



Title of Change:	NL17SZXX Family datasheet updates per PCN22038X, PCN22087X and PCN22088X.	
Effective date:	26 June 2019	
Contact information:	Contact your local ON Semiconductor Sales Office or <david.manley@onsemi.com>	
Type of notification:	This Product Bulletin is for notification purposes only. ON Semiconductor will proceed with implementation of this change upon publication of this Product Bulletin.	
Change Category:	☐ Wafer Fab ☐ Assembly Change ☐ Test Change ☒ Other <u>Datasheet Change</u>	
Change Sub-Category(s):	☐ Manufacturing Site Addition ☐ Material Change ☒ Datasheet/Product Doc change ☐ Manufacturing Site Transfer ☐ Product specific change ☐ Shipping/Packaging/Marking ☐ Manufacturing Process Change ☐ Other: _____	
Sites Affected:	ON Semiconductor Sites: None	External Foundry/Subcon Sites: None
Description and Purpose: This PB is issued to notify customers of datasheet changes for the NL17SZ family per FPCN22038X, FPCN22087X and FPCN22088X. Provided here are comparison between the new and old datasheets regarding changing specifications and/or specification conditions. • Areas of change are circled red. • Items from the old datasheet that will be changed are highlighted red. • The corresponding value on the new datasheet is highlighted in green. • Areas of change circled in yellow are changes that were found to be needed after the PCN There will be other changes that represent a cleanup and standardization to the datasheet to represent a family oriented specification format. These changes will include forms of the following: • Correction of clerical errors such as spelling. • Formatting to create family standards. • Addition of new package types and possible removal of packages no longer available. • Standardization of the switching waveforms test circuit figures. • Formatting of the Device ordering information to provide more information to the customer regarding marking and Pin 1 orientation in tape or reel.		



- Maximum voltage rating changed from 7.0V to 6.5V (Excluding Automotive Devices)
- Thermal resistance and Power Dissipation adjusted to reflect new die.
- Electrostatic Discharge/Latchup adjusted to reflect JEDEC Standard.

Existing datasheet

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CC}	DC Supply Voltage	-0.5 to +7.0	V
V _{IN}	DC Input Voltage	-0.5 to +7.0	V
V _{OUT}	DC Output Voltage (SOT-353/SC70-5/SC-88A/SOT-553/UDFN Packages)	-0.5 to +7.0	V
V _{OUT}	DC Output Voltage (SOT-953 Package)	-0.5 to V _{CC} + 0.5	V
I _{IK}	DC Input Diode Current	-50	mA
I _{OK}	DC Output Diode Current (V _{OUT} < GND, V _{OUT} > V _{CC})	±50	mA
I _{OK}	DC Output Diode Current (V _{OUT} < GND)	-50	mA
I _{OUT}	DC Output Current	±50	mA
I _{CC}	DC Supply Current per Supply Pin	±100	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 (SOT-353 (Note 1), SOT-553)	350 496	°C/W
P _D	Power Dissipation in Still Air at 85°C (SOT-353, SOT-553)	186 135	mW
MSL	Moisture Sensitivity	Level 1	
F _R	Flammability Rating (Oxygen Index: 28 to 34)	UL 94 V-0 @ 0.125 in	
ESD	ESD Classification (Human Body Model (Note 2), Machine Model (Note 3), Charged Device Model (Note 4))	2000 200 N/A	
I _{LATCHUP}	Latchup Performance Above V _{CC} and Below GND at 125°C (Note 5)	±100	mA

