Final Product/Process Change Notification

Document #:FPCN25572X23
Issue Date: 06 Feb 2023

Title of Change:	Update to **FPCN25572X** – To include the reliability data of 3V Minigates in SOT953 for the Qualification of Vanguard Fab and Assembly related changes for Logic part.
Proposed First Ship date:	13 May 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:	Wafer Fab Change, Assembly Change, Test Change
Change Sub-Category(s):	Manufacturing Site Transfer, Datasheet/Product Doc change

Sites Affected:

onsemi Sites	**External Foundry/Subcon Sites**
onsemi Leshan, China	Vanguard International Semiconductor, Taiwan

Description and Purpose:

With reference to **FPCN25572X**, this FPCN presents the updated reliability results for 3V Minigates SOT953.

	From	**To**
Fab Site	Tower	Vanguard
Wafer Diameter	6 inch	8 inch
Bond Wire	Au	Cu
Mold Compound	Showa Denko GE200F or Hysol GR640 HV	Hysol GR640 HV

Datasheet Changes:

NL17SGxx Family

NL17SG except for NL17SGU04 – Max Ratings

Existing

MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{CC}	DC Supply Voltage		−0.5 to +5.5	V
V_{IN}	DC Input Voltage		−0.5 to +4.6	V
V_{OUT}	DC Output Voltage	Output at High or Low State Power−Down Mode (V_{CC} = 0 V)	−0.5 to V_{CC} +0.5 −0.5 to +4.6	V
I_{IK}	DC Input Diode Current	V_{IN} < GND	−20	mA
I_{OK}	DC Output Diode Current	V_{OUT} < GND	−20	mA
I_{OUT}	DC Output Source/Sink Current		±20	mA
I_{CC}	DC Supply Current per Supply Pin		±20	mA
I_{GND}	DC Ground Current per Ground Pin		±20	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
MSL	Moisture Sensitivity		Level 1	
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V−0 @ 0.125 in	
V_{ESD}	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >100	V
$I_{LATCHUP}$	Latchup Performance	Above V_{CC} and Below GND at 125°C (Note 4)	±100	mA

New

Table 1. MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{CC}	DC Supply Voltage		−0.5 to +4.3	V
V_{IN}	DC Input Voltage		−0.5 to +4.3	V
V_{OUT}	DC Output Voltage	Active−Mode (High or Low State) Tri−State Mode (Note 1) Power−Down Mode (V_{CC} = 0 V)	−0.5 to V_{CC} + 0.5 −0.5 to +4.3 −0.5 to +4.3	V
I_{IK}	DC Input Diode Current	V_{IN} < GND	−20	mA
I_{OK}	DC Output Diode Current	V_{OUT} < GND	−20	mA
I_{OUT}	DC Output Source/Sink Current		±20	mA
I_{CC} or I_{GND}	DC Supply Current Per Supply Pin or Ground Pin		±20	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 (Note 2)	SC−88A SOT−953 UDFN6	377 254 154	°C/W
P_D	Power Dissipation in Still Air at 85°C	SC−88A SOT−953 UDFN6	332 491 812	mW
MSL	Moisture Sensitivity		Level 1	
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V−0 @ 0.125 in	
V_{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
$I_{LATCHUP}$	Latchup Performance (Note 4)		±100	mA

