



# Final Product/Process Change Notification

Document #:FPCN25572X26

Issue Date: 02 Feb 2024

<b>Title of Change:</b>	Update to <b>FPCN25572X</b> - To include the reliability data of uDFN6 package for the Qualification of Vanguard Fab and Assembly related changes for Logic parts.
<b>Proposed First Ship date:</b>	09 May 2024 or earlier if approved by customer
<b>Contact Information:</b>	Contact your local onsemi Sales Office or <a href="mailto:logic.fpcn@onsemi.com">logic.fpcn@onsemi.com</a>
<b>PCN Samples Contact:</b>	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.
<b>Additional Reliability Data:</b>	Contact your local onsemi Sales Office or <a href="mailto:ChangKit.Mok@onsemi.com">ChangKit.Mok@onsemi.com</a>
<b>Type of Notification:</b>	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 <a href="mailto:PCN.Support@onsemi.com">PCN.Support@onsemi.com</a>
<b>Marking of Parts/ Traceability of Change:</b>	Custom source on label will show TW instead of US/JP to indicate new die source from Vanguard. Changed material may be identified by plant code or lot code too.
<b>Change Category:</b>	Wafer Fab Change, Assembly Change, Test Change
<b>Change Sub-Category(s):</b>	Manufacturing Site Transfer

**Sites Affected:**

onsemi Sites	External Foundry/Subcon Sites
onsemi Seremban, Malaysia	Vanguard International Semiconductor, Taiwan
onsemi Tarlac, Philippines	

**Description and Purpose:**

With reference to **FPCN25572X**, this FPCN presents the updated reliability results for uDFN6.

**QV DEVICE NAME: NL17SZ08MU1TCG and NL27WZ17MU1TCG**

**PACKAGE: UDFN6**

➤ **UDFN6 1.45x1.0**

	From	To	
<b>Fab Site</b>	Tower, TPSCo	Vanguard	Vanguard
<b>Wafer Diameter</b>	6 inch, 8 inch	8 inch	8 inch
<b>Assembly Site</b>	onsemi Seremban, Tarlac, Stars	onsemi Seremban	onsemi Tarlac
<b>Mold Compound</b>	G760, EME-G770HM , EME-G760 , EME G700LTD	Sumitomo EME-G770HM	SUMITOMO EME-G760
<b>Wire Type</b>	Au or PCC	PCC	PCC
<b>Lead Frame</b>	PPF, LF UDFN 6L 1.45X1 PPF	LF PPF Plated (C7025)	LF PPF PLATED (C7025)
<b>Die Attach</b>	8006NS, HR-5104 Non Cond	8006NS	8006NS



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➤ UDFN6 1.2x1.0

	From	To	
<b>Fab Site</b>	Tower, TPSCo	Vanguard	Vanguard
<b>Wafer Diameter</b>	6 inch, 8 inch	8 inch	8 inch
<b>Assembly Site</b>	onsemi Seremban, ATX Shanghai, AMKOR, UTAC, Tarlac	onsemi Seremban	onsemi Tarlac
<b>Mold Compound</b>	EME-G770HM, G631H, G700Y, G700HCD, EME-G760	Sumitomo EME-G770HM	SUMITOMO EME-G760
<b>Wire Type</b>	Au or PCC	PCC	PCC
<b>Lead Frame</b>	PPF, Rough PPF, LF sMLF 6L COL C7025, FRAME FR 6L UDFN 1.2X1.0M	LF PPF PLATED (C7025)	LF PPF PLATED (C7025)
<b>Die Attach</b>	8006NS, ATB-F125E, NEX-130CTX-N5	8006NS	8006NS

➤ UDFN6 1.0x1.0

	From	To	
<b>Fab Site</b>	Tower, TPSCo	Vanguard	Vanguard
<b>Wafer Diameter</b>	6-inch, 8 inch	8 inch	8 inch
<b>Assembly Site</b>	onsemi Seremban, Tarlac	onsemi Seremban	onsemi Tarlac
<b>Mold Compound</b>	G760, EME-G770HM, EME-G760	Sumitomo EME-G770HM	SUMITOMO EME-G760
<b>Wire Type</b>	Au or PCC	PCC	PCC
<b>Lead Frame</b>	PPF	LF PPF PLATED (C7025)	LF PPF PLATED (C7025)

