



Final Product/Process Change Notification

Document #:FPCN25572Z17

Issue Date: 28 Jan 2024

Title of Change:	Update to FPCN25572Z - To include the reliability data for TSSOP-14 and TSSOP-16 package parts.
Proposed Changed Material First Ship Date:	31 Jul 2024 or earlier if approved by customer
Current Material Last Order Date:	20 Nov 2023 <i>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.</i>
Current Material Last Delivery Date:	N/A <i>The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory</i>
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:	23 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 wire bonding

Description and Purpose:

With reference to **FPCN25572Z**, this FPCN presents the information solely for TSSOP-14 and TSSOP-16 packages and the pertinent reliability data.

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

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

NLV74AC14DTR2G	NLV74HCT08ADTR2G	NLV74VHC126DTR2G	NLVVHC86DTR2G
NLV74HC00ADTR2G	NLV74HCT14ADTR2G	NLV74VHC139DTR2G	NLVVHC157DTR2G
NLV74HC02ADTR2G	NLV74HCT32ADTR2G	NLV74VHC14DTR2G	NLVLVX8053DTR2G
NLV74HC03ADTR2G	NLV74HCU04ADTR2G	NLV74VHC32DTR2G	NLVLVX4052DTR2G
NLV74HC04ADTR2G	NLV74LCX00DTR2G	NLV74VHC50DTR2G	NLVLVX32DTR2G
NLV74HC05ADTR2G	NLV74LCX02DTR2G	NLV74VHC595DTR2G	NLVLCX125DTR2G
NLV74HC08ADTR2G	NLV74LCX04DTR2G	NLV74VHC74DTR2G	NLVLCX08DTR2G
NLV74HC125ADTR2G	NLV74LCX32DTR2G	NLV74VHCT00ADTR2G	NLV74HC595ADTR2G-L23730
NLV74HC126ADTR2G	NLV74LVX08DTR2G	NLV74VHCT08ADTR2G	NLV74HC589ADTR2G-L23730
NLV74HC132ADTR2G	NLV74LVX14DTR2G	NLVHCT125ADTR2G	NLV74HC175ADTR2G-L23730
NLV74HC14ADTR2G	NLV74LVX8051DTR2G	NLVHCT4851ADTR2G	NLV74HC165ADTR2G-L23730
NLV74HC32ADTR2G	NLV74VHC00DTR2G	NLVHCT4851ADTR2G-L23730	NLV74HC165ADTR2G
NLV74HC589ADTR2G	NLV74VHC02DTR2G	NLVVHCT50ADTR2G	NLV74HC164ADTR2G
NLV74HC74ADTR2G	NLV74VHC04DTR2G	NLVVHCT132ADTR2G	NLV74HC157ADTR2G-L23730
NLV74HC86ADTR2G	NLV74VHC08DTRG	NLVVHCT126ADTR2G	NLV74HC157ADTR2G
NLV74HCT04ADTR2G	NLV74VHC125DTR2G	NLVVHCT125ADTRG	NLV74HC139ADTR2G-L23730
			NLV74AC86DTR2G

	From	To	
Assembly Site	onsemi Carmona	onsemi Carmona	ATEC
Test Site	onsemi Carmona	onsemi Carmona	ATEC
Wire Type	0.8 mil Au, 0.8 mil Cu	1 mil PCC	1 mil PCC

The following parts undergo wire type changes as shown below:

NLV74HC138ADTR2G	NLV74HC595ADTR2G
NLV74HC139ADTR2G	NLV74HCT366ADTRG
NLV74HC151ADTR2G	NLVHCT366ADTR2G
NLV74HC238ADTR2G	NLV74HC175ADTR2G
NLV74HC259ADTR2G	NLV74HC174ADTR2G
NLV74HC365ADTR2G	

	From		To	
Assembly Site	onsemi Carmona	ATEC	onsemi Carmona	ATEC
Wire Type	0.8 mil Au, 0.8 mil Cu	0.8 mil Cu	1 mil PCC	1 mil PCC

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
	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.
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Reliability Data Summary:

- Refer to embedded excel RMS O88463, O89920, O89358, O88467, O89368, O89374, O89375, O88468, and O89399.

