Final Product/Process Change Notification

Document #: FPCN22966ZI1
Issue Date: 07 Sep 2021

Title of Change:	Wafer Fab Transfer for Trench 6 MOSFET Technology to Global Foundries in New York, US with additional clip change for device NVMFS5C442NL
Proposed Changed Material First Ship Date:	08 Jan 2022 or earlier if approved by customer
Current Material Last Order Date:	26 Nov 2021 *Orders received after the Current Material Last Order Date expiration are to be considered as orders for new changed material as described in this PCN. Orders for current (unchanged) material after this date will be per mutual agreement and current material inventory availability.*
Current Material Last Delivery Date:	07 Jan 2022 *The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory*
Product Category:	Active components – Discrete components
Contact information:	Contact your local onsemi Sales Office or Ammar.Anuar@onsemi.com
PCN Samples Contact:	Contact your local onsemi Sales Office to place sample order or <PCN.samples@onsemi.com>. Sample requests are to be submitted no later than 45 days after publication of this change notification. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.
Sample Availability Date:	01 Jan 2021
PPAP Availability Date:	01 Jan 2021
Additional Reliability Data:	Contact your local onsemi Sales Office or Robert.Baran@onsemi.com
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. The change will be implemented at 'Proposed Change Material First Ship Date' in compliance to J-STD-46 or ZVEI, or earlier upon customer approval, or per our signed agreements. onsemi will consider this proposed change and it's conditions acceptable, unless an inquiry is made in writing within 45 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com.

Change Category

Category	Type of Change
Packing/Shipping	Dry pack requirements change
Test Flow	Move of all or part of electrical wafer test and/or final test to a different location/site/subcontractor
Process - Wafer Production	Move of all or part of wafer fab to a different location/site/subcontractor, New wafer diameter
Process - Assembly	Move of all or part of assembly to a different location/site/subcontractor., Change in process technology (e.g., plating) Change of specified assembly process sequence (deletion and/or additional process step)

Description and Purpose:

This Product Change Notification, is an update to FPCN22966ZI, specifically on device NVMFS5C442NL series, which is intended to qualify a new clip design for SO8FL package assembly in onsemi Seremban, Malaystia. New clip design is to improve package robustness for better product performance.

As per FPCN22966ZI, the changes also includes the increase of capacity for onemi automotive 40V Trench 6 MOSFET technology products by transferring wafer fabrication for these products to the Global Foundries Fab located in New York, US.

The changes include transferring wafer fabrication, back grind and back metal, to Global Foundries, and utilizing 300mm instead of 200mm diameter wafers. And while the assembly location remains unchanged (at onsemi, Seremban, Malaysia), wafer saw and die attach tooling are being updated to accommodate 300mm wafers.

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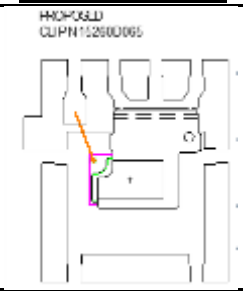
There is no change to the orderable part number.
There is no product marking change as a result of this change.

	Before Change	After Change
Wafer Fabrication Site	onsemi Aizu, Japan onsemi Gresham, US	Global Foundries, US
Wafer Diameter	200mm (existing sites)	300mm (Global Foundries)
Wafer Probe Site	onsemi, Malaysia	Global Foundries, US
Back Grind, Back Metal Site	onsemi, Malaysia	Global Foundries, US
Clip Change		

Reason / Motivation for Change:	Source/Supply/Capacity Changes Process/Materials Change
Anticipated impact on fit, form, function, reliability, product safety or manufacturability:	The device has been qualified and validated based on the same Product Specification. The device has successfully passed the qualification tests. Potential impacts can be identified, but due to testing performed by onsemi in relation to the PCN, associated risks are verified and excluded. No anticipated impacts.

Sites Affected:

onsemi Sites	External Foundry/Subcon Sites
onsemi Gresham, United States	GlobalFoundries, Fab 10, New York, US
onsemi Aizu, Japan	
onsemi Seremban, Malaysia	
onsemi ISMF, Malaysia	

Marking of Parts/ Traceability of Change:	Material will be traceable with onsemi lot trace code & tracking

Reliability Data Summary:

QV DEVICE NAME (DIE QUAL): NVMFS5C404NL
RMS: 66099, 67744, 67566, 67567
PACKAGE: SO8FL-HE

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta=175°C, 100% max rated Vds	2016 hrs	0/231
HTGB	JESD22-A108	Ta=175°C, 100% max rated Vgss	2016 hrs	0/231
HTSL	JESD22-A103	Ta= 175°C	2016 hrs	0/231
IOL	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, delta Tj=100°C On/off =2 min	30000 cyc	0/231
TC	JESD22-A104	Ta= -55°C to +150°C	1000 cyc	0/231

HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/231
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/231
PC	J-STD-020 JESD-A113	MSL1 @ 260°C		
RSH	JESD22- B106	Ta = 265C, 10 sec		0/30

QV DEVICE NAME (DIE QUAL): NVMFS5C404N
RMS: 66100
PACKAGE: SO8FL-HE

Test	Specification	Condition	Interval	Results
HTGB	JESD22-A108	Ta=175°C, 100% max rated Vgss	2016 hrs	0/231

QV DEVICE NAME (DIE QUAL): NVMFS5C645NLT1G
RMS: 45829
PACKAGE: SO8FL

Test	Specification	Condition	Interval	Results
AC	JESD22 A102	Ta = 121°C, P= 15 PSIG, RH = 100%, 96 Hours	96 hrs	0/231
H3TRB	JESD22-A101	Temp = 85C, RH=85%, bias = 80% of rated V or 100V max	2016 hrs	0/231
TC+PC	JESD22-A104	Ta = -55°C to +150°C	1000 cyc	0/231
IOL+PC	MIL STD750, M 1037 AEC Q101	Ta=+25°C, deltaTj=100°C max, Ton = Toff = 2min	30000 cyc	0/231
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/504
RSH	JESD22-B106	Ta = 265°C, 10 sec		0/90
SD	JSTD002	Ta = 245°C, 10 sec		0/45

Electrical Characteristics Summary:

Electrical characteristics are not impacted.

List of Affected Parts:

Note: *Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the* ***PCN Customized Portal*****.**

Current Part Number	New Part Number	Qualification Vehicle
NVMFS5C442NLT3G	NA	NVMFS5C404NWFT3G-K, NVMFS5C404NLT1G, NVMFS5C645NLT1G
NVMFS5C442NLT1G	NA	NVMFS5C404NWFT3G-K, NVMFS5C404NLT1G, NVMFS5C645NLT1G
NVMFS5C442NLAFT3G	NA	NVMFS5C404NWFT3G-K, NVMFS5C404NLT1G, NVMFS5C645NLT1G
NVMFS5C442NLAFT1G	NA	NVMFS5C404NWFT3G-K, NVMFS5C404NLT1G, NVMFS5C645NLT1G