Datasheet Changes for 3V Minigates:

NL17SGxx Family

NL17SG except for NL17SGU04 – Max Ratings

Existing

MAXIMUM RATINGS				
Symbol	Parameter	Value	Unit	
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +5.5	V	
V <sub>IN</sub>	DC Input Voltage	-0.5 to +4.6	V	
V <sub>OUT</sub>	DC Output Voltage	Output at High or Low State Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.6	V
I <sub>IK</sub>	DC Input Diode Current	V <sub>IN</sub> < GND	-20	mA
I <sub>OK</sub>	DC Output Diode Current	V <sub>OUT</sub> < GND	-20	mA
I <sub>OUT</sub>	DC Output Source/Sink Current		±20	mA
I <sub>CC</sub>	DC Supply Current per Supply Pin		±20	mA
I <sub>QDD</sub>	DC Ground Current per Ground Pin		±20	mA
T <sub>STG</sub>	Storage Temperature Range		-65 to +150	°C
T <sub>L</sub>	Lead Temperature, 1 mm from Case for 10 Seconds		260	°C
T <sub>J</sub>	Junction Temperature Under Bias		+150	°C
MSL	Moisture Sensitivity		Level 1	
FR	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V <sub>ESD</sub>	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >100	V
I <sub>LATCHUP</sub>	Latchup Performance	Above V <sub>CC</sub> and Below GND at 125°C (Note 4)	±100	mA

New

Table 1. MAXIMUM RATINGS				
Symbol	Parameter	Value	Unit	
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +4.3	V	
V <sub>IN</sub>	DC Input Voltage	-0.5 to +4.3	V	
V <sub>OUT</sub>	DC Output Voltage	Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.3 -0.5 to +4.3	V
I <sub>IK</sub>	DC Input Diode Current	V <sub>IN</sub> < GND	-20	mA
I <sub>OK</sub>	DC Output Diode Current	V <sub>OUT</sub> < GND	-20	mA
I <sub>OUT</sub>	DC Output Source/Sink Current		±20	mA
I <sub>CC</sub> or I <sub>QDD</sub>	DC Supply Current Per Supply Pin or Ground Pin		±20	mA
T <sub>STG</sub>	Storage Temperature Range		-65 to +150	°C
T <sub>L</sub>	Lead Temperature, 1 mm from Case for 10 Seconds		260	°C
T <sub>J</sub>	Junction Temperature Under Bias		+150	°C
θ <sub>JA</sub>	Thermal Resistance (Note 2)	SC-88A SOT-563 UDFN6	377 254 154	°C/W
P <sub>D</sub>	Power Dissipation in Still Air at 85°C	SC-88A SOT-563 UDFN6	332 491 812	mW
MSL	Moisture Sensitivity		Level 1	
FR	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V <sub>ESD</sub>	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
I <sub>LATCHUP</sub>	Latchup Performance (Note 4)		±100	mA

