

# Product / Process Change Notification



N° 2013-008-A

Dear Customer,

Please find attached our INFINEON Technologies PCN:

## **Change of wafer diameter from 150 mm to 200 mm for 600 V TrenchStop<sup>®</sup> IGBT and Emitter Controlled Diode products in TO220, TO247 and TO263 packages.**

Important information for your attention:

- Please respond to this PCN by indicating your decision on the approval form, sign it and return to your sales partner before **31. July 2014**.
- Infineon aligns with the widely-recognized JEDEC STANDARD "JESD46-C", which stipulates: "Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change."

Your prompt reply will help Infineon Technologies to assure a smooth and well executed transition. If Infineon does not hear from your side by the due date, we will assume your full acceptance to this proposed change and its implementation.

Your attention and response to this matter is greatly appreciated.

Disclaimer:

If we do not receive any response within the given time limit we consider this as the acceptance of the PCN.

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## SUBJECT OF CHANGE:

- Change of wafer diameter from 150 to 200 mm
- Extension of wafer production capacity

## PRODUCTS AFFECTED:

Type	SP n°	OPN
IDW30E60A	SP000547582	IDW30E60AFKSA1
IKB20N60TA	SP000629372	IKB20N60TAATMA1
IKP20N60TA	SP000597870	IKP20N60TAHKSA1
IKW20N60TA	SP000647360	IKW20N60TAFKSA1
IKW30N60TA	SP000539766	IKW30N60TAFKSA1
IKW50N60TA	SP000647366	IKW50N60TAFKSA1
IKW75N60TA	SP000647368	IKW75N60TAFKSA1

## REASON OF CHANGE:

To ensure continuous deliveries to our customers, the fabrication for above mentioned products requires a capacity extension. Implementation of state of the art wafer manufacturing technologies.

## DESCRIPTION OF CHANGE:

	<u>OLD</u>	<u>NEW</u>
<ul style="list-style-type: none"> <li>■ Wafer diameter:</li> </ul>	150mm	150mm <b>and</b> 200mm
<ul style="list-style-type: none"> <li>■ Gate wire diameter (for all products except IKP20N60TA, IKB20N60TA and IDW30E60A):</li> </ul>	125µm	150mm: 125µm <b>and</b> 200mm: 75µm
<ul style="list-style-type: none"> <li>■ Mould compound (for product IKP20N60TA only):</li> </ul>	MP 195H (halogen-containing)	150mm: MP 195H <b>and</b> 200mm: KMC 2110 G-7 (halogen-free <sup>1)</sup> )
		<p><b>1) Note:</b> Halogen-free according to International Electrotechnical Commission (IEC) Standard IEC 61249-2-21:</p> <ul style="list-style-type: none"> <li>- 900 ppm maximum Chlorine</li> <li>- 900 ppm maximum Bromine</li> <li>- 1500 ppm maximum total Halogens</li> </ul>
<ul style="list-style-type: none"> <li>■ SP number (ordering code, for product IKP20N60TA only):</li> </ul>	SP000597870	150mm: SP000597870 <b>and</b> 200mm: SP001082708

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## PRODUCT IDENTIFICATION:

Traceability assured via lot number:  
150mm production: lot# VCxxxxxxxx  
200mm production: lot# VExxxxxxxx

## TIME SCHEDULE:

- Final qualification report:
- First samples available:
- Start of delivery:

Available (see 2\_cip13008\_a)

Available

15-September-2014 (earlier deliveries possible on customer request)

## ASSESSMENT:

No change in product performance, quality and reliability as verified by a full qualification.

### Change to 75µm gate wire thickness

The limiting factor of current capability of a bond wire is Joule heating, i.e. the current heats up the wire due to its electrical resistance. For a gate wire, only transient currents are present. Assuming the worst case of high frequency switching, the heating effect of charging / discharging currents can be very well approximated by a DC current.

Under absolute maximum case switching frequency conditions of 500kHz and assuming the maximum gate charge of all the affected devices in TO247 (470nC), the equivalent DC current can be calculated by  $I_{gate}(DC) = 2 \times \text{Switching frequency} \times \text{gate charge} = 2 \times 500000 \text{ 1/s} \times 470 \times 10^{-9} \text{ As} = 0.47\text{A}$ .

A 75µm aluminum gate wire is capable of carrying 2.4A DC current for the entire life time. Fusing currents are above 5A DC.

Hereby the performance of the device is still guaranteed.

Due to historical equipment related reasons, the gate wire thickness for TO247 is still 125µm. All other IGBT and CoolMOS technology products in TO220/TO262 packages are already using 75µm as standard gate wire thickness.

Processes are optimized to meet identical product performance according to already applied Infineon specifications.

## DOCUMENTATION:

2\_cip13008\_a (Qualification report)