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

Existing

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions		V_{CC} (V)	T_A = 25°C Min	T_A = 25°C Max	T_A = −55°C to +125°C Min	T_A = −55°C to +125°C Max	Unit
V_{IH}	High−Level Input Voltage			0.9	V_{CC}		V_{CC}		V
				1.1 to 1.3	0.7xV_{CC}		0.7xV_{CC}		
				1.4 to 1.6	0.65xV_{CC}		0.65xV_{CC}		
				1.65 to 1.95	0.65xV_{CC}		0.65xV_{CC}		
				2.3 to 2.7	1.7		1.7		
				3.0 to 3.6	2.0		2.0		
V_{IL}	Low−Level Input Voltage			0.9		GND		GND	V
				1.1 to 1.3		0.3xV_{CC}		0.3xV_{CC}	
				1.4 to 1.6		0.35xV_{CC}		0.35xV_{CC}	
				1.65 to 1.95		0.35xV_{CC}		0.35xV_{CC}	
				2.3 to 2.7		0.7		0.7	
				3.0 to 3.6		0.8		0.8	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OH} = −20 μA	0.9	0.75		0.75		V
			I_{OH} = −0.3 mA	1.1 to 1.3	0.75xV_{CC}		0.75xV_{CC}		
			I_{OH} = −1.7 mA	1.4 to 1.6	0.75xV_{CC}		0.75xV_{CC}		
			I_{OH} = −3.0 mA	1.65 to 1.95	Vcc-0.45		V_{CC}−0.45		
			I_{OH} = −4.0 mA	2.3 to 2.7	2.0		2.0		
			I_{OH} = −8.0 mA	3.0 to 3.6	2.48		2.48		
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OL} = 20 μA	0.9		0.1		0.1	V
			I_{OL} = 0.3 mA	1.1 to 1.3		0.25xV_{CC}		0.25xV_{CC}	
			I_{OL} = 1.7 mA	1.4 to 1.6		0.25xV_{CC}		0.25xV_{CC}	
			I_{OL} = 3.0 mA	1.65 to 1.95		0.45		0.45	
			I_{OL} = 4.0 mA	2.3 to 2.7		0.4		0.4	
			I_{OL} = 8.0 mA	3.0 to 3.6		0.4		0.4	
I_{IN}	Input Leakage Current	0 ≤ V_{IN} ≤ 3.6 V		0 to 3.6		± 0.1		± 1.0	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND		3.6		0.5		10.0	μA

New

Table 3. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions		V_{CC} (V)	T_A = 25°C Min	T_A = 25°C Typ	T_A = 25°C Max	T_A = −55°C to +125°C Min	T_A = −55°C to +125°C Max	Unit
V_{IH}	High−Level Input Voltage			0.9	–	V_{CC}	–	–	–	V
				1.1 to 1.3	0.7 x V_{CC}	–	–	0.7 x V_{CC}	–	
				1.4 to 1.6	0.65 x V_{CC}	–	–	0.65 x V_{CC}	–	
				1.65 to 1.95	0.65 x V_{CC}	–	–	0.65 x V_{CC}	–	
				2.3 to 2.7	1.7	–	–	1.7	–	
				3.0 to 3.6	2.0	–	–	2.0	–	
V_{IL}	Low−Level Input Voltage			0.9	–	GND	–	–	–	V
				1.1 to 1.3	–	–	0.3 x V_{CC}	–	0.3 x V_{CC}	
				1.4 to 1.6	–	–	0.35 x V_{CC}	–	0.35 x V_{CC}	
				1.65 to 1.95	–	–	0.35 x V_{CC}	–	0.35 x V_{CC}	
				2.3 to 2.7	–	–	0.7	–	0.7	
				3.0 to 3.6	–	–	0.8	–	0.8	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OH} = −20 μA	0.9	–	0.75	–	–	–	V
			I_{OH} = −0.3 mA	1.1 to 1.3	0.75 x V_{CC}	–	–	0.75 x V_{CC}	–	
			I_{OH} = −1.7 mA	1.4 to 1.6	0.75 x V_{CC}	–	–	0.75 x V_{CC}	–	
			I_{OH} = −3.0 mA	1.65 to 1.95	V_{CC} − 0.45	–	–	V_{CC} − 0.45	–	
			I_{OH} = −4.0 mA	2.3 to 2.7	2.0	–	–	2.0	–	
			I_{OH} = −8.0 mA	3.0 to 3.6	2.48	–	–	2.48	–	
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OL} = 20 μA	0.9	–	0.1	–	–	–	V
			I_{OL} = 0.3 mA	1.1 to 1.3	–	–	0.25 x V_{CC}	–	0.25 x V_{CC}	
			I_{OL} = 1.7 mA	1.4 to 1.6	–	–	0.25 x V_{CC}	–	0.25 x V_{CC}	
			I_{OL} = 3.0 mA	1.65 to 1.95	–	–	0.45	–	0.45	
			I_{OL} = 4.0 mA	2.3 to 2.7	–	–	0.4	–	0.4	
			I_{OL} = 8.0 mA	2.7 to 3.6	–	–	0.4	–	0.4	
I_{IN}	Input Leakage Current	V_{IN} = 0 V to 3.6 V		0.9 to 3.6	–	–	±0.1	–	±1.0	μA
I_{OFF}	Power Off Leakage Current	V_{IN} = 0 V to 3.6 V, V_{OUT} = 0 V to 3.6 V		0	–	–	1.0	–	10.0	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND		0.9 to 3.6	–	–	1.0	–	10.0	μA