New

MAXIMUM RATINGS

Symbol	Characteristics	Value	Unit
V _{CC}	DC Supply Voltage (UDFN6, SOT-553, SC-88A (NLV), SC-74A, SC-88A, SOT-953)	-0.5 to +7.0 -0.5 to +6.5	V
V _{IN}	DC Input Voltage (UDFN6, SOT-553, SC-88A (NLV), SC-74A, SC-88A, SOT-953)	-0.5 to +7.0 -0.5 to +6.5	V
V _{OUT}	DC Output Voltage (Active-Mode (High or Low State), SC-88A (NLV), Tri-State Mode (Note 1), UDFN6, SOT-553, Power-Down Mode (V _{CC} = 0 V))	-0.5 to V _{CC} + 0.5 -0.5 to +7.0 -0.5 to +7.0	V
V _{OUT}	DC Output Voltage (Active-Mode (High or Low State), SC-74A, SC-88A, SOT-953, Tri-State Mode (Note 1), Power-Down Mode (V _{CC} = 0 V))	-0.5 to V _{CC} + 0.5 -0.5 to +6.5	V
I _{IK}	DC Input Diode Current (V _{IN} < GND)	-50	mA
I _{OK}	DC Output Diode Current (V _{OUT} < GND)	±50	mA
I _{OUT}	DC Output Source/Sink Current	±50	mA
I _{CC} or I _{GND}	DC Supply Current per Supply Pin or Ground Pin	±100	mA
T _{STG}	Storage Temperature Range	-65 to +150	°C
T _L	Lead Temperature, 1 mm from Case for 10 secs	260	°C
T _J	Junction Temperature Under Bias	+150	°C
θ _{JA}	Thermal Resistance (Note 2)	SC-88A 659 SC-74A 555 SOT-553 562 SOT-953 560 UDFN6 382	°C/W
P _D	Power Dissipation in Still Air	SC-88A 190 SC-74A 225 SOT-553 222 SOT-953 223 UDFN6 327	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

- DC Output Voltage adjusted to clarify OVT protection.
- Input Rise and fall time adjusted to reflect new process.

Existing datasheet

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Voltage	1.65	5.5	V
V _{IN}	DC Input Voltage	0	5.5	V
V _{OUT}	DC Output Voltage (SOT-353/SC70-5/SC-88A/SOT-553/UDFN Packages)	0	5.5	V
V _{OUT}	DC Output Voltage (SOT-953 Package)	0	V _{CC}	V
T _A	Operating Temperature Range	-55	+125	°C
t _r , t _f	Input Rise and Fall Time (V _{CC} = 3.0 V ± 0.3 V, V _{CC} = 5.0 V ± 0.5 V)	0	100 20	ns/V

New

RECOMMENDED OPERATING CONDITIONS

Symbol	Characteristics	Min	Max	Unit
V _{CC}	Positive DC Supply Voltage	1.65	5.5	V
V _{IN}	DC Input Voltage	0	5.5	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	V _{CC} 5.5	V
T _A	Operating Temperature Range	-55	+125	°C
t _r , t _f	Input Rise and Fall Time (SC-88A (NLV), UDFN6, SOT-553)	V _{CC} = 3.0 V to 3.6 V V _{CC} = 4.5 V to 5.5 V	0 100 20	ns/V
t _r , t _f	Input Rise and Fall Time (SC-74A, SC-88A, SOT-953)	V _{CC} = 1.65 V to 1.95 V V _{CC} = 2.3 V to 2.7 V V _{CC} = 3.0 V to 3.6 V V _{CC} = 4.5 V to 5.5 V	0 20 10 5	ns/V



- High-Level Input Voltage and Low-Level Input Voltage specification adjusted to reflect new process.
- High-Level Output Current and Low-Level Output Current spec adjusted to align with industry standard.
- Input Leakage Current adjusted to remove crossover with Input Leakage Current specification.

Existing datasheet

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Unit
			V _{CC} (V)	Min	Typ	Max	Min	Max	
V _{IH}	High-Level Input Voltage		1.65 to 1.95 2.3 to 5.5	0.75 V _{CC}		0.7 V _{CC}			V
V _{IL}	Low-Level Input Voltage		1.65 to 1.95 2.3 to 5.5			0.25 V _{CC} 0.3 V _{CC}	0.25 V _{CC} 0.3 V _{CC}		V
V _{OH}	High-Level Output Voltage V _{OH} = V _{IH} or V _{IL}	I _{OH} = -100 μA I _{OH} = -3 mA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.5 3.8	V _{CC}	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.3 3.8			V
V _{OL}	Low-Level Output Voltage V _{OL} = V _{IH} or V _{IL}	I _{OL} = 100 μA I _{OL} = 3 mA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5		0.08 0.20 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55	0.1 0.24 0.3 0.4 0.55 0.55		V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	0 to 5.5			±0.1		±1.0	μA
I _{OFF}	Power Off Leakage Current	V _{IN} = 5.5 V or V _{OUT} = 5.5 V	0			1		10	μA
I _{CC}	Quiescent Supply Current	V _{IN} = 5.5 V or GND	5.5			1		10	μA

