



# 500V CoolMOS™ CE Power MOSFET

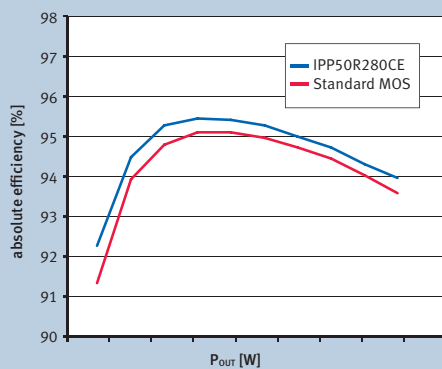
The CoolMOS™ CE is a new technology platform of Infineon's market leading high voltage power MOSFETs designed according to the revolutionary superjunction (SJ) principle.

500V CE portfolio provides all benefits of a fast switching SJ MOSFET while not sacrificing ease of use. As the complete CE series, devices achieve extremely low conduction and switching losses and can make switching applications more efficient, more compact, lighter and cooler.

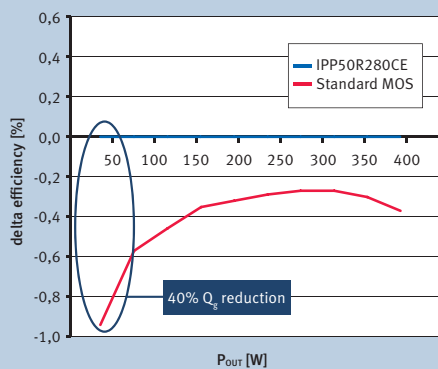
## Efficiency comparison 500V CoolMOS™ CE vs competitor standard MOSFET

CCM PFC stage, 90VAC up to 400W

**IPP50R280CE vs. Standard MOS**  
 efficiency @  $V_{IN}=90VAC$ ; plug&play scenario;  
 $R_{g,ext}=5\Omega$ ;  $f=100kHz$ ;  $V_{OUT}=400VDC$



**IPP50R280CE vs. Standard MOS**  
 delta efficiency @  $V_{IN}=90VAC$ ; plug&play scenario;  
 $R_{g,ext}=5\Omega$ ;  $f=100kHz$ ;  $V_{OUT}=400VDC$



## Features

- Reduced energy stored in output capacitance ( $E_{oss}$ )
- High body diode ruggedness
- Reduced reverse recovery charge ( $Q_{rr}$ )
- Reduced gate charge ( $Q_g$ )

## Benefits

- Easy control of switching behavior
- Improved light load efficiency compared to previous CoolMOS™ generations
- Cost attractive alternative compared to standard MOSFETs
- Outstanding reliability with proven CoolMOS™ quality combined with high body diode ruggedness

## Applications

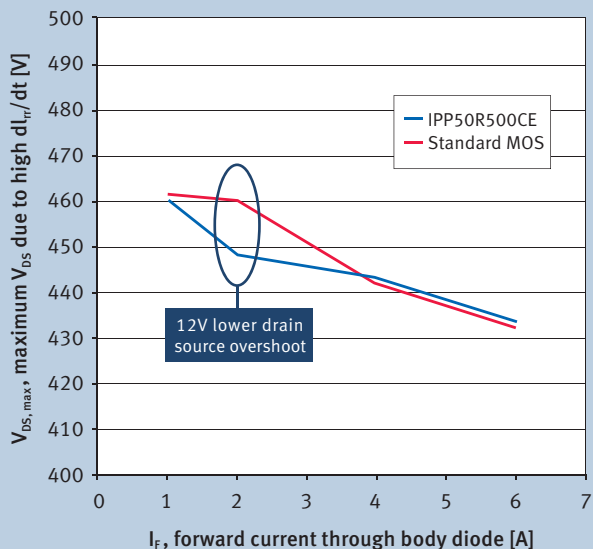
- Consumer
- Lighting
- PC Silverbox



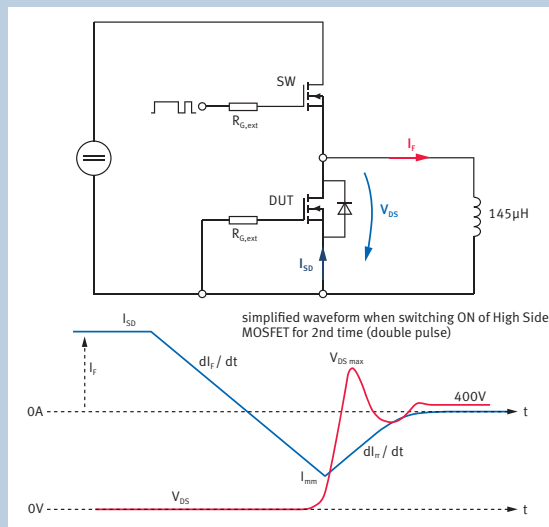
# 500V CoolMOS™ CE Power MOSFET

## IPP50R500CE vs. Standard MOS

hard commutation on conducting body diode; half bridge configuration  
High Side MOS = Low Side MOS, same  $R_{\sigma, \text{sum}} = 5\Omega$



## Simplified test circuit



- From  $I_F=1$  to  $I_F=4A$  better behaviour observed of 500V CE
- $I_F > 4A$  same behaviour
- Body diode conduction  $< 2\mu\text{s}$  before turn-off

## Product Portfolio CoolMOS™ CE



$R_{DS(on)}$	TO-220 FullIPAK	TO-252 DPAK	TO-220	TO-247
3000 mΩ		IPD50R3k0CE**		
1400 mΩ		IPD50R1k4CE**		
950 mΩ	IPA50R950CE*	IPD50R950CE*		
800 mΩ	IPA50R800CE**	IPD50R800CE**		
650 mΩ	IPA50R650CE**	IPD50R650CE**		
500 mΩ	IPA50R500CE*	IPD50R500CE*	IPP50R500CE*	
380 mΩ	IPA50R380CE**	IPD50R380CE**	IPP50R380CE**	
280 mΩ	IPA50R280CE*	IPD50R280CE*	IPP50R280CE*	IPW50R280CE**
190 mΩ	IPA50R190CE**		IPP50R190CE**	IPW50R190CE**
Applications	Consumer	Consumer, Lighting	PC Silverbox	PC Silverbox

\* Samples available by Q2 / 2012  
\*\* Samples available by Q3 / 2012

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