NL17SG04 - AC Characteristics

Existing

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

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25° C			T_A = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t_{PLH}, t_{PHL}	Propagation Delay, A to Y	C_L = 10 pF, R_L = 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	
		C_L = 15 pF, R_L = 1 MΩ	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_L = 30 pF, R_L = 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_{CC} (V)	T_A = 25° C			T_A = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t_{PLH}, t_{PHL}	Propagation Delay, A to Y	C_L = 10 pF, R_L = 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	
		C_L = 15 pF, R_L = 1 MΩ	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_L = 30 pF, R_L = 1 MΩ	0.9	-	44.5	–	-	–	ns
			1.1 to 1.3	-	9.5	24.6	-	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	

NL17SG32 - AC Characteristics

Existing

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

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25° C			T_A = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t_{PLH}, t_{PHL}	Propagation Delay, A or B to Y	C_L = 10 pF, R_L = 1 MΩ	0.9	-	12.2	14.4	-	18.0	ns
			1.1 to 1.3	-	8.8	12.4	-	16.2	
			1.4 to 1.6	-	5.0	8.5	-	10.0	
			1.65 to 1.95	-	3.6	6.2	-	6.7	
			2.3 to 2.7	-	2.7	3.9	-	4.4	
			3.0 to 3.6	-	2.1	3.1	-	3.7	
		C_L = 15 pF, R_L = 1 MΩ	0.9	-	13.0	16.0	-	18.0	ns
			1.1 to 1.3	-	7.8	12.0	-	16.0	
			1.4 to 1.6	-	5.9	9.3	-	11.2	
			1.65 to 1.95	-	4.5	6.9	-	7.1	
			2.3 to 2.7	-	3.0	4.4	-	5.0	
			3.0 to 3.6	-	2.4	3.4	-	3.9	
		C_L = 30 pF, R_L = 1 MΩ	0.9	-	14.0	17.2	-	20.0	ns
			1.1 to 1.3	-	11.0	14.1	-	17.8	
			1.4 to 1.6	-	8.0	12.1	-	15.9	
			1.65 to 1.95	-	6.0	9.2	-	9.6	
			2.3 to 2.7	-	3.9	5.7	-	6.1	
			3.0 to 3.6	-	3.0	4.4	-	4.8	

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25° C			T_A = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
t_{PLH}, t_{PHL}	Propagation Delay, A or B to Y	C_L = 10 pF, R_L = 1 MΩ	0.9	-	51.8	-	-	-	ns
			1.1 to 1.3	-	9.9	27.0	-	32.0	
			1.4 to 1.6	-	5.0	8.5	-	10.0	
			1.65 to 1.95	-	3.6	6.2	-	6.7	
			2.3 to 2.7	-	2.7	3.9	-	4.4	
			3.0 to 3.6	-	2.1	3.1	-	3.7	
		C_L = 15 pF, R_L = 1 MΩ	0.9	-	52.6	-	-	-	ns
			1.1 to 1.3	-	10.1	27.7	-	32.8	
			1.4 to 1.6	-	5.9	9.3	-	11.2	
			1.65 to 1.95	-	4.5	6.9	-	7.1	
			2.3 to 2.7	-	3.0	4.4	-	5.0	
			3.0 to 3.6	-	2.4	3.4	-	3.9	
		C_L = 30 pF, R_L = 1 MΩ	0.9	-	55.0	-	-	-	ns
			1.1 to 1.3	-	11.0	29.8	-	35.1	
			1.4 to 1.6	-	8.0	12.1	-	15.9	
			1.65 to 1.95	-	6.0	9.2	-	9.6	
			2.3 to 2.7	-	3.9	5.7	-	6.1	
			3.0 to 3.6	-	3.0	4.4	-	4.8	

