer low  $R_{DS(on)}$  and improved FOMs for highest efficiency and power density.

### Comparisons of efficiency and voltage overshoot in synchronous rectification for telecom



### Product portfolio

Package	Voltage [V]	Product type	$R_{DS(on)}$ max. [mΩ]
D <sup>2</sup> PAK	200	IPB117N20NFD	11.7
	220	IPB156N22NFD	15.6
TO-220	200	IPP120N20NFD	12.0
	250	IPP220N25NFD	22.0
TO-Leadless	200	IPT111N20NFD	11.1
	250	IPT210N25NFD	21.0
SuperSO8	200	BSC350N20NSFD	35.0
	250	BSC670N25NSFD	67.0
	300	BSC13DN30NSFD	130.0

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