Final Product/Process Change Notification

Document #:FPCN22966ZT
Issue Date: 14 Dec 2021

Title of Change:	Wafer Fab Transfer for Trench 6 MOSFET Technology to Global Foundries in New York, US.
Proposed Changed Material First Ship Date:	14 Jun 2022 or earlier if approved by customer
Current Material Last Order Date:	05 May 2022 *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:	13 Jun 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. 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:	17 Dec 2021
PPAP Availability Date:	17 Dec 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
Process - Wafer Production	Move of all or part of wafer fab to a different location/site/subcontractor, New wafer diameter
Test Flow	Move of all or part of electrical wafer test and/or final test to a different location/site/subcontractor
Process - Assembly	Move of all or part of assembly to a different location/site/subcontractor., Change in process technology (e.g., die attach, bonding, moulding, plating, trim and form, lead frame preperation, …), Change of specified assembly process sequence (deletion and/or additional process step)

Description and Purpose:

This Product Change Notification, is the continuation from FPCN22966ZJ, which is intended to increase capacity for onsemi automotive 30V and 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. In addition, the Wettable Flank leadframe design and plating process are being enhanced, as tabulated below, in order to improve the sidewall plating and the elimination of Dry Pack.

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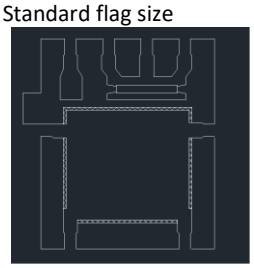
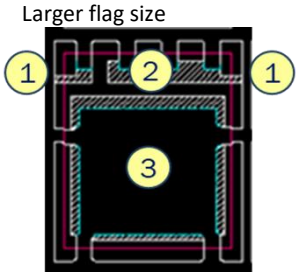
There is no change to the orderable part number.

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 Seremban, Malaysia	Global Foundries, US
Back Grind, Back Metal Site	onsemi ISMF, Malaysia	Global Foundries, US
Wettable Flank Plating Site	Metek, Malaysia (Sub-con)	onsemi Seremban, Malaysia
S08FL Lead Frame design	1. No tie bar connect to the gate and source lead 2. Upset lead design 3. Standard flag size 	1. Additional tie bar connect to gate and source lead 2. Flat lead design 3. Larger flag size 
S08FL Case Outline	488AA	507BA
S08FL Dimension “L1” in case outline	0.125mm	0.15mm
Sidewall Plating Method	Electroless SN plating	Electrolytic SN plating
Packing	Drypack (MSL 1)	No Drypack (MSL 1)

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 Aizu, Japan	Global Foundries East Fishkill, New York, United States
onsemi Seremban, Malaysia	Metek Seremban, Malaysia
onsemi, Gresham United States	
onsemi, ISMF Malaysia	

Marking of Parts/ Traceability of Change:	Material will be traceable with ONs 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 (PACKAGE QUAL) NVMFS5C404N
RMS:68528, 68531
PACKAGE:SO8FL-HE

Test	Specification	Condition	Interval	Results
HTSL	JESD22-A103	Ta = 150 °C	1008 hrs	0/84
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/84
HTGB	JESD22-A108	Ta=150°C, 100% max rated Vgss	1008 hrs	0/80
HTRB	JESD22-A108	Ta=150°C, 100% max rated Vds	1008 hrs	0/84
H3TRB	JESD22-A101	Temp = 85C, RH=85%, bias = 80% of rated V or 100V max	2016 hrs	0/84
TC+PC	JESD22-A104	Ta = -65°C to +150°C	1000 cyc	0/84
IOL+PC	MIL STD750, M 1037 AEC Q101	Ta=+25°C, deltaTj=100°C max, Ton = Toff = 2min	30000 cyc	0/84
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/504
RSH	JESD22-B106	Ta = 265°C, 10 sec		0/15
SD	JSTD002	Ta = 245°C, 10 sec		0/15

NOTE: AEC-1pager is attached.

To view attachments:
1.Download pdf copy of the PCN to your computer
2.Open the downloaded pdf copy of the PCN
3.Click on the paper clip icon available on the menu provided in the left/bottom portion of the screen to reveal the Attachment field
4.Then click on the attached file/s.

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
NVMFS5C468NLWFT3G	NA	NVMFS5C404NLT1G, NVMFS5C404NWFT3G-K
NVMFS5C420NWFT1G	NA	NVMFS5C404NLT1G, NVMFS5C404NWFT3G-K
NVMFS4C306NWFT1G	NA	NVMFS5C404NLT1G, NVMFS5C404NWFT3G-K