New

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Units
			V _{CC} (V)	Min	Typ	Max	Min	Max	
V _{IH}	High-Level Input Voltage		1.65 to 1.95 2.3 to 5.5	0.65 V _{CC}		0.65 V _{CC}			V
V _{IL}	Low-Level Input Voltage		1.65 to 1.95 2.3 to 5.5			0.35 V _{CC} 0.30 V _{CC}	0.35 V _{CC} 0.30 V _{CC}		V
V _{OH}	High-Level Output Voltage V _{OH} = V _{IH} or V _{IL}	I _{OH} = -100 μA I _{OH} = -3 mA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.5 3.8	V _{CC}	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.3 3.8			V
V _{OL}	Low-Level Output Voltage V _{OL} = V _{IH} or V _{IL}	I _{OL} = 100 μA I _{OL} = 3 mA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5		0.08 0.22 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55	0.1 0.24 0.3 0.4 0.55 0.55		V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5			±0.1*		±1.0	μA
I _{OFF}	Power Off Leakage Current	V _{IN} = 5.5 V or V _{OUT} = 5.5 V	0			1.0		10	μA
I _{CC}	Quiescent Supply Current	V _{IN} = V _{CC} or GND	5.5			1.0		10	μA

- Positive Input Threshold Voltage adjusted to remove Min limits. Negative Input Threshold Voltage adjusted to remove Max limits.
- High-Level Output Current and Low-Level Output Current spec adjusted to align with industry standard.
- Input Leakage Current adjusted to remove crossover with Input Leakage Current specification.

Existing datasheet

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Units
			V _{CC} (V)	Min	Typ	Max	Min	Max	
V _{I+}	Positive Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.6 1.0 1.2 1.3 1.9 2.2	1.0 1.5 1.7 1.9 2.7 3.3	1.4 1.8 2.0 2.2 3.1 3.6	0.6 1.0 1.2 1.3 1.9 2.2	1.4 1.8 2.0 2.2 3.1 3.6	V
V _{I-}	Negative Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.2 0.4 0.5 0.6 1.0 1.2	0.5 0.75 0.87 1.0 1.5 1.9	0.2 0.4 0.5 0.6 1.0 1.2	0.2 0.4 0.5 0.6 1.0 1.2	0.2 0.4 0.5 0.6 1.0 1.2	V
V _h	Input Hysteresis Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.1 0.25 0.3 0.4 0.6 0.7	0.48 0.75 0.83 0.93 1.2 1.4	0.1 0.25 0.3 0.4 0.6 0.7	0.1 0.25 0.3 0.4 0.6 0.7	0.1 0.25 0.3 0.4 0.6 0.7	V
V _{OH}	High-Level Output Voltage V _{OH} = V _{IH} or V _{IL}	I _{OH} = -100 μA I _{OH} = -3 mA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.5 3.8	V _{CC}	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.3 3.8			V
V _{OL}	Low-Level Output Voltage V _{OL} = V _{IH} or V _{IL}	I _{OL} = 100 μA I _{OL} = 3 mA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5		0.0 0.08 0.2 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55	0.1 0.24 0.3 0.4 0.55 0.55		V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5			±0.1		±1.0	μA
I _{OFF}	Power Off Leakage Current (SOT-23/SOT-235/SOT-235-64/SOT-553 Packages)	V _{IN} = 5.5 V or V _{OUT} = 5.5 V	0			1		10	μA
I _{CC}	Quiescent Supply Current	V _{IN} = 5.5 V or GND	5.5			1		10	μA

New

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Units
			V _{CC} (V)	Min	Typ	Max	Min	Max	
V _{I+}	Positive Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	1.0 1.5 1.7 1.9 2.7 3.3	1.4 1.8 2.0 2.2 3.1 3.6	1.4 1.8 2.0 2.2 3.1 3.6	1.4 1.8 2.0 2.2 3.1 3.6	1.4 1.8 2.0 2.2 3.1 3.6	V
V _{I-}	Negative Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.2 0.4 0.5 0.6 1.0 1.2	0.5 0.75 0.87 1.0 1.5 1.9	0.2 0.4 0.5 0.6 1.0 1.2	0.2 0.4 0.5 0.6 1.0 1.2	0.2 0.4 0.5 0.6 1.0 1.2	V
V _h	Input Hysteresis Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.1 0.25 0.3 0.4 0.6 0.7	0.48 0.75 0.83 0.93 1.2 1.4	0.1 0.25 0.3 0.4 0.6 0.7	0.1 0.25 0.3 0.4 0.6 0.7	0.1 0.25 0.3 0.4 0.6 0.7	V
V _{OH}	High-Level Output Voltage V _{OH} = V _{IH} or V _{IL}	I _{OH} = -100 μA I _{OH} = -3 mA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.5 3.8	V _{CC}	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.3 3.8			V
V _{OL}	Low-Level Output Voltage V _{OL} = V _{IH} or V _{IL}	I _{OL} = 100 μA I _{OL} = 3 mA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5		0.0 0.08 0.2 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55	0.1 0.24 0.3 0.4 0.55 0.55		V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5			±0.1*		±1.0	μA
I _{OFF}	Power Off Leakage Current	V _{IN} = 5.5 V or V _{OUT} = 5.5 V	0			1.0		10	μA
I _{CC}	Quiescent Supply Current	V _{IN} = V _{CC} or GND	5.5			1.0		10	μA