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 numbers: NLV74LCX00DTR2G, NLV74LCX02DTR2G, NLV74LCX04DTR2G, NLV74LCX32DTR2G, NLVLCX125DTR2G, and NLVLCX08DTR2G

	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

- Additional change for NLVLVX4052DTR2G only:

Datasheet Existing vs Updated Comparison:

Existing Datasheet

MAXIMUM RATINGS			
Symbol	Parameter	Value	Unit
V_{EE}	Negative DC Supply Voltage	-7.0 to +0.5	V
V_{CC}	Positive DC Supply Voltage (Referenced to GND) (Referenced to V_{EE})	-0.5 to +7.0 -0.5 to +7.0	V
V_{IS}	Analog Input Voltage	$V_{EE}-0.5$ to $V_{CC}+0.5$	V
V_{IH}	Digital Input Voltage (Referenced to GND)	-0.5 to +7.0	V
I	DC Current, Into or Out of Any Pin	±50	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 seconds	+260	°C
T_J	Junction Temperature under Bias	+150	°C
θ_{JA}	Thermal Resistance	SOIC 143 TSSOP 164	°C/W
P_D	Power Dissipation in Still Air	SOIC 500 TSSOP 450	mW
MSL	Moisture Sensitivity	Level 1	
F_R	Flammability Rating	Oxygen Index: 30% - 35% UL 94-V0 @ 0.125 in	°C/W
V_{ESD}	ESD Withstand Voltage	Human Body Model (Note 1) > 2000 Machine Model (Note 2) > 200 Charged Device Model (Note 3) > 1000	V
$I_{LATCHUP}$	Latchup Performance	Above V_{CC} and Below GND at 125°C (Note 4)	±300 mA

Updated Datasheet

MAXIMUM RATINGS (Voltages referenced to GND unless otherwise specified)			
Symbol	Parameter	Value	Unit
V_{CC}	Positive DC Supply Voltage	-0.5 to +6.5	V
$V_{CC} - V_{EE}$	DC Supply Voltage	-0.5 to +6.5	V
V_{IS}	Analog Input Voltage	$V_{EE}-0.5$ to $V_{CC}+0.5$	V
V_{IH}	Digital Input Voltage (Referenced to V_{EE})	-0.5 to +6.5	V
I	DC Current, Into or Out of Any Pin	±50	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 seconds	+260	°C
T_J	Junction Temperature under Bias	+150	°C
θ_{JA}	Thermal Resistance	SOIC-16 128 TSSOP-16 159	°C/W
P_D	Power Dissipation in Still Air	SOIC-16 995 TSSOP-16 787	mW
MSL	Moisture Sensitivity	Level 1	
F_R	Flammability Rating	Oxygen Index: 30% - 35% UL 94-V0 @ 0.125 in	°C/W
V_{ESD}	ESD Withstand Voltage	Human Body Model (Note 1) > 2000 Charged Device Model (Note 2) > 1000	V
$I_{LATCHUP}$	Latchup Performance	Above V_{CC} and Below GND ($V_{EE}=GND$) at 125°C (Note 3)	±100 mA

Existing Datasheet

RECOMMENDED OPERATING CONDITIONS					
Symbol	Parameter		Min	Max	Unit
V_{EH}	Negative DC Supply Voltage	(Referenced to GND)	-6.0	GND	V
V_{CC}	Positive DC Supply Voltage	(Referenced to GND)	2.5	6.0	V
		(Referenced to V_{EH})	2.5	6.0	
V_{IH}	Analog Input Voltage		V_{EH}	V_{CC}	V
V_{IN}	Digital Input Voltage	(Note 5) (Referenced to GND)	0	6.0	V
T_A	Operating Temperature Range		-55	+125	°C
t_r, t_f	Input Transition Rise or Fall Rate	$V_{CC} = 3.0\text{ V} \pm 0.3\text{ V}$	0	100	nS/V
	(Channel Select or Enable Inputs)	$V_{CC} = 5.0\text{ V} \pm 0.5\text{ V}$	0	20	