NL17SG14 / 17 - DC Characteristics

Existing

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition		V_{CC} (V)	T_A = 25°C Min	T_A = 25°C Typ	T_A = 25°C Max	−55°C ≤ T_A ≤ 125°C Min	−55°C ≤ T_A ≤ 125°C Max	Unit
V_{T+}	Positive−Going Input Threshold Voltage			0.9	0.64	0.7	0.86	0.82	0.87	V
				1.1	0.73	0.81	0.95	0.71	1	
				1.4	0.86	0.94	1.16	0.84	1.2	
				1.65	0.95	1.06	1.25	0.94	1.3	
				2.3	1.22	1.36	1.6	1.18	1.65	
				3.0	1.51	1.8	2.05	1.38	2.1	
V_{T-}	Negative−Going Input Threshold Voltage			0.9	0.09	0.23	0.30	0.09	0.33	V
				1.1	0.15	0.33	0.39	0.12	0.43	
				1.4	0.3	0.47	0.54	0.25	0.55	
				1.65	0.35	0.6	0.66	0.3	0.65	
				2.3	0.55	0.85	0.88	0.5	0.88	
				3.0	0.95	1.13	1.16	0.9	1.16	
V_H	Hysteresis Voltage			0.9	0.15	0.5	0.75	0.2	0.8	V
				1.1	0.15	0.5	0.75	0.2	0.8	
				1.4	0.15	0.5	0.75	0.2	0.8	
				1.65	0.15	0.5	0.75	0.2	0.8	
				2.3	0.15	0.5	0.75	0.2	0.8	
				3.0	0.25	0.65	0.85	0.3	0.9	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OH} = −20 μA	0.9	0.75			0.75		V
			I_{OH} = −0.3 mA	1.1 to 1.3	0.75 × V_{CC}			0.75 × V_{CC}		
			I_{OH} = −1.7 mA	1.4 to 1.6	0.75 × V_{CC}			0.75 × V_{CC}		
			I_{OH} = −3.0 mA	1.65 to 1.95	V_{CC} − 0.45			V_{CC} − 0.45		
			I_{OH} = −4.0 mA	2.3 to 2.7	2.0			2.0		
			I_{OH} = −8.0 mA	3.0 to 3.6	2.48			2.48		
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}	I_{OL} = 20 μA	0.9			0.1		0.1	V
			I_{OL} = 0.3 mA	1.1 to 1.3			0.25 × V_{CC}		0.25 × V_{CC}	
			I_{OL} = 1.7 mA	1.4 to 1.6			0.25×V cc		0.25 × V_{CC}	
			I_{OL} = 3.0 mA	1.65 to 1.95			0.45		0.45	
			I_{OL} = 4.0 mA	2.3 to 2.7			0.4		0.4	
			I_{OL} = 8.0 mA	3.0 to 3.6			0.4		0.4	
I_{IN}	Input Leakage Current	0 ≤ V_{IN} ≤ 3.6 V		0 to 3.6			±0.1		±1.0	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND		3.6			0.5		10.0	μA

New

Table 3. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V_{CC} (V)	T_A = 25°C Min	T_A = 25°C Typ	T_A = 25°C Max	T_A = −55°C to +125°C Min	T_A = −55°C to +125°C Max	Unit
V_{T+}	Positive Going Input Threshold Voltage		0.9	–	0.7	–	–	–	V
			1.1	–	0.81	0.95	–	0.95	
			1.4	–	0.94	1.16	–	1.16	
			1.65	–	1.06	1.3	–	1.3	
			2.3	–	1.36	1.73	–	1.73	
			3.0	–	1.8	2.24	–	2.24	
V_{T-}	Negative Going Input Threshold Voltage		0.9	–	0.23	–	–	–	V
			1.1	0.15	0.33	–	0.15	–	
			1.4	0.3	0.47	–	0.3	–	
			1.65	0.35	0.6	–	0.35	–	
			2.3	0.55	0.85	–	0.55	–	
			3.0	0.95	1.13	–	0.95	–	
V_H	Hysteresis Voltage		0.9	–	0.27	–	–	–	V
			1.1	0.2	0.35	0.8	0.2	0.8	
			1.4	0.25	0.41	0.86	0.25	0.86	
			1.65	0.30	0.46	0.9	0.30	0.9	
			2.3	0.40	0.56	1.05	0.40	1.05	
			3.0	0.49	0.59	1.1	0.49	1.1	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}							V
		I_{OH} = −20 μA	0.9	–	0.75	–	–	–	
		I_{OH} = −0.3 mA	1.1 to 1.3	0.75 x V_{CC}	–	–	0.75 x V_{CC}	–	
		I_{OH} = −1.7 mA	1.4 to 1.6	0.75 x V_{CC}	–	–	0.75 x V_{CC}	–	
		I_{OH} = −3.0 mA	1.65 to 1.95	V_{CC} − 0.45	–	–	V_{CC} − 0.45	–	
		I_{OH} = −4.0 mA	2.3 to 2.7	2.0	–	–	2.0	–	
		I_{OH} = −8.0 mA	3.0 to 3.6	2.48	–	–	2.48	–	
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}							V
		I_{OL} = 20 μA	0.9	–	0.1	–	–	–	
		I_{OL} = 0.3 mA	1.1 to 1.3	–	–	0.25 x V_{CC}	–	0.25 x V_{CC}	
		I_{OL} = 1.7 mA	1.4 to 1.6	–	–	0.25 x V_{CC}	–	0.25 x V_{CC}	
		I_{OL} = 3.0 mA	1.65 to 1.95	–	–	0.45	–	0.45	
		I_{OL} = 4.0 mA	2.3 to 2.7	–	–	0.4	–	0.4	
		I_{OL} = 8.0 mA	2.7 to 3.6	–	–	0.4	–	0.4	
I_{IN}	Input Leakage Current	V_{IN} = 0 V to 3.6 V	0.9 to 3.6	–	–	±0.1	–	±1.0	μA
I_{OFF}	Power Off Leakage Current	V_{IN} = 0 V to 3.6 V, V_{OUT} = 0 V to 3.6 V	0	–	–	1.0	–	10.0	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND	0.9 to 3.6	–	–	0.5	–	10.0	μA

