



Final Product/Process Change Notification

Document #:FPCN25572X40

Issue Date:15 Nov 2024

Title of Change:	Update to FPCN25572X - To include the reliability data of 9306 UQFN8 and UDFN8 package devices for the Qualification of Vanguard Fab and Assembly related changes for Logic Part.
Proposed First Ship date:	22 Feb 2025 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/IL to indicate new die source from Vanguard. Changed material may be identified by plant code or lot code too.
Change Category:	Wafer Fab Change, Assembly Change, Test Change
Change Sub-Category(s):	Shipping/Packaging/Marking, Datasheet/Product Doc change, Material Change, Manufacturing Site Transfer

Sites Affected:

onsemi Sites

onsemi Tarlac, Philippines

External Foundry/Subcon Sites

Vanguard International Semiconductor, Taiwan

Description and Purpose:

With reference to **FPCN25572X**, this FPCN presents the information solely for UQFN8 and UDFN8 the pertinent reliability data

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

Assembly/Test related changes

PCA9306AMUTCG & PCA9306FMUTAG

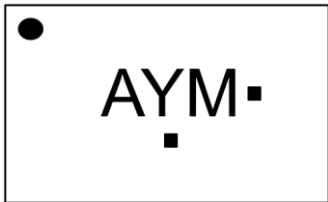
	From	To
Assembly Site	Stars	onsemi Tarlac
Test Site	Stars	onsemi Tarlac
Die Attach	HR5104	AB 8006NS
Wire	0.8 mil Au	0.8 mil PCC
Mold Compound	G700LTD	G760

PCA9306FMUTCG

	From	To
Assembly Site	Stars	onsemi Tarlac
Test Site	onsemi Seremban / Stars	onsemi Tarlac
Die Attach	HR5104	AB 8006NS
Wire	0.8 mil Au	0.8 mil PCC
Mold Compound	G700LTD	G760

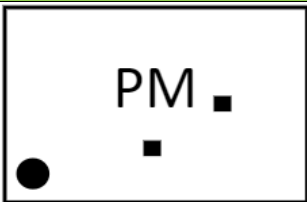
Marking related changes

PCA9306AMUTCG → NLA9306MUQ1TCG

	From	To
Marking Change	 AQ = Specific Device Code M = Date Code ■ or G = Pb-Free Package (Pb Free indication "G" or Microdot "■", may or may not be present)	 AY = Specific Device Code M = Date Code ■ or G = Pb-Free Package (Pb Free indication "G" or Microdot "■", may or may not be present)

PCA9306FMUTAG → NLA9306MU3TAG

PCA9306FMUTCG → NLA9306MU3TCG

	From	To
Marking Change	 P = Specific Device Code M = Date Code ■ or G = Pb-Free Package (Pb Free indication "G" or Microdot "■", may or may not be present)	 D = Specific Device Code M = Date Code ■ or G = Pb-Free Package (Pb Free indication "G" or Microdot "■", may or may not be present)

Reliability Data Summary:

QV DEVICE NAME: NLA9306MU3TCG

PACKAGE: UDFN 8

RMS: S89703

Test	Specification	Condition	Interval	Results
HTSL	JESD22-A103	Ta = 150C	1008 hrs	0/231
TC	JESD22-A104	Ta = - 65°C to +150°C	500 cyc	0/231
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig	96 hrs	0/231
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/462
RSH	JESD22- B106	Ta = 268°C, 10 sec		0/30
SD	JSTD002	Ta = 245C, 5 sec		0/45
PD	JES2D-B100			0/10

QV DEVICE NAME: NLA9306MUQ1TCG

PACKAGE: UQFN 8

RMS: O89728, S83680

Test	Specification	Condition	Interval	Results
HTSL	JESD22-A103	Ta = 150C	1008 hrs	0/231
TC	JESD22-A104	Ta = - 65°C to +150°C	500 cyc	0/231
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig	96 hrs	0/231
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/462
RSH	JESD22- B106	Ta = 268°C, 10 sec		0/30
SD	JSTD002	Ta = 245C, 5 sec		0/45
PD	JES2D-B100			0/30

Electrical Characteristics Summary:

Maximum Ratings

EXISTING

Symbol	Parameter	Value	Unit
V _{ref(1)}	Reference Voltage (Note 2)	-0.5 to +7.0	V
V _{bias(ref(2))}	Reference Bias Voltage (Note 3)	-0.5 to +7.0	V
V _{IN}	Input Voltage	-0.5 to +7.0	V
V _{IO}	Input / Output Pin Voltage	-0.5 to +7.0	V
I _{CH}	DC Channel Current	128	mA
I _{IK}	DC Input Diode Current V _{IN} < GND	-50	mA
T _{STG}	Storage Temperature Range	-65 to +150	°C
T _L	Lead Temperature, 1 mm from Case for 10 Seconds	T _L = 260	°C
T _J	Junction Temperature Under Bias	T _J = 150	°C
θ _{JA}	Thermal Resistance (Note 2)	θ _{JA} = 150	°C/W
P _D	Power Dissipation in Still Air at 85°C	P _D = 833	mW
MSL	Moisture Sensitivity	Level 1	
FR	Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V _{ESD}	ESD Withstand Voltage Human Body Mode (Note 3) Machine Model (Note 4) Charged Device Model (Note 5)	> 4000 > 400 N/A	V
I _{LATCHUP}	Latchup Performance Above V _{CC} and Below GND at T _{ESD} (Note 6)	±100	mA