- Minimum limits will be removed on all propagation delay and Output Enable Time and Output Disable Time specifications

Existing datasheet

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PLH}	Propagation Delay AN to YN (Figures 4 and 5, Table 1)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.8 ± 0.15	2.0	9.0	10	2.0	10.5		ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.5 ± 0.2	1.0		7.5	1.0	8.0		
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.3 ± 0.3	0.8		5.2	0.8	5.5		
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.5		5.0	0.5	5.3		
t_{OZH} t_{OZH}	Output Enable Time (Figures 6, 7 and 8, Table 1)	$R_L = 250 \Omega$, $C_L = 50 \text{ pF}$	1.8 ± 0.15	2.0	7.6	9.5	2.0	10		ns
		$R_L = 250 \Omega$, $C_L = 50 \text{ pF}$	2.5 ± 0.2	1.8		8.5	1.8	9.0		
		$R_L = 250 \Omega$, $C_L = 50 \text{ pF}$	3.3 ± 0.3	1.2		6.2	1.2	6.5		
		$R_L = 250 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.8		5.5	0.8	5.8		
t_{PLZ} t_{PLZ}	Output Disable Time (Figures 6, 7 and 8, Table 1)	R_L and $R_1 = 500 \Omega$, $C_L = 50 \text{ pF}$	1.8 ± 0.15	2.0	8.0	10	2.0	10.5		ns
		R_L and $R_1 = 500 \Omega$, $C_L = 50 \text{ pF}$	2.5 ± 0.2	1.5		8.0	1.5	8.5		
		R_L and $R_1 = 500 \Omega$, $C_L = 50 \text{ pF}$	3.3 ± 0.3	0.8		5.7	0.8	6.0		
		R_L and $R_1 = 500 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.3		4.7	0.3	5.0		

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PLH}	Propagation Delay (Figure 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65	2.0	9.1	15	2.0	15.6		ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.8	2.0	7.6	12.5	2.0	13		
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.5 ± 0.2	1.0	5.0	9.0	1.0	9.5		
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.3 ± 0.3	0.5	3.7	6.3	0.5	6.5		
	$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	3.3 ± 0.3	1.5	4.4	7.2	1.5	7.5		
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.8	3.7	5.9	0.8	6.2		

New

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PLH}	Propagation Delay, A to Y (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	6.0	10	–	–	10.5	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	3.4	7.5	–	–	8.0	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	2.5	5.2	–	–	5.5	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	2.9	5.7	–	–	6.0	
t_{OZH} t_{OZH}	Output Enable Time, OE to Y (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	6.5	9.5	–	–	10	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	3.8	8.5	–	–	9.0	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	2.8	6.2	–	–	6.5	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	2.3	5.0	–	–	5.3	
t_{PLZ} t_{PLZ}	Output Disable Time, OE to Y (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	5.0	10	–	–	10.5	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	3.3	8.0	–	–	8.5	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	2.7	5.7	–	–	6.0	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	2.8	4.7	–	–	5.0	

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PLH}	Propagation Delay, A to Y (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	9.1	15	–	–	15.6	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	5.0	9.0	–	–	9.5	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	3.7	6.3	–	–	6.5	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	4.4	7.2	–	–	7.5	
	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	4.5 to 5.5	–	3.1	5.2	–	–	5.5	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	–	–	3.7	5.9	–	–	6.2	

- Minimum limits will be removed on all propagation delay and Output Enable and Output Disable Time specifications.
- Capacitive characteristics adjusted to reflect new process.