All NL17SG except for NL17SG07/14/17/U04 – DC Characteristics

Existing

DC ELECTRICAL CHARACTERISTICS							
Symbol	Parameter	Conditions	T <sub>A</sub> = 25°C		T <sub>A</sub> = -55°C to +125°C		Unit
			V <sub>CC</sub> (V)	Min	Max	Min	
V <sub>IH</sub>	High-Level Input Voltage		0.9	V <sub>CC</sub>	V <sub>CC</sub>	V <sub>CC</sub>	V
			1.1 to 1.3	0.7V <sub>CC</sub>	0.7V <sub>CC</sub>		
			1.4 to 1.6	0.65V <sub>CC</sub>	0.65V <sub>CC</sub>		
			1.65 to 1.95	0.65V <sub>CC</sub>	0.65V <sub>CC</sub>		
			2.3 to 2.7	1.7	1.7		
			3.0 to 3.6	2.0	2.0		
V <sub>IL</sub>	Low-Level Input Voltage		0.9	GND	GND	GND	V
			1.1 to 1.3	0.3V <sub>CC</sub>	0.3V <sub>CC</sub>		
			1.4 to 1.6	0.35V <sub>CC</sub>	0.35V <sub>CC</sub>		
			1.65 to 1.95	0.35V <sub>CC</sub>	0.35V <sub>CC</sub>		
			2.3 to 2.7	0.7	0.7		
			3.0 to 3.6	0.8	0.8		
V <sub>OH</sub>	High-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OH</sub> = -20 μA	0.9	0.75	0.75	V
			I <sub>OH</sub> = -0.3 mA	1.1 to 1.3	0.75V <sub>CC</sub>	0.75V <sub>CC</sub>	
			I <sub>OH</sub> = -1.7 mA	1.4 to 1.6	0.75V <sub>CC</sub>	0.75V <sub>CC</sub>	
			I <sub>OH</sub> = -3.0 mA	1.65 to 1.95	V <sub>CC</sub> -0.45	V <sub>CC</sub> -0.45	
			I <sub>OH</sub> = -4.0 mA	2.3 to 2.7	2.0	2.0	
			I <sub>OH</sub> = -8.0 mA	3.0 to 3.6	2.48	2.48	
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OL</sub> = 20 μA	0.9	0.1	0.1	V
			I <sub>OL</sub> = 0.3 mA	1.1 to 1.3	0.25V <sub>CC</sub>	0.25V <sub>CC</sub>	
			I <sub>OL</sub> = 1.7 mA	1.4 to 1.6	0.25V <sub>CC</sub>	0.25V <sub>CC</sub>	
			I <sub>OL</sub> = 3.0 mA	1.65 to 1.95	0.45	0.45	
			I <sub>OL</sub> = 4.0 mA	2.3 to 2.7	0.4	0.4	
			I <sub>OL</sub> = 6.0 mA	3.0 to 3.6	0.4	0.4	
I <sub>IN</sub>	Input Leakage Current	0 ≤ V <sub>IN</sub> ≤ 3.6 V	0 to 3.6	±0.1	±1.0	μA	
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	3.6	0.5	10.0	μA	

New

Table 3. DC ELECTRICAL CHARACTERISTICS							
Symbol	Parameter	Conditions	T <sub>A</sub> = 25°C		T <sub>A</sub> = -55°C to +125°C		Unit
			V <sub>CC</sub> (V)	Min	Max	Min	
V <sub>IH</sub>	High-Level Input Voltage		0.9	V <sub>CC</sub>	V <sub>CC</sub>	V <sub>CC</sub>	V
			1.1 to 1.3	0.7 × V <sub>CC</sub>	0.7 × V <sub>CC</sub>	0.7 × V <sub>CC</sub>	
			1.4 to 1.6	0.65 × V <sub>CC</sub>	0.65 × V <sub>CC</sub>	0.65 × V <sub>CC</sub>	
			1.65 to 1.95	0.65 × V <sub>CC</sub>	0.65 × V <sub>CC</sub>	0.65 × V <sub>CC</sub>	
			2.3 to 2.7	1.7	1.7	1.7	
			3.0 to 3.6	2.0	2.0	2.0	
V <sub>IL</sub>	Low-Level Input Voltage		0.9	GND	GND	GND	V
			1.1 to 1.3	0.3 × V <sub>CC</sub>	0.3 × V <sub>CC</sub>	0.3 × V <sub>CC</sub>	
			1.4 to 1.6	0.35 × V <sub>CC</sub>	0.35 × V <sub>CC</sub>	0.35 × V <sub>CC</sub>	
			1.65 to 1.95	0.35 × V <sub>CC</sub>	0.35 × V <sub>CC</sub>	0.35 × V <sub>CC</sub>	
			2.3 to 2.7	0.7	0.7	0.7	
			3.0 to 3.6	0.8	0.8	0.8	
V <sub>OH</sub>	High-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OH</sub> = -20 μA	0.9	0.75	0.75	V
			I <sub>OH</sub> = -0.3 mA	1.1 to 1.3	0.75 × V <sub>CC</sub>	0.75 × V <sub>CC</sub>	
			I <sub>OH</sub> = -1.7 mA	1.4 to 1.6	0.75 × V <sub>CC</sub>	0.75 × V <sub>CC</sub>	
			I <sub>OH</sub> = -3.0 mA	1.65 to 1.95	V <sub>CC</sub> - 0.45	V <sub>CC</sub> - 0.45	
			I <sub>OH</sub> = -4.0 mA	2.3 to 2.7	2.0	2.0	
			I <sub>OH</sub> = -8.0 mA	3.0 to 3.6	2.48	2.48	
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OL</sub> = 20 μA	0.9	0.1	0.1	V
			I <sub>OL</sub> = 0.3 mA	1.1 to 1.3	0.25 × V <sub>CC</sub>	0.25 × V <sub>CC</sub>	
			I <sub>OL</sub> = 1.7 mA	1.4 to 1.6	0.25 × V <sub>CC</sub>	0.25 × V <sub>CC</sub>	
			I <sub>OL</sub> = 3.0 mA	1.65 to 1.95	0.45	0.45	
			I <sub>OL</sub> = 4.0 mA	2.3 to 2.7	0.4	0.4	
			I <sub>OL</sub> = 6.0 mA	3.0 to 3.6	0.4	0.4	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 0 V to 3.6 V	0 to 3.6	±0.1	±1.0	μA	
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 0 V to 3.6 V V <sub>OUT</sub> = 0 V to 3.6 V	0	0	1.0	μA	
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	0.9 to 3.6	0.5	10.0	μA	

