



Initial Product/Process Change Notification

Document #: IPCN25237X

Issue Date: 16 Feb 2023

Title of Change:	Qualification of Vanguard Fab and Some Assembly Related Changes for Multigate Products	
Proposed First Ship date:	01 Apr 2024 or earlier if approved by customer	
Contact Information:	Contact your local onsemi Sales Office or logic.fpcn@onsemi.com	
PCN Samples Contact:	Contact your local onsemi Sales Office. Sample requests are to be submitted no later than 30 days from the date of first notification, Initial PCN or Final PCN, for this change. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.	
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 90 days prior to implementation of the change. In case of questions, contact < PCN.Support@onsemi.com >	
Marking of Parts/ Traceability of Change:	Custom source on label will show TW instead of JP (Tower) to indicate new die source from Vanguard.	
Change Category:	Assembly Change, Wafer Fab Change	
Change Sub-Category(s):	Material Change, Manufacturing Site Transfer	
Sites Affected:		
onsemi Sites	External Foundry/Subcon Sites	
onsemi Carmona, Philippines	ATEC - Automated Technology, Philippines	
onsemi Seremban, Malaysia	ATX Kun Shan, China	
onsemi Tarlac, Philippines	Greatek Electronics Inc., Taiwan	
	HANA Microelectronics, China	
	Vanguard International Semiconductor, Taiwan	
Description and Purpose:		
This Initial Notification announces that onsemi is qualifying Vanguard wafer fabrication for TSSOP, SOIC, and QFN packages.		
Besides Vanguard fab wafers, please do take note that a new wire, leadframe and mold compound are also being qualified as part of this change.		
➤ Fab changes:		
	From	To
Fab Site	Tower Semiconductor, TPSCo, and Diodes Maine	Vanguard International Semiconductor (VIS)
Wafer size	150 mm, 200 mm	200 mm
➤ For SOIC-14, SOIC-16, and SOICW-20 package assembly changes:		
	From	To
Assembly Site	onsemi Carmona, ATEC, Hana, Greatek, ATX Kun Shan, ASE Chungli	onsemi Carmona, ATEC, Hana, Greatek, ATX Kun Shan
LeadFrame	Cu with Ag spot, PPF	Cu with Ag spot, PPF
Bond Wire	0.8 mil Au, 0.8 mil Cu, 0.8 mil PCC	1 mil PCC
Die Attach	CRM-1076WB, EN4900GC, QMI519	CRM-1076WB, EN4900GC, QMI519



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Mold Compound	G600, G700, CEL9240HF10AK, CEL8240HF10LYR	G600, G700, CEL9240HF10AK, CEL8240HF10LYR
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➤ For TSSOP-14, TSSOP-16, and TSSOP-20 package assembly changes:

	From	To
Assembly Site	onsemi Carmona, ATEC	onsemi Carmona, ATEC
LeadFrame	PPF	Cu with Ag spot, PPF
Die Attach	CRM-1076WB, QMI519	CRM-1076WB, QMI519
Bond Wire	0.8 mil Au, 0.8 mil Cu, 0.8 mil PCC	1 mil PCC
Mold Compound	G600, G700	G600, G700

➤ For QFN-14, QFN-16, and QFN-20 package assembly changes:

	From	To
Assembly Site	onsemi Tarlac, onsemi Seremban, STARS Micro., HANA Micro., ATX Shanghai	onsemi Tarlac, onsemi Seremban
LeadFrame	Cu with Ag spot, PPF	PPF
Die Attach	CRM-1076WB, ABLETHERM 8600	CRM-1076WB, ABLETHERM 8600
Bond Wire	0.8 mil Au, 0.8 mil PCC, 1 mil Au	0.8 mil PCC, 1 mil PCC
Mold Compound	G700, CEL9220HF13H, G760	G770

➤ Datasheet changes:

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

Changed material can be identified by lot code.

Qualification Plan:

QV DEVICE NAME: NLV74HC595ADTR2G

RMS: 88463 / 89358

PACKAGE: TSSOP16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, 100 % 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: MC74LVX4051DTR2G

RMS: 88467 / 89368

PACKAGE: TSSOP16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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	-



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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: NLVHC4851ADTR2G

RMS: 89374 / 89375

PACKAGE: TSSOP16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: MC74LCX14DTR2G

RMS: 88468 / 89399

PACKAGE: TSSOP14

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: NLV74HC244ADTR2G

RMS: 89395

PACKAGE: TSSOP20

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: MC74HC244ADTR2G

RMS: 89401

PACKAGE: TSSOP20

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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



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QV DEVICE NAME: MC74LCX14DR2G

RMS: 89379 / 89388 / 89394

PACKAGE: SOIC14

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: NLV74HC595ADR2G

RMS: 89362

PACKAGE: SOIC16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, 100 % 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: MC74HC595ADR2G

RMS: 89367

PACKAGE: SOIC16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, 100 % 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: MC74LVX4051DR2G

RMS: 89369 / 89372

PACKAGE: SOIC16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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



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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: NLV74HC4851ADR2G

RMS: 88465

PACKAGE: SOIC16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: MC74HC4851ADR2G

RMS: 89377

PACKAGE: SOIC16

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: NLV74HC244ADWR2G

RMS: 89396

PACKAGE: SOIC20

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: MC74HC244ADWR2G

RMS: 89402

PACKAGE: SOIC20

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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



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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: 74LCX14BQX

RMS: 89447

PACKAGE: QFN14 3.0x2.5

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: NLV74HC595AMN1TWG

RMS: 89269 / 89405

PACKAGE: QFN16 2.5x3.5

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, 100 % 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: MC74LVX4051MNTWG

RMS: 89440 / 89427

PACKAGE: QFN16 2.5x3.5

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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: NLV68SZ126MN2TWG

RMS: 89442

PACKAGE: QFN20 2.5x3.5

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % 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



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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: 74LCX244BQX

RMS: 89448

PACKAGE: wQFN20 4.5x2.5

Test	Specification	Condition	Interval
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 qualification completion: **15 December 2023**

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](#).

To view attached Parts List:

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.