Existing datasheet

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 2.5 \text{ ns}$; $C_L = 50 \text{ pF}$; $R_L = 500 \Omega$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Unit
				Min	Typ	Max	Min	Max	Max	
t_{OZH}	Propagation Delay (Figure 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.8 ± 0.15	0.8	5.3	11.6	0.8	12.0		ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.5 ± 0.2	1.2	3.7	5.8	1.2	6.4		
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.3 ± 0.3	0.8	2.9	4.4	0.8	4.8		
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.5	2.3	3.5	0.5	3.9		
t_{PLZ}	Propagation Delay (Figure 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.8 ± 0.15	0.8	5.3	11.6	0.8	1.20		ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.5 ± 0.2	1.2	2.8	5.8	1.2	6.4		
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.3 ± 0.3	0.8	2.1	4.4	0.8	4.8		
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	5.0 ± 0.5	0.5	1.4	3.5	0.5	3.9		

CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC}	> 2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 6)	10 MHz, $V_{CC} = 3.3 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC}	25	pF

CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC}	> 2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_O = 0 \text{ V}$ or V_{CC}	4.0	pF
C_{PD}	Power Dissipation Capacitance (Note 6)	10 MHz, $V_{CC} = 5.5 \text{ V}$, $V_I = 0 \text{ V}$ or V_{CC}	4.0	pF

New

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{OZH}	Propagation Delay, (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	6.0	9.0	–	–	9.5	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	3.6	6.1	–	–	6.5	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	2.7	5.6	–	–	6.0	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	2.1	4.4	–	–	4.8	
t_{PLZ}	Propagation Delay, (Figures 3 and 4)	$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	1.65 to 1.95	–	4.0	9.0	–	–	9.5	ns
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	2.3 to 2.7	–	2.8	6.1	–	–	6.5	
		$R_L = 1 \text{ M}\Omega$, $C_L = 15 \text{ pF}$	3.0 to 3.6	–	2.5	5.6	–	–	6.0	
		$R_L = 500 \Omega$, $C_L = 50 \text{ pF}$	–	–	2.2	4.4	–	–	4.8	

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	9	pF

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0 \text{ ns}$)

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3 \text{ V}$, $V_{IN} = 0 \text{ V}$ or V_{CC}	9	pF



- Capacitive characteristics adjusted to reflect new process.
- Output Capacitance added.

CAPACITIVE CHARACTERISTICS				
Symbol	Parameter	Condition	Typical	Unit
C _{IN}	Input Capacitance	V _{CC} = 5.5 V, V _I = 0 V or V _{CC}	> 2.5	pF
C _{PD}	Power Dissipation Capacitance (Note 7)	10 MHz, V _{CC} = 3.3 V, V _I = 0 V or V _{CC} 10 MHz, V _{CC} = 5.5 V, V _I = 0 V or V _{CC}	9 11	pF

CAPACITIVE CHARACTERISTICS (t _{RI} = t _{RF} = 3.0 ns)				
Symbol	Parameter	Condition	Typical	Units
C _{IN}	Input Capacitance	V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	2.5	pF
C _{OUT}	Output Capacitance	V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	2.5	pF
C _{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, V _{CC} = 3.3 V, V _{IN} = 0 V or V _{CC} 10 MHz, V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	9 11	pF

CAPACITIVE CHARACTERISTICS				
Symbol	Parameter	Condition	Typical	Unit
C _{IN}	Input Capacitance	V _{CC} = 5.5 V, V _I = 0 V or V _{CC}	7.0	pF
C _{PD}	Power Dissipation Capacitance (Note 8)	10 MHz, V _{CC} = 3.3 V, V _I = 0 V or V _{CC} 10 MHz, V _{CC} = 5.5 V, V _I = 0 V or V _{CC}	9 11	pF

CAPACITIVE CHARACTERISTICS (t _{RI} = t _{RF} = 3.0 ns)				
Symbol	Parameter	Condition	Typical	Units
C _{IN}	Input Capacitance	V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	2.5	pF
C _{OUT}	Output Capacitance	V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	2.5	pF
C _{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, V _{CC} = 3.3 V, V _{IN} = 0 V or V _{CC} 10 MHz, V _{CC} = 5.5 V, V _{IN} = 0 V or V _{CC}	9 11	pF

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](#).

