Initial Product/Process Change Notification

Document #:IPCN25255Z
Issue Date:17 May 2023

Title of Change:	Qualification of Minigates Vanguard die in uDFN6/8 Package
Proposed Changed Material First Ship Date:	30 Apr 2024 or earlier if approved by customer
Current Material Last Order Date:	N/A *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:	N/A *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 – Integrated circuits
Contact information:	Contact your local onsemi Sales Office or logic.fpcn@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.
Additional Reliability Data:	Contact your local onsemi Sales Office or ChangKit.Mok@onsemi.com
Type of Notification:	This is an Initial Product/Process Change Notification (IPCN) sent to customers. An IPCN is an advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan.The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN). This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 6 months prior to implementation of the change. In case of questions, contact <PCN.Support@onsemi.com>.

Change Category

Category	**Type of 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
Equipment	Production from a new equipment/tool which uses a different basic technology or which due to its unique form or function can be expected to influence the integrity of the final product
Data Sheet	Change of datasheet parameters/electrical specification (min./max./typ. values) and/or AC/DC specification
Process - Assembly	Move of all or part of assembly to a different location/site/subcontractor., Change of mold compound, Change of leadframe base material, Change of wire bonding

Description and Purpose:

This Initial Notification announces that onsemi is qualifying Vanguard wafer fabrication for uDFN6 and uDNF8 packages.

For NLVX2G16AMUTCG and NLVU1GT125AMUTCG

	From	To	
Assembly Site	onsemi Seremban	onsemi Seremban	onsemi Tarlac
Lead Frame	6L LF uPPF PLATED LEADFRAME	LF PPF PLATED (C7025)	LF PPF PLATED (C7025)
Bond Wire	Au wire	PCC wire	PCC wire
Mold Compound	MC SUMITOMO G760	Sumitomo EME-G770HM	SUMITOMO EME-G760
Fab Site	Tower	Vanguard	Vanguard
Wafer Size	6”	8”	8”

For NLVX1G74MUTCG

	From	To	
Assembly Site	onsemi Seremban	onsemi Seremban	onsemi Tarlac
Lead Frame	LF UQFN 1.6X1.6MM PPF	LF PPF PLATED (C7025)	LF PPF PLATED (C7025)
Bond Wire	Au wire	PCC wire	PCC wire
Mold Compound	MC SUMITOMO G760	Sumitomo EME-G770HM	SUMITOMO EME-G760
Fab Site	Tower	Vanguard	Vanguard
Wafer Size	6”	8”	8”

Datasheet changes:

	From	To
Data sheet	Current revision	Updated revision
Absolute Max Rating Voltage	7V	6.5V

Parts produced from Vanguard wafer fabrication will be given a new part number as listed in the table below and current datasheets will be updated to reflect the new part number.

There is no product marking change as a result of this change.

We will provide PCN samples using the current orderable part numbers, however, we expect customers to use the new orderable part numbers to place order in the future.

Reason / Motivation for Change:	Source/Supply/Capacity Changes Process/Materials Change
Anticipated impact on fit, form, function, reliability, product safety or manufacturability:	The device will be qualified and validated based on the same Product Specification. No anticipated impacts.

Sites Affected:

onsemi Sites	**External Foundry/Subcon Sites**
onsemi Seremban, Malaysia	Vanguard International Semiconductor, Taiwan
onsemi Tarlac, Philippines	

Marking of Parts/ Traceability of Change:	Custom source on label will show TW instead of US to indicate new die source from Vanguard. Changed material may be identified by plant code or lot code too.

Reliability Data Summary:

QV DEVICE NAME: NL17SZ08MU1TCG
RMS: 87093 / 87094 / 87718 / 87719
PACKAGE: uDFN6 1.45*1.0

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, max rated Vcc	48 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

QV DEVICE NAME: NL27WZ17MU1TCG
RMS: 87313 / 87316
PACKAGE: uDFN6 1.45*1.0

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

QV DEVICE NAME: MC74VHC3G14MU3TCG
RMS: 87960 / 87889
PACKAGE: uDFN8 1.45*1.0

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

Estimated date for Qual Completion : 02 Dec 2023

Electrical Characteristics Summary:

Electrical characteristics available upon request.

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
NLVX2G16AMUTCG	NL27WZ16MU1TCG-Q	NL17SZ08MU1TCG,NL27WZ17MU1TCG
NLVU1GT125AMUTCG	MC74VHC1GT125MU1TCG-Q	NL17SZ08MU1TCG,NL27WZ17MU1TCG
NLVX1G74MUTCG	NL17SZ74MQ1TCG-Q	MC74VHC3G14MU3TCG