



# New 650V CoolMOS™ C7 Series

## Introduction of new market leading Best-in-Class on-resistance per package

With the new 650V CoolMOS™ C7 series Infineon brings a new level of performance in hard switching applications such as Power Factor Correction (PFC). It is the successor to the CP series and provides efficiency benefits across the whole load range through balancing a number of key parameters.

The Best-in-Class  $R_{DS(on)}$  leads to increased full load efficiency and improves on our already BiC CoolMOS™ C6 parts in TO-220 and establishes clear leadership in TO-247.  $E_{oss}$  reduction brings efficiency benefits at light load and the low  $Q_g$  correlates to faster switching and lower  $E_{on}$  and  $E_{off}$  which gives efficiency benefits across the whole load range.

As well as balancing the various parameters to give the best-in-class performance, measures were taken to even improve implementation/ease of use behavior compared to the CoolMOS™ CP series.

650V was chosen to give extra safety margin for designers and make it suitable for both SMPS and Solar inverters. Finally the new CoolMOS™ C7 series benefits from the 12 years manufacturing experience and continues to offer Infineon's outstanding quality.

C7 is an enabler technology that gives customers the stepping stone to new higher switching frequency technologies like GaN but with proven reliability of Superjunction technology.

Competitor



Same losses at higher frequency leads to **Size Reduction** of magnetic components for improved power density

CoolMOS™ C7



[www.infineon.com/c7](http://www.infineon.com/c7)

### Features

- 650V Breakdown Voltage
- Revolutionary BiC  $R_{DS(on)}$  / package
- Reduced energy stored in output capacitance ( $E_{oss}$ )
- Lower gate charge  $Q_g$
- Reduced losses by lower  $E_{oss}$  and  $Q_g$  enable faster switching leading to higher frequency capability
- Space saving through use of smaller packages or reduction of parts
- 12 years manufacturing experience in Superjunction Technology

### Benefits

- Improved safety margin and suitable for both SMPS and Solar Inverter applications
- Lowest conduction losses / package
- Low switching losses
- Better light load efficiency
- Due to higher frequency capability enable cost savings on magnetic component size reduction and therefore improved power density
- Increasing power density
- Outstanding CoolMOS™ quality

### Applications

- Telecom
- Server
- Solar
- PC Power

### Topologies

- Power Factor Correction
- Solar Boost



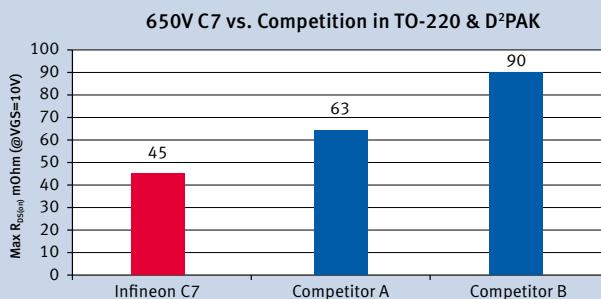
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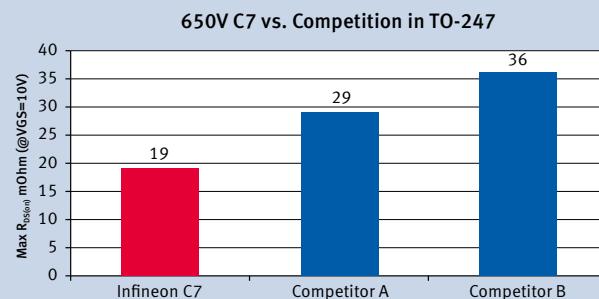
Best-in-Class  $R_{DS(on)}$  for TO-247-4, TO-247, TO-220, D<sup>2</sup>PAK

Series	Package	Product Name	$R_{DS(on)}$ [mΩ]	Voltage
CoolMOS™ C7	TO-247-4	IPZ65R019C7	19	650V
		IPZ65R045C7	45	
	TO-247	IPW65R019C7	19	
		IPW65R045C7	45	
	TO-220	IPP65R045C7	45	
		IPP65R225C7	225	
	D <sup>2</sup> PAK	IPB65R045C7	45	
		IPB65R225C7	225	
	ThinPAK 8x8	IPL65R130C7	130	
		IPL65R230C7	230	
	DPAK	IPD65R225C7	225	

New CoolMOS™ C7 series comparing Best-in-Class competition  $R_{DS(on)}$  per package

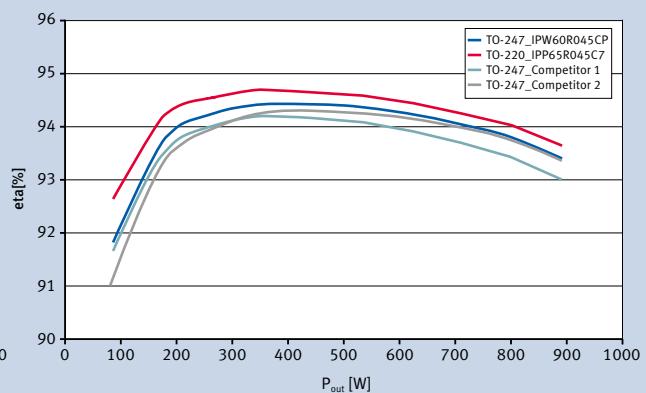
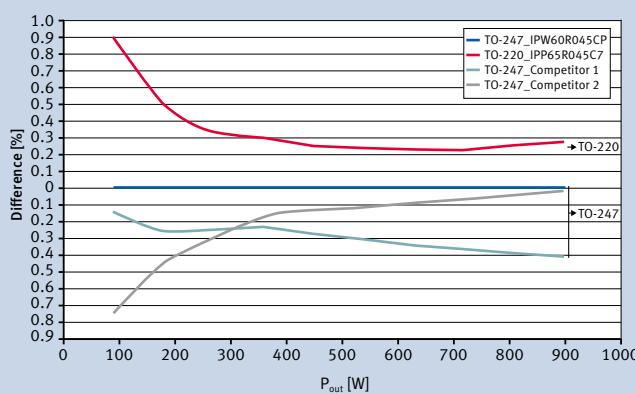


Infineon new CoolMOS™ C7 extends our lead in TO-220 & D<sup>2</sup>PAK package with a 29% lower  $R_{DS(on)}$  than the nearest competitor



Infineon's new CoolMOS™ C7 establishes technology leadership in the TO-247 package with a 34% lower  $R_{DS(on)}$  than the nearest competitor

Efficiency Graphs comparing CP/C7 and Competition



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