## NL17SG04 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS Input  $t_i = t_r = 3.0$  ns

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25° C			T <sub>A</sub> = -55° C to +125° C		Unit	
				Min	Typ	Max	Min	Max		
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay, A to Y	C <sub>L</sub> = 10 pF, R <sub>L</sub> = 1 MΩ	0.9	-	10.0	13.3	-	17.0	ns	
			1.1 to 1.3	-	8.7	11.2	-	14.0		
			1.4 to 1.6	-	4.9	8.5	-	10.0		
			1.65 to 1.95	-	3.8	6.2	-	6.7		
			2.3 to 2.7	-	2.6	3.9	-	4.4		
			3.0 to 3.6	-	2.1	3.1	-	3.7		
			0.9	-	11.55	13.7	-	19.7		ns
			1.1 to 1.3	-	7.2	10.8	-	15.6		
			1.4 to 1.6	-	5.4	9.3	-	11.2		
		1.65 to 1.95	-	4.2	6.9	-	7.1			
		2.3 to 2.7	-	2.8	4.4	-	5.0			
		3.0 to 3.6	-	2.3	3.4	-	3.9			
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 1 MΩ	0.9	-	16.85	18.9	-	22.3	ns	
			1.1 to 1.3	-	10.2	13.4	-	17.5		
			1.4 to 1.6	-	7.4	13.1	-	15.9		
1.65 to 1.95	-		5.6	9.2	-	9.6				
2.3 to 2.7	-		3.7	5.7	-	6.1				
3.0 to 3.6	-		2.9	4.4	-	4.8				

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25° C			T <sub>A</sub> = -55° C to +125° C		Unit	
				Min	Typ	Max	Min	Max		
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay, A to Y	C <sub>L</sub> = 10 pF, R <sub>L</sub> = 1 MΩ	0.9	-	39.8	-	-	-	ns	
			1.1 to 1.3	-	8.7	21.9	-	25.3		
			1.4 to 1.6	-	4.9	8.5	-	10.0		
			1.65 to 1.95	-	3.8	6.2	-	6.7		
			2.3 to 2.7	-	2.6	3.9	-	4.4		
			3.0 to 3.6	-	2.1	3.1	-	3.7		
			0.9	-	40.9	-	-	-		ns
			1.1 to 1.3	-	8.9	22.6	-	26.1		
			1.4 to 1.6	-	5.4	9.3	-	11.2		
		1.65 to 1.95	-	4.2	6.9	-	7.1			
		2.3 to 2.7	-	2.8	4.4	-	5.0			
		3.0 to 3.6	-	2.3	3.4	-	3.9			
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 1 MΩ	0.9	-	44.5	-	-	-	ns	
			1.1 to 1.3	-	9.5	24.0	-	28.3		
			1.4 to 1.6	-	7.4	13.1	-	15.9		
1.65 to 1.95	-		5.6	9.2	-	9.6				
2.3 to 2.7	-		3.7	5.7	-	6.1				
3.0 to 3.6	-		2.9	4.4	-	4.8				