NL17SG14 - AC Characteristics

Existing

AC ELECTRICAL CHARACTERISTICS (Input t_r = t_f = 3.0 ns)

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25 °C Min	T_A = 25 °C Typ	T_A = 25 °C Max	T_A = −55°C to +125°C Min	T_A = −55°C to +125°C Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay, A or $\overline{Y}$	C_L = 10 pF, R_L = 1 MΩ	0.9	–	27.3	–	–	–	ns
			1.1 to 1.3	–	13.0	22.6	1.0	35.9	
			1.4 to 1.6	–	7.5	10.5	1.0	11.3	
			1.65 to 1.95	–	6.0	7.8	1.0	8.2	
			2.3 to 2.7	–	4.3	5.4	1.0	5.8	
			3.0 to 3.6	–	3.5	4.4	1.0	4.6	
		C_L = 15 pF, R_L = 1 MΩ	0.9	–	29.5	–	–	–	ns
			1.1 to 1.3	–	14.3	25.1	1.0	41.6	
			1.4 to 1.6	–	8.0	11.5	1.0	12.6	
			1.65 to 1.95	–	6.3	8.4	1.0	8.7	
			2.3 to 2.7	–	4.6	5.7	1.0	6.1	
			3.0 to 3.6	–	3.7	4.6	1.0	5.0	
		C_L = 30 pF, R_L = 1 MΩ	0.9	–	40.5	–	–	–	ns
			1.1 to 1.3	–	19.6	35.7	1.0	58.1	
			1.4 to 1.6	–	10.7	15.8	1.0	17.6	
			1.65 to 1.95	–	7.8	10.7	1.0	11.7	
			2.3 to 2.7	–	5.4	6.9	1.0	8.1	
			3.0 to 3.6	–	4.3	5.2	1.0	6.1	

New

Table 4. AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25°C Min	T_A = 25°C Typ	T_A = 25°C Max	T_A = −55°C to +125°C Min	T_A = −55°C to +125°C Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay, A to Y (Figures 5 and 6)	C_L = 10 pF, R_L = 1 MΩ	0.9	–	38.0	–	–	–	ns
			1.1 to 1.3	–	9.7	24.1	–	35.9	
			1.4 to 1.6	–	5.4	10.5	–	11.3	
			1.65 to 1.95	–	3.9	7.8	–	8.2	
			2.3 to 2.7	–	2.8	5.4	–	5.8	
			3.0 to 3.6	–	2.3	4.4	–	4.6	
		C_L = 15 pF, R_L = 1 MΩ	0.9	–	38.4	–	–	–	
			1.1 to 1.3	–	9.9	25.1	–	41.6	
			1.4 to 1.6	–	5.6	11.5	–	12.6	
			1.65 to 1.95	–	4.1	8.4	–	8.7	
			2.3 to 2.7	–	2.9	5.7	–	6.1	
			3.0 to 3.6	–	2.4	4.6	–	5.0	
		C_L = 30 pF, R_L = 1 MΩ	0.9	–	39.6	–	–	–	
			1.1 to 1.3	–	10.5	35.7	–	58.1	
			1.4 to 1.6	–	6.0	15.8	–	17.6	
			1.65 to 1.95	–	4.7	10.7	–	11.7	
			2.3 to 2.7	–	3.2	6.9	–	8.1	
			3.0 to 3.6	–	2.6	5.2	–	6.1	

