



Product Brief

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. CoolMOS™ C7 therefore establishes clear leadership in Packages like TO-247, TO-220, TO-220FP, D²PAK, DPAK as well as Thin-PAK. 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.

Topologies

- Power Factor Correction
- Solar Boost
- TTF (Two Transistor Forward)

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.

<p>Competitor</p>  <p>60turns 602uH 65kHz</p>	<p>Same losses at higher frequency leads to Size Reduction of magnetic components for improved power density</p>	<p>CoolMOS™ C7</p>  <p>64turns 340uH 120kHz</p>
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Key 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

Key Benefits

- Improved safety margin and suitable for both SMPS and Solar Inverter applications
- Lowest conduction losses / package
- Low switching losses
- Better light load efficiency
- Higher frequency capability enables cost savings on magnetic component size reduction and therefore improved power density

Applications

- Telecom
- Server
- Solar
- PC Power

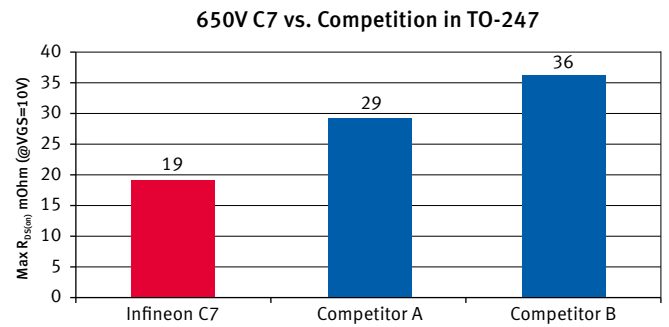
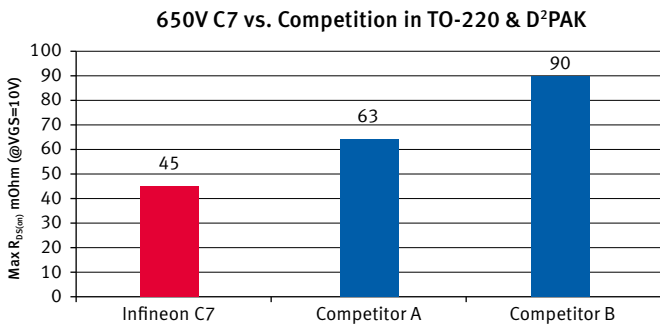
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$R_{DS(on)max}$ [mΩ]	DPAK	D ² PAK	ThinPAK 8x8	TO-220	TO-220 FP	TO-247	TO-247-4
225/230	IPD65R225C7	IPB65R225C7	IPL65R230C7	IPP65R225C7	IPA65R225C7		
190/195	IPD65R190C7 ²⁾	IPB65R190C7	IPL65R195C7 ¹⁾	IPP65R190C7		IPW65R190C7	
125/130		IPB65R125C7	IPL65R130C7	IPP65R125C7	IPA65R125C7	IPW65R125C7	
95/99		IPB65R095C7	IPL65R099C7 ¹⁾	IPP65R095C7	IPA65R095C7	IPW65R095C7	IPZ65R095C7
65/70		IPB65R065C7	IPL65R070C7 ¹⁾	IPP65R065C7	IPA65R065C7	IPW65R065C7	IPZ65R065C7
45		IPB65R045C7 ²⁾		IPP65R045C7 ²⁾	IPA65R045C7 ²⁾	IPW65R045C7	IPZ65R045C7
19						IPW65R019C7 ²⁾	IPZ65R019C7 ²⁾

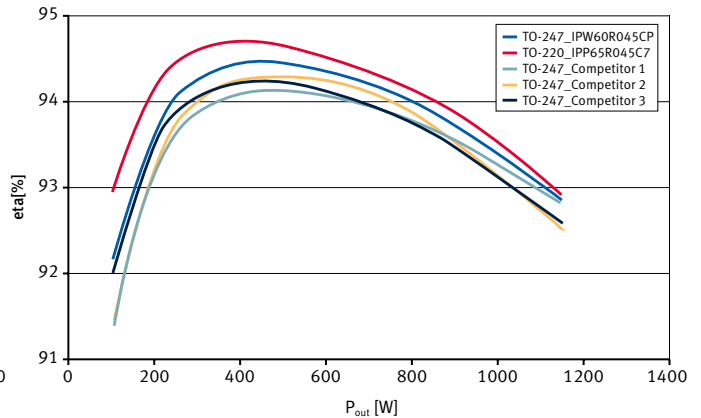
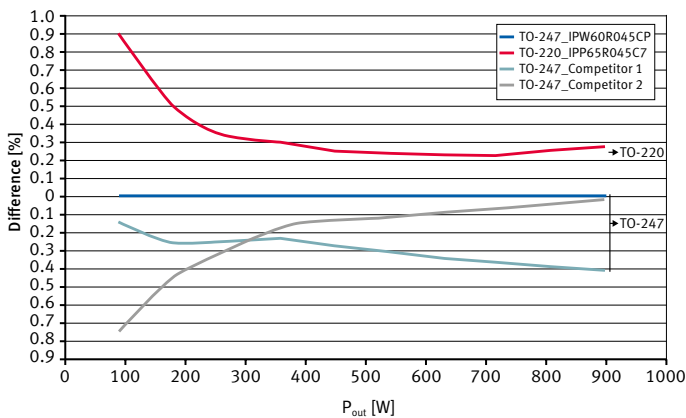
¹⁾ Sample and Supply Q1/2014
²⁾ lowest $R_{DS(on)}$ /package available

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



Infineon new CoolMOS™ C7 extends our lead in TO-220 & D²PAK 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



Published by
 Infineon Technologies Austria AG
 9500 Villach, Austria

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Order Number: B152-H9699-G1-X-7600-DB2013-0020
 Date: 01 / 2014

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