## NL17SG08 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS (Input  $t_i = t_r = 3.0$  ns)

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25° C			T <sub>A</sub> = -55° C to +125° C		Unit	
				Min	Typ	Max	Min	Max		
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay, A or B to Y	C <sub>L</sub> = 10 pF, R <sub>L</sub> = 1 MΩ	0.9	-	10.0	12.4	-	14.8	ns	
			1.1 to 1.3	-	8.0	10.7	-	13.6		
			1.4 to 1.6	-	5.9	9.6	-	11.3		
			1.65 to 1.95	-	4.5	7.0	-	7.5		
			2.3 to 2.7	-	2.9	4.4	-	4.9		
			3.0 to 3.6	-	2.2	3.5	-	4.1		
			0.9	-	11.7	13.5	-	15.0		ns
			1.1 to 1.3	-	8.8	10.2	-	13.7		
			1.4 to 1.6	-	6.5	9.5	-	12.6		
		1.65 to 1.95	-	5.0	7.7	-	8.0			
		2.3 to 2.7	-	3.2	4.9	-	5.6			
		3.0 to 3.6	-	2.5	3.8	-	4.4			
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 1 MΩ	0.9	-	13.0	16.0	-	19.0	ns	
			1.1 to 1.3	-	10.0	12.4	-	17.2		
			1.4 to 1.6	-	8.9	11.8	-	14.9		
1.65 to 1.95	-		6.9	10.3	-	10.8				
2.3 to 2.7	-		4.4	6.4	-	6.8				
3.0 to 3.6	-		3.5	4.9	-	5.4				

New

Table 4. AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25° C			T <sub>A</sub> = -55° C to +125° C		Unit	
				Min	Typ	Max	Min	Max		
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay, (A or B) to Y (Figures 5 and 6)	C <sub>L</sub> = 10 pF, R <sub>L</sub> = 1 MΩ	0.9	-	46.5	-	-	-	ns	
			1.1 to 1.3	-	14.1	26.7	-	31.7		
			1.4 to 1.6	-	5.9	9.6	-	11.3		
			1.65 to 1.95	-	4.5	7.0	-	7.5		
			2.3 to 2.7	-	2.9	4.4	-	4.9		
			3.0 to 3.6	-	2.2	3.5	-	4.1		
			0.9	-	47.9	-	-	-		ns
			1.1 to 1.3	-	14.4	27.3	-	32.4		
			1.4 to 1.6	-	6.5	9.5	-	12.6		
		1.65 to 1.95	-	5.0	7.7	-	8.0			
		2.3 to 2.7	-	3.2	4.9	-	5.6			
		3.0 to 3.6	-	2.5	3.8	-	4.4			
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 1 MΩ	0.9	-	52.5	-	-	-	ns	
			1.1 to 1.3	-	15.3	29.3	-	34.7		
			1.4 to 1.6	-	8.9	11.8	-	14.9		
1.65 to 1.95	-		6.9	10.3	-	10.8				
2.3 to 2.7	-		4.4	6.4	-	6.8				
3.0 to 3.6	-		3.5	4.9	-	5.4				