NEW

Symbol	Parameter	Value	Unit
V _{ref(1)}	Reference Voltage (Note 2)	-0.5 to +7.0	V
V _{bias(ref(2))}	Reference Bias Voltage (Note 3)	-0.5 to +7.0	V
V _{IN}	Input Voltage	-0.5 to +7.0	V
V _{IO}	Input / Output Pin Voltage	-0.5 to +7.0	V
I _{CH}	DC Channel Current	128	mA
I _{IK}	DC Input Diode Current V _{IN} < GND	-50	mA
T _{STG}	Storage Temperature Range	-65 to +150	°C
T _L	Lead Temperature, 1 mm from Case for 10 Seconds	T _L = 260	°C
T _J	Junction Temperature Under Bias	T _J = 150	°C
θ _{JA}	Thermal Resistance (Note 2)	θ _{JA} = 150	°C/W
P _D	Power Dissipation in Still Air at 85°C	P _D = 833	mW
MSL	Moisture Sensitivity	Level 1	
FR	Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V _{ESD}	ESD Withstand Voltage Human Body Mode (Note 3) Machine Model (Note 4) Charged Device Model (Note 5)	> 2000 N/A > 1000	V
I _{LATCHUP}	Latchup Performance Above V _{CC} and Below GND at 125°C (Note 6)	±100	mA

DC Electrical Characteristic

EXISTING

Table 5. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	T _A = -55°C to +125°C			Unit
			Min	Typ (Note 8)	Max	
V _{IK}	Input Clamping Voltage	I _I = -18 mA; V _{I(EN)} = 0 V			-1.2	V
I _{IH}	High-Level Input Current	V _I = 5 V; V _{I(EN)} = 0 V			5	μA
C _{I(EN)}	EN Pin Input Capacitance	V _I = 3 V or 0 V		7.1		pF
C _{I(OFF)}	OFF-State I/O Pin Capacitance SCLn, SDAn	V _O = 3 V or 0 V; V _{I(EN)} = 0 V		4	6	pF
C _{I(ON)}	ON-State I/O Pin Capacitance SCLn, SDAn	V _O = 3 V or 0 V; V _{I(EN)} = 3 V		9.3	12.5	pF
R _{ON}	ON-State Resistance(R _{DS(on)}) SCLn, SDAn	V _I = 0 V; I _O = 64 mA V _{I(EN)} = 4.5 V		2.4	5.0	Ω
		V _{I(EN)} = 3 V		3.0	6.0	
		V _{I(EN)} = 2.3 V		3.8	6.0	
		V _{I(EN)} = 1.5 V		9.0	20	
		V _I = 2.4 V; I _O = 15 mA V _{I(EN)} = 4.5 V		4.4	7.5	
		V _{I(EN)} = 3 V		46	80	
		V _I = 1.7 V; I _O = 15 mA V _{I(EN)} = 2.3 V		40	80	

NEW

Table 5. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	T _A = -55°C to +125°C			Unit
			Min	Typ (Note 8)	Max	
V _{IK}	Input Clamping Voltage	I _I = -18 mA; V _{I(EN)} = 0 V			-1.2	V
I _{IH}	High-Level Input Current	V _I = 5 V; V _{I(EN)} = 0 V			5	μA
C _{I(EN)}	EN Pin Input Capacitance	V _I = 3 V or 0 V		7.1		pF
C _{I(OFF)}	OFF-State I/O Pin Capacitance SCLn, SDAn	V _O = 3 V or 0 V; V _{I(EN)} = 0 V		4	6	pF
C _{I(ON)}	ON-State I/O Pin Capacitance SCLn, SDAn	V _O = 3 V or 0 V; V _{I(EN)} = 3 V		9.3	13.1	pF
R _{ON}	ON-State Resistance(R _{DS(on)}) SCLn, SDAn	V _I = 0 V; I _O = 64 mA V _{I(EN)} = 4.5 V		2.4	5.0	Ω
		V _{I(EN)} = 3 V		3.0	6.0	
		V _{I(EN)} = 2.3 V		3.8	6.0	
		V _{I(EN)} = 1.5 V		9.0	20	
		V _I = 2.4 V; I _O = 15 mA V _{I(EN)} = 4.5 V		4.8	7.5	
		V _{I(EN)} = 3 V		46	80	
		V _I = 1.7 V; I _O = 15 mA V _{I(EN)} = 2.3 V		40	80	

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	Replacement Part	Qualification Vehicle
PCA9306FMUTCG	NLA9306MU3TCG	NLA9306MU3TCG
PCA9306FMUTAG	NLA9306MU3TAG	NLA9306MU3TCG
PCA9306AMUTCG	NLA9306MUQ1TCG	NLA9306MUQ1TCG