Wolfspeed® Product/Process Change Notification

PCN Number:	PCN-00005	PCN Issue Date:	3/21/2022
PCN Type:	Major		

PCN Title

Increased Ti Thickness in the Topside Ti/TiN/AlCu Metal Layer to Enhance SiC Device Reliability

Description of the Change

Ti/TiN is known to serve as a multilayer diffusion barrier applied to AlCu metallization in which the thickness of Ti plays a critical role. Based on the preliminary probe and reliability data, Wolfspeed has determined to change the topside Ti/TiN overlayer thickness of its SiC-based bare die and discrete devices.

Benefit of the Change

The increased Ti/TiN thickness will prevent the shift in Vt and R ds, on from the targeted values of Wolfspeed products under the static +19 V gate voltage, 175 °C condition (which is not typically found in most applications) to realize high performance and reliability. Even though the +19 V gate voltage static operation is not recommended, Wolfspeed would like to make the thickness change to provide additional safety margin. This change will ensure Wolfspeed's continued ability to provide quality products that meet and exceed customer expectations.

Affected Products

Table 1 lists the products affected by this Major PCN. Any new parts introduced after the publication of this PCN will include multi-fab manufacturing.

Table 1. *Affected Products List.*

Current Part Number	Product Number with Increased Ti Thickness
EPM3-1200-0017D	EPM3-1200-0017D-R01
EPM3-1200-0017D1	EPM3-1200-0017D1-R01

Qualification Status and Report

Per request, Wolfspeed will deliver its qualification report associated with this PCN and any requested samples. Note that all processes are qualified through the internal Process Change Review Board (PCRB). Wolfspeed will assume the approval from its customer if no feedback is received from the customer within 30 days from the date the qualification report is issued.

Anticipated Impact

There will be no change on the form, fit, or function on the die. It should be noted that the additional DUR manufacturing facility is a Class 100 (ISO 5) cleanroom certified to ISO9001 and IATF16949:2016 standards and has been a fully-functional Wolfspeed-owned semiconductor manufacturing facility in operation for more than 20 years.

The part numbers used by customers to order sawn wafers manufactured in the expanded DUR facility will change. The 150-mm wafers manufactured at the current RTP facility are ordered using core 13-character part numbers plus the suffix "-FE6" or "-WD6", depending on the carrier used for bare die. Moving forward, all devices will have the multi-factory suffix, "-FY6" or "-WX6". Please refer to Table 1 for the suffix information.

Product Traceability

Wolfspeed maintains its product traceability at the wafer level, including the fabrication location of each process step.

Sample Status

Qualification samples can be made available by request via the PCN contact (see Table 3) for the part affected by this change. It is preferably within 30 days of the issue date of this PCN to place any sample orders.

Implementation Date

Table 2 provides the estimated dates for key PCN milestones based on the information available on the date this PCN is issued. Any updates to these dates can be provided by your Wolfspeed contact.

Table 2. *Estimated Key PCN Dates.*

Task	Date
Qualification Report	3/21/2022
Samples	3/21/2022
Projected First Ship Date for Products with increased Ti Thickness	Follow latest lead time

Customer Acknowledgement

Customer is requested to acknowledge this notification within 30 days from its issue date by signing this PCN, scanning it into a pdf file, and emailing the file and any feedback to Wolfspeed at PCN@wolfspeed.com. Note that Wolfspeed references the JEDEC J-STD-046 guidelines for its PCNs. In accordance with J-STD-046, this change is deemed acceptable to the customer if no acknowledgement is received within 30 days from the PCN issue date.

Name: _____Title: _____

Phone: _____ Email: _____

Customer Comment: _____

Customer Signature: _____ Date: _____

Contact Information

If you have any questions regarding this Major PCN, please refer to the contact information listed in Table 3.

***Table 3**. PCN Contact.*

Wolfspeed Contact	Mingyuan Zhao
Wolfspeed Contact E-Mail	mingyuan.zhao@wolfspeed.com
Address	4600 Silicon Drive Durham, NC 27703 U.S.A.

Revision History

Date	Revision	Description
March 21, 2022	0	Initial release