



Final Product/Process Change Notification

Document #:FPCN25572X31

Issue Date:23 Jun 2024

Title of Change:	Update to FPCN25572X - To include the reliability data of 3V Minigates in SC88 for the Qualification of Vanguard Fab and Assembly related changes for Logic parts.
Proposed First Ship date:	30 Sep 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.
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. FPCNs are issued 90 days prior to implementation of the change. onsemi will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com
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.
Change Category:	Test Change, Assembly Change, Wafer Fab Change
Change Sub-Category(s):	Datasheet/Product Doc change, Manufacturing Site Transfer

Sites Affected:

onsemi Sites

onsemi Leshan, China

External Foundry/Subcon Sites

Vanguard International Semiconductor, Taiwan

Description and Purpose:

With reference to **FPCN25572X**, this FPCN presents the updated reliability results for 3V Minigates SC88A.

	From	To
Fab Site	Diodes Maine	Vanguard
Wafer Diameter	8 inch	8 inch
Assembly & Test Site	Hana, onsemi Cebu	onsemi Leshan Phoenix Semiconductor
Wire	Au, Au	Cu
Leadframe	PPF, C194	A42 Stamped
Mold Compound	G600 HF, CK5000A	GR640HV
Die Attach	2200D, 84-1LMIS4R	N/A – Eutectic
Plating	Preplated, 100% Sn	100% Sn

Datasheet Changes:

NC7SV157 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, (S or I ₂ or I ₃) to Z (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	19.1	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	6.3	15.5	-	18.8	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	3.8	8.5	-	9.5	
			1.65 to 1.95	-	3.1	6.7	-	7.5	
			2.3 to 2.7	-	2.2	4.1	-	4.4	
			2.7 to 3.6	-	1.9	3.4	-	3.6	

New

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, (S or I ₂ or I ₃) to Z (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	26.2	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	7.2	17.7	-	20.5	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	3.8	8.5	-	9.5	
			1.65 to 1.95	-	3.1	6.7	-	7.5	
			2.3 to 2.7	-	2.2	4.1	-	4.4	
			2.7 to 3.6	-	1.9	3.4	-	3.6	

NC7WV17 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	17.4	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	6.1	14.5	-	19.9	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	3.9	7.0	-	7.5	
			1.65 to 1.95	-	3.3	5.2	-	6.2	
			2.3 to 2.7	-	2.6	3.9	-	4.9	
			2.7 to 3.6	-	2.2	3.8	-	4.2	

New

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	24.5	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	6.8	15.5	-	19.9	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	3.9	7.0	-	7.5	
			1.65 to 1.95	-	3.3	5.2	-	6.2	
			2.3 to 2.7	-	2.6	3.9	-	4.9	
			2.7 to 3.6	-	2.2	3.8	-	4.2	

NC7WV16 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	12.8	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	4.1	13.5	-	17.9	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	2.7	6.5	-	7.0	
			1.65 to 1.95	-	2.5	5.2	-	6.2	
			2.3 to 2.7	-	1.9	3.7	-	4.4	
			2.7 to 3.6	-	1.6	3.3	-	3.8	

New

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLH} , t _{PLL}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	19.1	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	5.2	13.5	-	17.9	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	2.7	6.5	-	7.0	
			1.65 to 1.95	-	2.5	5.2	-	6.2	
			2.3 to 2.7	-	1.9	3.7	-	4.4	
			2.7 to 3.6	-	1.6	3.3	-	3.8	

NC7WV07 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLZ} , t _{PLZ}	Propagation Delay, A to Y (Figures 3 and 4)	R ₁ = R _L = 1 MΩ, C _L = 15 pF	0.9	-	11.8	-	-	-	ns
		R ₁ = R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	5.1	15.0	-	18.6	
		R ₁ = R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	3.6	8.7	-	9.7	
			1.65 to 1.95	-	2.4	6.0	-	6.8	
			2.3 to 2.7	-	1.9	3.6	-	4.7	
			2.7 to 3.6	-	1.6	3.3	-	4.0	