## NL17SG07 – DC Characteristics

Existing

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-55°C ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>IH</sub>	High-Level Input Voltage		0.9	-	-	-	-	-	V
			1.1 to 1.3	0.70 x V <sub>CC</sub>	-	-	0.70 x V <sub>CC</sub>	-	
			1.4 to 1.6	0.65 x V <sub>CC</sub>	-	-	0.65 x V <sub>CC</sub>	-	
			1.65 to 1.95	0.65 x V <sub>CC</sub>	-	-	0.65 x V <sub>CC</sub>	-	
			2.3 to 2.7	1.7	-	-	1.7	-	
3.0 to 3.6	2.0	-	-	2.0	-				
V <sub>IL</sub>	Low-Level Input Voltage		0.9	-	-	-	-	-	V
			1.1 to 1.3	-	-	0.30 x V <sub>CC</sub>	-	0.30 x V <sub>CC</sub>	
			1.4 to 1.6	-	-	0.35 x V <sub>CC</sub>	-	0.35 x V <sub>CC</sub>	
			1.65 to 1.95	-	-	0.35 x V <sub>CC</sub>	-	0.35 x V <sub>CC</sub>	
			2.3 to 2.7	-	-	0.7	-	0.7	
3.0 to 3.6	-	-	0.8	-	0.8				
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IH</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OL</sub> = 20 μA I <sub>OL</sub> = 0.3 mA I <sub>OL</sub> = 1.7 mA I <sub>OL</sub> = 3.0 mA I <sub>OL</sub> = 4.0 mA I <sub>OL</sub> = 8.0 mA	0.9	-	-	0.1	-	0.1	V
			1.1 to 1.3	-	-	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
			1.4 to 1.6	-	-	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
			1.65 to 1.95	-	-	0.45	-	0.45	
			2.3 to 2.7	-	-	0.4	-	0.4	
			3.0 to 3.6	-	-	0.4	-	0.4	
			0 ≤ V <sub>IH</sub> ≤ 3.6 V	-	-	±0.1	-	±1.0	
			V <sub>IH</sub> = V <sub>CC</sub> or GND	-	-	0.5	-	10	
				-	-		-		
				-	-		-		
I <sub>IN</sub>	Input Leakage Current	0 ≤ V <sub>IH</sub> ≤ 3.6 V	0 to 3.6	-	-	±0.1	-	±1.0	μA
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IH</sub> = V <sub>CC</sub> or GND	3.6	-	-	0.5	-	10	μA

New

Table 3. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			T <sub>A</sub> = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>IH</sub>	High-Level Input Voltage		0.9	-	-	-	-	-	V
			1.1 to 1.3	0.7 x V <sub>CC</sub>	-	-	0.7 x V <sub>CC</sub>	-	
			1.4 to 1.6	0.65 x V <sub>CC</sub>	-	-	0.65 x V <sub>CC</sub>	-	
			1.65 to 1.95	0.65 x V <sub>CC</sub>	-	-	0.65 x V <sub>CC</sub>	-	
			2.3 to 2.7	1.7	-	-	1.7	-	
3.0 to 3.6	2.0	-	-	2.0	-				
V <sub>IL</sub>	Low-Level Input Voltage		0.9	-	-	-	-	-	V
			1.1 to 1.3	-	-	0.3 x V <sub>CC</sub>	-	0.3 x V <sub>CC</sub>	
			1.4 to 1.6	-	-	0.35 x V <sub>CC</sub>	-	0.35 x V <sub>CC</sub>	
			1.65 to 1.95	-	-	0.35 x V <sub>CC</sub>	-	0.35 x V <sub>CC</sub>	
			2.3 to 2.7	-	-	0.7	-	0.7	
3.0 to 3.6	-	-	0.8	-	0.8				
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IH</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OL</sub> = 20 μA I <sub>OL</sub> = 0.3 mA I <sub>OL</sub> = 1.7 mA I <sub>OL</sub> = 3.0 mA I <sub>OL</sub> = 4.0 mA I <sub>OL</sub> = 8.0 mA	0.9	-	-	0.1	-	0.1	V
			1.1 to 1.3	-	-	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
			1.4 to 1.6	-	-	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
			1.65 to 1.95	-	-	0.45	-	0.45	
			2.3 to 2.7	-	-	0.4	-	0.4	
			3.0 to 3.6	-	-	0.4	-	0.4	
			0 ≤ V <sub>IH</sub> ≤ 3.6 V	-	-	±0.1	-	±1.0	
V <sub>IH</sub> = V <sub>CC</sub> or GND	-	-	0.5	-	10				
I <sub>IN</sub>	Input Leakage Current	V <sub>IH</sub> = 0 V to 3.6 V	0.9 to 3.6	-	-	±0.1	-	±1.0	μA
I <sub>OPF</sub>	Power Off Leakage Current	V <sub>IH</sub> = 0 V to 3.6 V; V <sub>OJT</sub> = 0 V to 3.6 V	0	-	-	1.0	-	10.0	μA
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IH</sub> = V <sub>CC</sub> or GND	0.9 to 3.6	-	-	1.0	-	10.0	μA