NL17SG17 - AC Characteristics

Existing

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

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25 °C Min	Typ	Max	T_A = −55°C to +125°C Min	Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay, A to Y	C_L = 10 pF, R_L = 1 MΩ	0.9	–	27.3	–	–	–	ns
			1.1 to 1.3	–	13.0	22.6	1.0	35.9	
			1.4 to 1.6	–	7.5	10.5	1.0	11.3	
			1.65 to 1.95	–	6.0	7.8	1.0	8.2	
			2.3 to 2.7	–	4.3	5.4	1.0	5.8	
			3.0 to 3.6	–	3.5	4.4	1.0	4.6	
		C_L = 15 pF, R_L = 1 MΩ	0.9	–	29.5	–	–	–	ns
			1.1 to 1.3	–	14.3	25.1	1.0	41.8	
			1.4 to 1.6	–	8.0	11.5	1.0	12.6	
			1.65 to 1.95	–	6.3	8.4	1.0	8.7	
			2.3 to 2.7	–	4.6	5.7	1.0	6.1	
			3.0 to 3.6	–	3.7	4.6	1.0	5.0	
		C_L = 30 pF, R_L = 1 MΩ	0.9	–	40.5	–	–	–	ns
			1.1 to 1.3	–	19.6	35.7	1.0	58.1	
			1.4 to 1.6	–	10.7	15.8	1.0	17.6	
			1.65 to 1.95	–	7.8	10.7	1.0	11.7	
			2.3 to 2.7	–	5.4	6.9	1.0	8.1	
			3.0 to 3.6	–	4.3	5.2	1.0	6.1	

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V_{CC} (V)	T_A = 25 °C Min	Typ	Max	T_A = −55°C to +125°C Min	Max	Unit
t_{PLH}, t_{PHL}	Propagation Delay, A to Y	C_L = 10 pF, R_L = 1 MΩ	0.9	–	47.2	–	–	–	ns
			1.1 to 1.3	–	13.8	25.6	-	35.9	
			1.4 to 1.6	–	7.5	10.5	-	11.3	
			1.65 to 1.95	–	6.0	7.8	-	8.2	
			2.3 to 2.7	–	4.3	5.4	-	5.8	
			3.0 to 3.6	–	3.5	4.4	-	4.6	
		C_L = 15 pF, R_L = 1 MΩ	0.9	–	48.6	–	–	–	ns
			1.1 to 1.3	–	14.3	26.3	-	41.8	
			1.4 to 1.6	–	8.0	11.5	-	12.6	
			1.65 to 1.95	–	6.3	8.4	-	8.7	
			2.3 to 2.7	–	4.6	5.7	-	6.1	
			3.0 to 3.6	–	3.7	4.6	-	5.0	
		C_L = 30 pF, R_L = 1 MΩ	0.9	–	52.9	–	–	–	ns
			1.1 to 1.3	–	19.6	35.7	-	58.1	
			1.4 to 1.6	–	10.7	15.8	-	17.6	
			1.65 to 1.95	–	7.8	10.7	-	11.7	
			2.3 to 2.7	–	5.4	6.9	-	8.1	
			3.0 to 3.6	–	4.3	5.2	-	6.1	

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: NL17SG14P5T5G
RMS: S88110
PACKAGE: SOT953

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	New Part Number	Qualification Vehicle
NL17SG32P5T5G-L22735	NL17SG32P5T5G	NC7SP14P5X, NL17SG14P5T5G
NL17SG32P5T5G	#NONE	NC7SP14P5X, NL17SG14P5T5G
NL17SG17P5T5G	#NONE	NC7SP14P5X, NL17SG14P5T5G
NL17SG14P5T5G	#NONE	NC7SP14P5X, NL17SG14P5T5G
NL17SG04P5T5G	#NONE	NC7SP14P5X, NL17SG14P5T5G