Updated Datasheet

RECOMMENDED OPERATING CONDITIONS (Voltages referenced to GND unless otherwise specified)				
Symbol	Parameter	Min	Max	Unit
V_{CC}	Positive DC Supply Voltage	2.5	6.0	V
V_{EE}	Negative DC Supply Voltage	-3.5	GND	V
$V_{CC} - V_{EE}$	DC Supply Voltage	2.5	6.0	V
V_{IS}	Analog Input Voltage	V_{EE}	V_{CC}	V
V_{IH}	Digital Input Voltage (Note 4) (Referenced to V_{EE})	0	6.0	V
T_A	Operating Temperature Range	-55	+125	°C
t_i, t_f	Input Transition Rise or Fall Rate (Channel Select or Enable Inputs)	$V_{CC} = 3.0\text{ V} \pm 0.3\text{ V}$ $V_{CC} = 5.0\text{ V} \pm 0.5\text{ V}$	0 20	100 nS/V

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
NLVHCT366ADTR2G	MC74HCT366ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74VHC595DTR2G	MC74VHC595DTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74VHC139DTR2G	MC74VHC139DTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC595ADTR2G	MC74HC595ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC589ADTR2G	MC74HC589ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC238ADTR2G	MC74HC238ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC175ADTR2G	MC74HC175ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC174ADTR2G	MC74HC174ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC165ADTR2G	MC74HC165ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC164ADTR2G	MC74HC164ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC157ADTR2G	MC74HC157ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC151ADTR2G	MC74HC151ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC139ADTR2G	MC74HC139ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC138ADTR2G	MC74HC138ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74AC14DTR2G	MC74AC14DTR2G-Q	MC74LCX14DTR2G
NLV74HC00ADTR2G	MC74HC00ADTR2G-Q	MC74LCX14DTR2G
NLV74HC02ADTR2G	MC74HC02ADTR2G-Q	MC74LCX14DTR2G
NLV74HC03ADTR2G	MC74HC03ADTR2G-Q	MC74LCX14DTR2G
NLV74HC04ADTR2G	MC74HC04ADTR2G-Q	MC74LCX14DTR2G
NLV74HC05ADTR2G	MC74HC05ADTR2G-Q	MC74LCX14DTR2G
NLV74HC08ADTR2G	MC74HC08ADTR2G-Q	MC74LCX14DTR2G
NLV74HC125ADTR2G	MC74HC125ADTR2G-Q	MC74LCX14DTR2G
NLV74HC126ADTR2G	MC74HC126ADTR2G-Q	MC74LCX14DTR2G
NLV74HC132ADTR2G	MC74HC132ADTR2G-Q	MC74LCX14DTR2G
NLV74HC14ADTR2G	MC74HC14ADTR2G-Q	MC74LCX14DTR2G
NLV74HC259ADTR2G	MC74HC259ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC32ADTR2G	MC74HC32ADTR2G-Q	MC74LCX14DTR2G
NLV74HC365ADTR2G	MC74HC365ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC74ADTR2G	MC74HC74ADTR2G-Q	MC74LCX14DTR2G
NLV74HC86ADTR2G	MC74HC86ADTR2G-Q	MC74LCX14DTR2G



