



# THE DATASHEET OF IPA50R650CEXKSA2





# 500V CoolMOS™ CE Power MOSFET

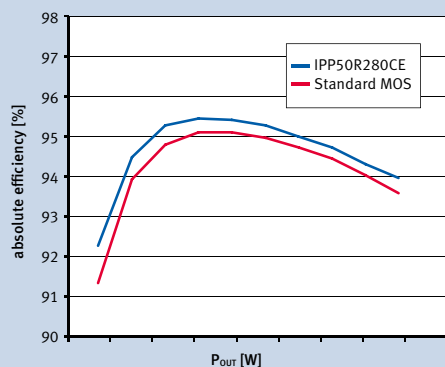
The CoolMOS™ CE is a new technology platform of Infineon's market leading high voltage power MOSFETs designed according to the revolutionary superjunction (SJ) principle.

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.

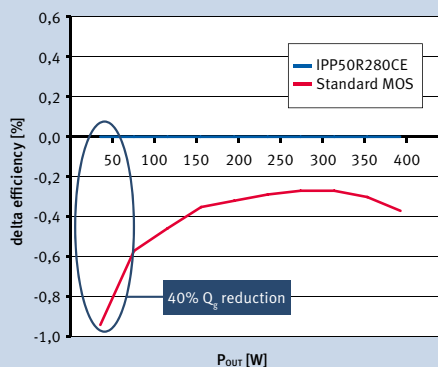
## Efficiency comparison 500V CoolMOS™ CE vs competitor standard MOSFET

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

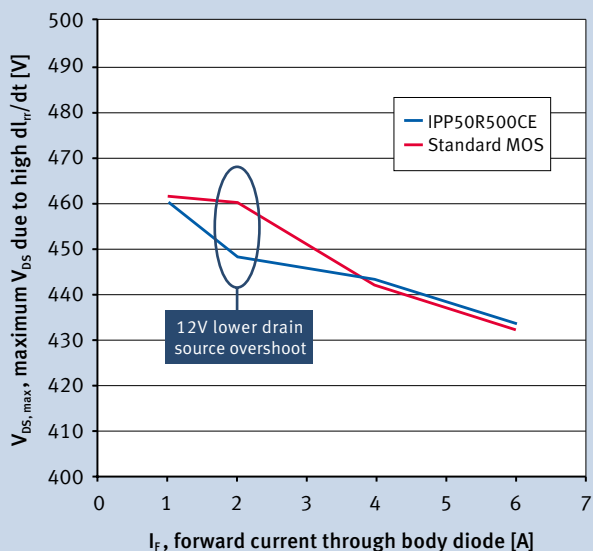
- Consumer
- Lighting
- PC Silverbox



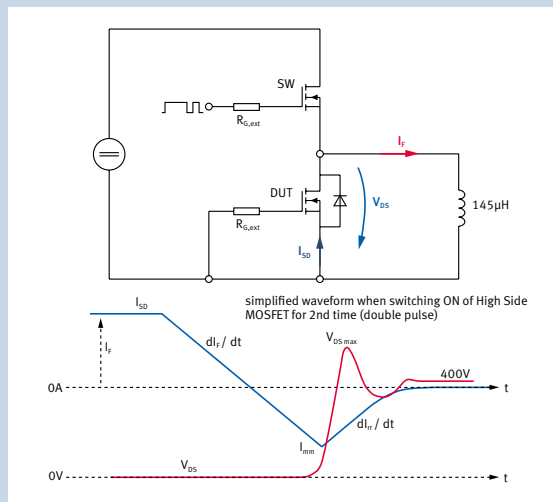
# 500V CoolMOS™ CE Power MOSFET

## IPP50R500CE vs. Standard MOS

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



## 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  $< 2\mu s$  before turn-off

## Product Portfolio CoolMOS™ CE



$R_{DS(on)}$	TO-220 FullPAK	TO-252 DPAK	TO-220	TO-247	IPAK
3000 mΩ		IPD50R3k0CE			IPU50R3k0CE
2000 mΩ		IPD50R2k0CE			IPU50R2k0CE
1400 mΩ		IPD50R1k4CE			IPU50R1k4CE
950 mΩ	IPA50R950CE	IPD50R950CE			IPU50R950CE
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	SSL: Solid State Lighting

Published by  
Infineon Technologies Austria AG  
9500 Villach, Austria

© 2013 Infineon Technologies AG.  
All Rights Reserved.

Visit us:  
[www.infineon.com](http://www.infineon.com)

Order Number: B152-H9688-G1-X-7600-DB2012-0003  
Date: 05 / 2013

### ATTENTION PLEASE!

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

### INFORMATION

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### WARNINGS

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View IPA50R650CEXKSA2 on WIN SOURCE](#)
- ⊖ [Infineon Technologies Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management