New

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C		
				Min	Typ	Max	Min	Max	Unit
t _{PLZ} , t _{PLZ}	Propagation Delay, A to Y (Figures 3 and 4)	R ₁ = R _L = 1 kΩ, C _L = 30 pF	0.9	-	15.9	-	-	-	ns
			1.1 to 1.3	-	5.4	15.6	-	18.6	
			1.4 to 1.6	-	3.6	8.7	-	9.7	
			1.65 to 1.95	-	2.4	6.0	-	6.8	
			2.3 to 2.7	-	1.9	3.6	-	4.7	
			2.7 to 3.6	-	1.6	3.3	-	4.0	

NC7WV04 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{DD} (V)	T _A = 25°C			T _A = -40°C to +85°C		Unit
				Min	Typ	Max	Min	Max	
t _{PLH} , t _{PLH}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	17.4	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	4.5	12.1	-	14.9	
			1.4 to 1.6	-	2.9	5.4	-	6.0	
			1.65 to 1.95	-	2.5	4.6	-	5.2	
			2.3 to 2.7	-	1.9	3.6	-	3.8	
			2.7 to 3.6	-	1.6	3.0	-	3.3	

New

AC ELECTRICAL CHARACTERISTICS									
Symbol	Parameter	Condition	V _{CC}	T _A = 25°C			T _A = -40°C to +85°C		Unit
				Min	Typ	Max	Min	Max	
t _{PLH} , t _{PLH}	Propagation Delay, A to Y (Figures 3 and 4)	R _L = 1 MΩ, C _L = 15 pF	0.9	-	17.4	-	-	-	ns
		R _L = 2 kΩ, C _L = 15 pF	1.1 to 1.3	-	5.3	12.5	-	14.9	
		R _L = 500 Ω, C _L = 30 pF	1.4 to 1.6	-	2.9	5.4	-	6.0	
			1.65 to 1.95	-	2.5	4.6	-	5.2	
			2.3 to 2.7	-	1.9	3.6	-	3.8	
			2.7 to 3.6	-	1.6	3.0	-	3.3	

Reliability Data Summary:

QV DEVICE NAME : NC7SP14P5X
RMS : S88008 / S88413
PACKAGE : SC88A

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours	0/231
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, 100 % max rated Vcc	48 hours	0/2400
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours	0/231
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C, Pre TC, uHAST, HAST for surface mount pkgs only	-	0/693
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles	0/231
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours	0/231
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/231
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/30

QV DEVICE NAME : NC7SV157P6X
RMS : S91004 / S95804 / L97999
PACKAGE : SC88

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours	0/77
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours	0/77
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C, Pre TC, uHAST, HAST for surface mount pkgs only	-	0/231
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles	0/77
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours	0/77
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/77
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/10



Final Product/Process Change Notification

Document #:FPCN25572X31

Issue Date:23 Jun 2024

QV DEVICE NAME : NC7WV04P6X

RMS : S91741

PACKAGE : SC88

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hours	0/77
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours	0/77
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C, Pre TC, uHAST, HAST for surface mount pkgs only	-	0/231
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles	0/77
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours	0/77
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/77
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/10

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**.

Part Number	Qualification Vehicle
NC7SV157P6X	NC7SP14P5X, NC7SV157P6X
NC7WV17P6X-L22964	NC7SP14P5X, NC7WV04P6X
NC7WV17P6X	NC7SP14P5X, NC7WV04P6X
NC7WV16P6X	NC7SP14P5X, NC7WV04P6X
NC7WV07P6X-L22964	NC7SP14P5X, NC7WV04P6X
NC7WV07P6X	NC7SP14P5X, NC7WV04P6X
NC7WV04P6X	NC7SP14P5X, NC7WV04P6X