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NLV74HCT04ADTR2G	MC74HCT04ADTR2G-Q	MC74LCX14DTR2G
NLV74HCT08ADTR2G	MC74HCT08ADTR2G-Q	MC74LCX14DTR2G
NLV74HCT14ADTR2G	MC74HCT14ADTR2G-Q	MC74LCX14DTR2G
NLV74HCT32ADTR2G	MC74HCT32ADTR2G-Q	MC74LCX14DTR2G
NLV74HCU04ADTR2G	MC74HCU04ADTR2G-Q	MC74LCX14DTR2G
NLV74LCX00DTR2G	MC74LCX00DTR2G-Q	MC74LCX14DTR2G
NLV74LCX02DTR2G	MC74LCX02DTR2G-Q	MC74LCX14DTR2G
NLV74LCX04DTR2G	MC74LCX04DTR2G-Q	MC74LCX14DTR2G
NLV74LVX08DTR2G	MC74LVX08DTR2G-Q	MC74LCX14DTR2G
NLV74LVX14DTR2G	MC74LVX14DTR2G-Q	MC74LCX14DTR2G
NLV74LVX8051DTR2G	MC74LVX8051DTR2G-Q	MC74LVX4051DTR2G
NLV74VHC00DTR2G	MC74VHC00DTR2G-Q	MC74LCX14DTR2G
NLV74VHC02DTR2G	MC74VHC02DTR2G-Q	MC74LCX14DTR2G
NLV74VHC04DTR2G	MC74VHC04DTR2G-Q	MC74LCX14DTR2G
NLV74VHC08DTRG	MC74VHC08DTRG-Q	MC74LCX14DTR2G
NLV74VHC125DTR2G	MC74VHC125DTR2G-Q	MC74LCX14DTR2G
NLV74VHC126DTR2G	MC74VHC126DTR2G-Q	MC74LCX14DTR2G
NLV74VHC14DTR2G	MC74VHC14DTR2G-Q	MC74LCX14DTR2G
NLV74VHC32DTR2G	MC74VHC32DTR2G-Q	MC74LCX14DTR2G
NLV74VHC50DTR2G	MC74VHC50DTR2G-Q	MC74LCX14DTR2G
NLV74VHC74DTR2G	MC74VHC74DTR2G-Q	MC74LCX14DTR2G
NLV74VHCT00ADTR2G	MC74VHCT00ADTR2G-Q	MC74LCX14DTR2G
NLV74VHCT08ADTR2G	MC74VHCT08ADTR2G-Q	MC74LCX14DTR2G
NLV74VHCT08DTR2G	MC74VHCT08DTR2G-Q	MC74LCX14DTR2G
NLV74VHCT14ADTR2G	MC74VHCT14ADTR2G-Q	MC74LCX14DTR2G
NLV74VHCT32ADTR2G	MC74VHCT32ADTR2G-Q	MC74LCX14DTR2G
NLV74VHCU04DTR2G	MC74VHCU04DTR2G-Q	MC74LCX14DTR2G
NLVHC125ADTR2G	MC74HC125ADTR2G-Q	MC74LCX14DTR2G
NLVHC4851ADTR2G	MC74HC4851ADTR2G-Q	NLVHC4851ADTR2G
NLVHCT08ADTR2G	MC74HCT08ADTR2G-Q	MC74LCX14DTR2G
NLVHCT125ADTR2G	MC74HCT125ADTR2G-Q	MC74LCX14DTR2G
NLVVHCT50ADTR2G	MC74VHCT50ADTR2G-Q	MC74LCX14DTR2G
NLVVHCT132ADTR2G	MC74VHCT132ADTR2G-Q	MC74LCX14DTR2G
NLVVHCT126ADTR2G	MC74VHCT126ADTR2G-Q	MC74LCX14DTR2G
NLVVHCT125ADTRG	MC74VHCT125ADTR2G-Q	MC74LCX14DTR2G



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NLVVHC86DTR2G	MC74VHC86DTR2G-Q	MC74LCX14DTR2G
NLVVHC157DTR2G	MC74VHC157DTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLVLVX8053DTR2G	MC74LVX8053DTR2G-Q	MC74LVX4051DTR2G
NLVLVX4052DTR2G	MC74LVX4052DTR2G-Q	MC74LVX4051DTR2G
NLVLVX32DTR2G	MC74LVX32DTR2G-Q	MC74LCX14DTR2G
NLVLXC125DTR2G	MC74LCX125DTR2G-Q	MC74LCX14DTR2G
NLVLXC08DTR2G	MC74LCX08DTR2G-Q	MC74LCX14DTR2G
NLVHCT4851ADTR2G-L23730	MC74HCT4851ADTR2G-Q	NLVHC4851ADTR2G
NLVHCT4851ADTR2G	MC74HCT4851ADTR2G-Q	NLVHC4851ADTR2G
NLVHC32ADTR2G	MC74HC32ADTR2G-Q	MC74LCX14DTR2G
NLVAC14DTR2G	MC74AC14DTR2G-Q	MC74LCX14DTR2G
NLV74LCX32DTR2G	MC74LCX32DTR2G-Q	MC74LCX14DTR2G
NLV74HCT366ADTRG	MC74HCT366ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC595ADTR2G-L23730	MC74HC595ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC589ADTR2G-L23730	MC74HC589ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC175ADTR2G-L23730	MC74HC175ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC165ADTR2G-L23730	MC74HC165ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC157ADTR2G-L23730	MC74HC157ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74HC139ADTR2G-L23730	MC74HC139ADTR2G-Q	MC74HC595ADTR2G, NLV74HC595ADTR2G
NLV74AC86DTR2G	MC74AC86DTR2G-Q	MC74LCX14DTR2G