NL17SZ00DFT2G

NL17SZ08DFT2G

NL17SZ17DFT2G

NL17SZ02DFT2G

NL17SZ125DFT2G

NL17SZ32DFT2G

NL17SZ04DFT2G

NL17SZ126DFT2G

NL17SZ86DFT2G

NL17SZ06DFT2G

NL17SZ14DFT2G

NL17SZU04DFT2G

NL17SZ07DFT2G

NL17SZ16DFT2G

NL18SZ125DFT2G

Japanese translation of the notification starts here.
通知の日本語訳はここから始まります。

Note: *The Japanese version is for reference only. In case of any differences between the English and Japanese version, the English version shall control.*

注：日本語版は参照用です。英語版と日本語版の違いがある場合は、英語版が優先されます。



変更件名:	NL17SZXX ファミリー PCN22038X、PCN22087X および PCN22088X についてのデータシートの更新	
発効日:	26 June 2019	
連絡先情報:	現地のオン・セミコンダクター営業所または <david.manley@onsemi.com>にお問い合わせください。	
通知種別:	本製品速報は通知目的のみのものです。オン・セミコンダクターは本製品速報の発行により本変更を実行します。	
変更カテゴリ:	☐ ウェハファブの変更 ☐ アセンブリの変更 ☐ 試験の変更 ☒ その他 <u>データシートの変更</u>	
変更サブカテゴリ:	☐ 製造拠点の追加 ☐ 材料の変更 ☒ データシート/製品資料の変更 ☐ 製造拠点の移転 ☐ 製品仕様の変更 ☐ 出荷/パッケージング/表記 ☐ 製造プロセスの変更 ☐ その他: _____	
影響を受ける拠点:	オン・セミコンダクター拠点: なし	外部製造工場 / 下請業者拠点: なし
説明および目的: 本 PB は、NL17SZ ファミリー FPCN22038X、FPCN22087X および FPCN22088X についてのデータシートの変更をお客様にお知らせするものです。 仕様および/または仕様条件の変更に関する新旧データシート間での比較を以下に示します。 - 変更箇所は赤色の丸で囲まれています。 - 旧データシートから変更される項目は赤色でハイライトされています。 - 新データシートで対応する値は緑色でハイライトされています。 - 黄色の丸で囲んだ変更箇所は PCN の後に変更が必要であることがわかったものです 他にも、ファミリーに合わせて仕様フォーマットを表現するためにデータシートの整理と標準化をしたことによる変更があります。これらの変更は、以下のような形で行われます。 - スペルなどの事務的なミスの訂正。 - ファミリーの標準を作成するための書式設定。 - 新しいパッケージタイプの追加、および入手できなくなったパッケージの削除見込み。 - 波形切り替え試験回路図の標準化。 - マーキング、およびテープまたはリールでのピン 1 の向きに関して、お客様にさらに情報を提供するための、デバイス注文情報の書式設定。		



- 最大定格電圧を 7.0V から 6.5V に変更 (車載デバイスを除く)
- 新規のダイを反映するために熱抵抗とワット損を調整。
- JEDEC 規格を反映するために静電放電/ラッチアップを調整。

Existing datasheet

MAXIMUM RATINGS				
Symbol	Parameter	Value	Unit	
V _{CC}	DC Supply Voltage	-0.5 to +7.0	V	
V _{IN}	DC Input Voltage	-0.5 to +7.0	V	
V _{OUT}	DC Output Voltage (SOT-353/SC70-5/SC-88A/SOT-553/UDFN Packages)	-0.5 to +7.0	V	
V _{OUT}	DC Output Voltage (SOT-953 Package)	-0.5 to V _{CC} + 0.5	V	
I _{IK}	DC Input Diode Current	-50	mA	
I _{OK}	DC Output Diode Current (V _{OUT} < GND, V _{OUT} > V _{CC})	±50	mA	
I _{OK}	DC Output Diode Current (V _{OUT} < GND)	-50	mA	
I _{OUT}	DC Output Current	±50	mA	
I _{CC}	DC Supply Current per Supply Pin	±100	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 (SOT-353 (Note 1) SOT-553)	350 496	°C/W	
P _D	Power Dissipation in Still Air at 85°C (SOT-353 SOT-553)	186 135	mW	
MSL	Moisture Sensitivity	Level 1		
F ₈	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
ESD	ESD Classification (Human Body Model (Note 2) Machine Model (Note 3) Charged Device Model (Note 4))	2000 200 N/A		
I _{LATCHUP}	Latchup Performance Above V _{CC} and Below GND at 125°C (Note 5)	±100	mA	