## NL17SG07 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS (Input: t<sub>r</sub> = t<sub>f</sub> = 3.0 ns)

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			T <sub>A</sub> = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t <sub>prop</sub>	Propagation Delay, Enable Time, A to Y	C <sub>L</sub> = 10 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	12	-	-	-	ns
			1.1 to 1.3	-	5.5	6.9	-	8.8	
			1.4 to 1.6	-	4.0	5.7	-	7.3	
			1.65 to 1.95	-	3.3	3.9	-	5.9	
			2.3 to 2.7	-	2.7	3.3	-	4.5	
			3.0 to 3.6	-	2.4	2.9	-	3.7	
		C <sub>L</sub> = 15 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	12.5	-	-	-	ns
			1.1 to 1.3	-	5.8	7.0	-	9.0	
			1.4 to 1.6	-	4.1	6.0	-	7.4	
			1.65 to 1.95	-	3.4	4.0	-	6.2	
			2.3 to 2.7	-	2.8	3.4	-	4.6	
			3.0 to 3.6	-	2.5	3.0	-	3.7	
		C <sub>L</sub> = 30 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	13.2	-	-	-	ns
			1.1 to 1.3	-	6.2	7.4	-	9.4	
			1.4 to 1.6	-	4.5	6.2	-	7.6	
			1.65 to 1.95	-	3.5	4.2	-	6.4	
			2.3 to 2.7	-	3.0	3.6	-	4.7	
			3.0 to 3.6	-	2.6	3.1	-	3.9	
t <sub>PLZ</sub>	Propagation Delay, Disable Time, A to Y	C <sub>L</sub> = 10 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	8.0	-	-	-	ns
			1.1 to 1.3	-	6.5	10.9	-	11.5	
			1.4 to 1.6	-	5.2	7.2	-	8.3	
			1.65 to 1.95	-	4.9	7.0	-	7.8	
			2.3 to 2.7	-	3.8	6.5	-	7.3	
			3.0 to 3.6	-	3.5	6.2	-	6.8	
		C <sub>L</sub> = 15 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	11.1	-	-	-	ns
			1.1 to 1.3	-	9.0	13.4	-	14	
			1.4 to 1.6	-	7.9	10	-	10.8	
			1.65 to 1.95	-	7.6	9.5	-	10.5	
			2.3 to 2.7	-	6.3	7.8	-	10	
			3.0 to 3.6	-	6.0	7.2	-	9.3	
		C <sub>L</sub> = 30 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	16.2	-	-	-	ns
			1.1 to 1.3	-	14	18.4	-	20	
			1.4 to 1.6	-	13	15	-	16	
			1.65 to 1.95	-	12.5	14.5	-	15.8	
			2.3 to 2.7	-	11.2	13.5	-	15.4	
			3.0 to 3.6	-	11	13.2	-	14.3	

