Final Product/Process Change Notification

Document #:FPCN25572Z19
Issue Date: 28 Jan 2024

Title of Change:	Update to **FPCN25572Z** - To include the reliability data of SOIC-16 package for the Qualification of Vanguard Fab and Assembly related changes for Logic parts.
Proposed Changed Material First Ship Date:	31 Jul 2024 or earlier if approved by customer
Current Material Last Order Date:	20 Nov 2023 *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.
Sample Availability Date:	31 Mar 2024
PPAP Availability Date:	26 Feb 2024
Additional Reliability Data:	Contact your local onsemi Sales Office or ChangKit.Mok@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**
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, Die attach material, Change of wire bonding

Description and Purpose:

With reference to **FPCN25572Z**, this FPCN presents the information solely for SOIC-16 package and the pertinent reliability data.

Fab changes:

	From	To
Fab Site	Tower Semiconductor	Vanguard International Semiconductor (VIS)
Wafer Size	150 mm	200 mm

The following parts will have assembly changes as shown in the table below:

NLV74ACT138DR2G	NLV74VHC139DR2G
NLV74AC157DR2G	NLV74LVX8051DR2G
NLV74ACT139DR2G	NLV74LCX138DR2G
NLV74HC138ADR2G	NLV74HC595ADR2G-L24120
NLVHC4851ADR2G-L24120	NLV74HC4851ADR2G-L24120
	NLV74HC165ADR2G-L24120

	From	To		
Assmbly Site	onsemi Carmona	onsemi Carmona	ATEC	ATX Kunshan
Bond Wire	0.8 mil Au, 0.8 mil Cu	1 mil PCC	1 mil PCC	1 mil PCC
Die Attach	CRM-1076WB	CRM-1076WB	CRM-1076WB	EN4900GC
Mold Compound	G600	G600	G600	CEL9240HF10AK

The following parts will have assembly changes as shown in the table below:

NLVHC259ADR2G	NLV74HC251ADR2G
NLVHC165ADR2G	NLV74HC238ADR2G
NLV74HCT4851ADRG	NLV74HC174ADR2G
NLV74HC595ADR2G	NLV74HC165ADR2G
NLV74HC589ADR2G	NLV74HC157ADR2G
NLV74HC4851ADR2G	NLV74HC151ADR2G
NLV74HC390ADR2G	NLV74HC139ADR2G

	From		To		
Assembly Site	onsemi Carmona	ATEC	onsemi Carmona	ATEC	ATX Kunshan
Bond Wire	0.8 mil Au, 0.8 mil Cu	0.8 mil Cu	1 mil PCC	1 mil PCC	1 mil PCC
Die Attach	CRM-1076WB	CRM-1076WB	CRM-1076WB	CRM-1076WB	EN4900GC
Mold Compound	G600	G600	G600	G600	CEL9240HF10AK

In addition to the changes referenced above, the parts below will also undergo a test site change as shown:

NLV74ACT138DR2G	NLVHC165ADR2G
NLV74AC157DR2G	NLV74HCT4851ADRG
NLV74ACT139DR2G	NLV74HC595ADR2G
NLV74HC138ADR2G	NLV74HC589ADR2G
NLVHC4851ADR2G-L24120	NLV74HC4851ADR2G
NLV74VHC139DR2G	NLV74HC390ADR2G
NLV74LVX8051DR2G	NLV74HC251ADR2G
NLV74LCX138DR2G	NLV74HC238ADR2G
NLV74HC595ADR2G-L24120	NLV74HC174ADR2G
NLV74HC4851ADR2G-L24120	NLV74HC165ADR2G
NLV74HC165ADR2G-L24120	NLV74HC157ADR2G
NLVHC259ADR2G	NLV74HC151ADR2G
	NLV74HC139ADR2G

	From	To	
Test Site	onsemi Carmona	onsemi Carmona	ATEC

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 Carmona, Philippines	ATEC - Automated Technology, Philippines
	ATX Kun Shan, China
	Vanguard International Semiconductor, Taiwan

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

Reliability Data Summary:

Refer to embedded excel RMS O89362, O89365, O89367, O89369, O89370, O89372, O88465, O89376, and O89377.

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.

Electrical Characteristics Summary:

	From	To
Datasheet	Current Revision	New Revision
Absolute Max Voltage Rating	7 V	6.5 V

- **Additional change for only LCX Device Family part number: NLV74LCX138DR2G**

	From	To
Recommended Operating Voltage Range	2.0 – 3.6 V	1.65 – 5.5 V
Recommended Operating Temperature Range	-40 – 85 °C	-40 – 125 °C

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
NLV74ACT138DR2G	MC74ACT138DR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74AC157DR2G	MC74AC157DR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74ACT139DR2G	MC74ACT139DR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC138ADR2G	MC74HC138ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLVHC4851ADR2G-L24120	MC74HC4851ADR2G-Q	MC74HC4851ADR2G, NLV74HC4851ADR2G
NLVHC259ADR2G	MC74HC259ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLVHC165ADR2G	MC74HC165ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74VHC139DR2G	MC74VHC139DR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74LVX8051DR2G	MC74LVX8051DR2G-Q	MC74LVX4051DR2G
NLV74LCX138DR2G	MC74LCX138DR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HCT4851ADRG	MC74HCT4851ADRG-Q	MC74HC4851ADR2G, NLV74HC4851ADR2G
NLV74HC595ADR2G-L24120	MC74HC595ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC595ADR2G	MC74HC595ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC589ADR2G	MC74HC589ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC4851ADR2G-L24120	MC74HC4851ADR2G-Q	MC74HC4851ADR2G, NLV74HC4851ADR2G
NLV74HC4851ADR2G	MC74HC4851ADR2G-Q	MC74HC4851ADR2G, NLV74HC4851ADR2G
NLV74HC390ADR2G	MC74HC390ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G

NLV74HC251ADR2G	MC74HC251ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC238ADR2G	MC74HC238ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC174ADR2G	MC74HC174ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC165ADR2G-L24120	MC74HC165ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC165ADR2G	MC74HC165ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC157ADR2G	MC74HC157ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC151ADR2G	MC74HC151ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC139ADR2G	MC74HC139ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G
NLV74HC138ADR2G-L24120	MC74HC138ADR2G-Q	MC74HC595ADR2G, NLV74HC595ADR2G