New

MAXIMUM RATINGS				
Symbol	Characteristics	Value	Unit	
V _{CC}	DC Supply Voltage UDFN6, SOT-553, SC-88A (NLV) SC-74A, SC-88A, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V	
V _{IN}	DC Input Voltage UDFN6, SOT-553, SC-88A (NLV) SC-74A, SC-88A, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V	
V _{OUT}	DC Output Voltage (SC-88A (NLV), UDFN6, SOT-553)	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 +7.0 -0.5 to +6.5	V
V _{OUT}	DC Output Voltage (SC-74A, SC-88A, SOT-953)	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 +6.5 -0.5 to +6.5	V
I _{IK}	DC Input Diode Current V _{IN} < GND	-50	mA	
I _{OK}	DC Output Diode Current V _{OUT} < GND	±50	mA	
I _{OUT}	DC Output Source/Sink Current	±50	mA	
I _{CC} or I _{QDD}	DC Supply Current per Supply Pin or Ground Pin	±100	mA	
T _{STG}	Storage Temperature Range	-65 to +150	°C	
T _L	Lead Temperature, 1 mm from Case for 10 secs	260	°C	
T _J	Junction Temperature Under Bias	+150	°C	
θ _{JA}	Thermal Resistance (Note 2)	SC-88A 659 SC-74A 555 SOT-553 562 SOT-953 560 UDFN6 382	°C/W	
P _D	Power Dissipation in Still Air	SC-88A 190 SC-74A 225 SOT-553 222 SOT-953 223 UDFN6 327	mW	
MSL	Moisture Sensitivity	Level 1		
F ₈	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V _{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model 2000 Charged Device Model 1000	V	
I _{LATCHUP}	Latchup Performance (Note 4)	±100	mA	

- OVT 保護について明確化するために DC 出力電圧を、調整。
- 新規プロセスを反映するために入力立ち上がり/立ち下がり時間を調整。

Existing datasheet

RECOMMENDED OPERATING CONDITIONS				
Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Voltage	1.65	5.5	V
V _{IN}	DC Input Voltage	0	5.5	V
V _{OUT}	DC Output Voltage (SOT-353/SC70-5/SC-88A/SOT-553/UDFN Packages)	0	5.5	V
V _{OUT}	DC Output Voltage (SOT-953 Package)	0	V _{CC}	V
T _A	Operating Temperature Range	-55	+125	°C
t _r , t _f	Input Rise and Fall Time V _{CC} = 3.0 V ± 0.3 V V _{CC} = 5.0 V ± 0.5 V	0	100 20	ns/V

New

RECOMMENDED OPERATING CONDITIONS				
Symbol	Characteristic	Min	Max	Unit
V _{CC}	Positive DC Supply Voltage	1.65	5.5	V
V _{IN}	DC Input Voltage	0	5.5	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 V _{CC} 0	V
T _A	Operating Temperature Range	-55	+125	°C
t _r , t _f	Input Rise and Fall Time (SC-88A (NLV), UDFN6, SOT-553)	V _{CC} = 3.0 V to 3.6 V V _{CC} = 4.5 V to 5.5 V	0 100 20	ns/V
	Input Rise and Fall Time (SC-74A, SC-88A, SOT-953)	V _{CC} = 1.65 V to 1.95 V V _{CC} = 2.3 V to 2.7 V V _{CC} = 3.0 V to 3.6 V V _{CC} = 4.5 V to 5.5 V	0 20 10 5	ns/V



- 新規プロセスを反映するために H レベル入力電圧および L レベル入力電圧仕様を調整。
- 業界標準に合わせて H レベル出力電流および L レベル出力電流仕様を調整。
- 入力リーク電流仕様でクロスオーバーを除去したのに合わせて入力リーク電流を調整。

Existing datasheet

DC ELECTRICAL CHARACTERISTICS

			T _A = 25°C			-55°C ≤ T _A ≤ 125°C			
Symbol	Parameter	Condition	V _{CC} (V)	Min	Typ	Max	Min	Max	Unit
V _{IH}	High-Level Input Voltage		1.65 to 1.95 2.3 to 5.5	0.75 V _{CC} 0.7 V _{CC}			0.75 V _{CC} 0.7 V _{CC}		V
V _{IL}	Low-Level Input Voltage		1.65 to 1.95 2.3 to 5.5			0.25 V _{CC} 0.3 V _{CC}		0.25 V _{CC} 0.3 V _{CC}	V
V _{OH}	High-Level Output Voltage V _N = V _{IH} or V _{IL}	I _{OH} = -100 μA I _{OH} = -3 mA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.8		V _{CC} - 0.1 1.29 1.9 2.2 2.4 3.8			V
V _{OL}	Low-Level Output Voltage V _N = V _{IH} or V _{IL}	I _{OL} = 100 μA I _{OL} = 3 mA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	0.08 0.24 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55		0.1 0.24 0.3 0.4 0.55 0.55		V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	0 to 5.5				±0.1	±1.0	μA
I _{OFF}	Power Off Leakage Current	V _N = 5.5 V or V _{OUT} = 5.5 V	0			1		10	μA
I _{CC}	Quiescent Supply Current	V _N = 5.5 V or GND	5.5			1		10	μA