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			T <sub>A</sub> = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t <sub>prop</sub>	Propagation Delay, Enable Time, A to Y	C <sub>L</sub> = 10 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	54.8	-	-	-	ns
			1.1 to 1.3	-	10.7	28.8	-	32.2	
			1.4 to 1.6	-	4.0	6.3	-	7.3	
			1.65 to 1.95	-	3.3	3.9	-	5.9	
			2.3 to 2.7	-	2.7	3.3	-	4.5	
			3.0 to 3.6	-	2.4	2.9	-	3.7	
		C <sub>L</sub> = 15 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	57.4	-	-	-	ns
			1.1 to 1.3	-	10.9	27.5	-	33.0	
			1.4 to 1.6	-	4.1	7.0	-	7.4	
			1.65 to 1.95	-	3.4	4.0	-	6.2	
			2.3 to 2.7	-	2.8	3.4	-	4.6	
			3.0 to 3.6	-	2.5	3.0	-	3.7	
		C <sub>L</sub> = 30 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	65.3	-	-	-	ns
			1.1 to 1.3	-	11.5	29.4	-	35.1	
			1.4 to 1.6	-	4.5	7.5	-	7.6	
			1.65 to 1.95	-	3.5	4.2	-	6.4	
			2.3 to 2.7	-	3.0	3.6	-	4.7	
			3.0 to 3.6	-	2.6	3.1	-	3.9	
t <sub>PLZ</sub>	Propagation Delay, Disable Time, A to Y	C <sub>L</sub> = 10 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	23.7	-	-	-	ns
			1.1 to 1.3	-	3.3	16.4	-	18.1	
			1.4 to 1.6	-	5.2	8.1	-	8.3	
			1.65 to 1.95	-	4.9	8.0	-	8.1	
			2.3 to 2.7	-	3.8	6.5	-	7.3	
			3.0 to 3.6	-	3.5	7.5	-	7.7	
		C <sub>L</sub> = 15 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	28.1	-	-	-	ns
			1.1 to 1.3	-	9.3	18.6	-	20.6	
			1.4 to 1.6	-	7.9	10	-	10.8	
			1.65 to 1.95	-	7.6	9.5	-	10.5	
			2.3 to 2.7	-	6.3	8.0	-	10	
			3.0 to 3.6	-	6.0	8.7	-	9.3	
		C <sub>L</sub> = 30 pF R <sub>1</sub> = R <sub>L</sub> = 5 kΩ	0.9	-	41.1	-	-	-	ns
			1.1 to 1.3	-	12.4	24.2	-	27.1	
			1.4 to 1.6	-	13	15	-	16	
			1.65 to 1.95	-	12.5	14.5	-	15.8	
			2.3 to 2.7	-	11.2	13.5	-	15.4	
			3.0 to 3.6	-	11	13.2	-	14.3	

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## Final Product/Process Change Notification

Document #: FPCN25572X26

Issue Date: 02 Feb 2024

### Reliability Data Summary:

**QV DEVICE NAME** : NL17SZ08MU1TCG

**RMS** : S87093 / S87718

**PACKAGE** : UDFN 6 (SBN)

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/231
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	0/231
Early Life Failure Rate	JESD22-A108	Ta=125°C, 100 % max rated Vcc	48 hrs	0/2400
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 cyc	0/231
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/231
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/231
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/30

**QV DEVICE NAME** : NL17SZ08MU1TCG

**RMS** : S87094/ S87719

**PACKAGE** : UDFN 6 (Tarlac)

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/231
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	0/231
Early Life Failure Rate	JESD22-A108	Ta=125°C, 100 % max rated Vcc	48 hrs	0/2400
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 cyc	0/231
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/231
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/231
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/30

**QV DEVICE NAME:** NL27WZ17MU1TCG

**RMS** : S87313

**PACKAGE** : UDFN 6 (SBN)

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/77
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	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 cyc	0/77
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/77
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/77
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/10



# Final Product/Process Change Notification

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Issue Date: 02 Feb 2024

**QV DEVICE NAME** : NL27WZ17MU1TCG

**RMS** : S87316

**PACKAGE** : UDFN 6 (Tarlac)

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/77
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	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 cyc	0/77
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/77
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	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	New Part Number	Qualification Vehicle
NL17SZ125CMUTCG	NL17SZ125MU3TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SZ125MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NLU1GT126CMUTCG	MC74VHC1GT126MU3TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NLU2G17CMUTCG	MC74VHC2G17MU3TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NLX2G04AMUTCG	NL27WZ04MU1TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NLX2G07AMUTCG	NL27WZ07MU1TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ14MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ14MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ16MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ17MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL7SZ18MUR2G	NL7SZ18MU2TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL7SZ19MUR2G	NL7SZ19MU2TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SG04AMUTCG	NL17SG04MU1TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SG07MU3TBG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SG08CMUTCG	NL17SG08MU3TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG



## Final Product/Process Change Notification

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NL17SZ08MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SZ08MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GU04MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT50MU1TCG-L22038	MC74VHC1GT50MU1TCG	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT50MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT14MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT14MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT14MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT08MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT08MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT04MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G32MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G32MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G32MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G08MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G08MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G08MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G04MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G04MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G04MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1G00MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL17SG14MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ17MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ16MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
NL27WZ16MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT125MU3TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT125MU2TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG
MC74VHC1GT125MU1TCG	No Change	NL17SZ08MU1TCG, NL27WZ17MU1TCG