New

DC ELECTRICAL CHARACTERISTICS

See Additional Characteristics									
Symbol	Parameter	Condition	V _{DD} (V)	T _A = 25°C			-55°C ≤ T _A ≤ 125°C		Units
				Min	Typ	Max	Min	Max	
V _{IH}	High-Level Input Voltage		1.65 to 1.95 2.3 to 5.5	0.65 V _{DD} 0.70 V _{DD}	-	-	0.65 V _{DD} 0.70 V _{DD}	-	V
V _{IL}	Low-Level Input Voltage		1.65 to 1.95 2.3 to 5.5	-	-	0.35 V _{DD} 0.30 V _{DD}	-	0.35 V _{DD} 0.30 V _{DD}	V
V _{OH}	High-Level Output Voltage	V _{IN} = V _{IH} or V _{IL} I _{OH} = -100 μA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.8	V _{CC} 1.4 2.1 2.4 2.7 3.8	-	V _{CC} - 0.1 1.29 1.9 2.2 2.4 3.8	-	V
V _{OL}	Low-Level Output Voltage	V _{IN} = V _{IH} or V _{IL} I _{OL} = 100 μA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	-	0.1 0.08 0.2 0.22 0.28 0.38 0.42	0.1 0.24 0.3 0.4 0.55 0.55	-	0.1 0.24 0.3 0.4 0.55 0.55	V
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5	-	-	±0.1*	-	±1.0	μA
I _{OFF}	Power Off Leakage Current	V _N = 5.5 V or V _{OUT} = 5.5 V	0	-	-	1.0	-	10	μA
I _{CC}	Quiescent Supply Current	V _N = V _{DD} or GND	5.5	-	-	1.0	-	10	μA

- Positive Threshold voltage の下限を削除。Negative Threshold voltage の上限を削除。
- 業界標準に合わせて H レベル出力電流および L レベル出力電流仕様を調整。
- 入力リーク電流仕様でクロスオーバーを除去したのに合わせて入力リーク電流を調整。

Existing datasheet

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Units
				Min	Typ	Max	Min	Max		
V _{TP}	Positive Input Threshold Voltage		1.65	0.6	1.0	1.4	0.6	1.4		V
			2.3	1.0	1.5	1.8	1.0	1.8		
			2.7	1.2	1.7	2.0	1.2	2.0		
			3.0	1.3	1.9	2.2	1.3	2.2		
			4.5	1.9	2.7	3.1	1.9	3.1		
			5.5	2.2	3.3	3.6	2.2	3.6		
V _{TS}	Negative Input Threshold Voltage		1.65	0.2	0.5	0.8	0.2	0.8		V
			2.3	0.4	0.75	1.15	0.4	1.15		
			2.7	0.5	0.87	1.4	0.5	1.4		
			3.0	0.6	1.0	1.5	0.6	1.5		
			4.5	1.0	1.5	2.0	1.0	2.0		
			5.5	1.2	1.9	2.3	1.2	2.3		
V _{HI}	Input Hysteresis Voltage		1.65	0.1	0.48	0.9	0.1	0.9		V
			2.3	0.25	0.75	1.1	0.25	1.1		
			2.7	0.3	0.83	1.15	0.3	1.15		
			3.0	0.4	0.93	1.2	0.4	1.2		
			4.5	0.6	1.2	1.5	0.6	1.5		
			5.5	0.7	1.4	1.7	0.7	1.7		
V _{OH}	High-Level Output Voltage V _N = V _{TP} or V _{TS}	I _{OH} = -100 μA	1.65 to 5.5	V _{CC} - 0.1	V _{CC}	V _{CC} - 0.1				V
		I _{OH} = -8 mA	1.65	1.29	1.9	1.29				
		I _{OH} = -6 mA	2.3	1.9	2.1	1.9				
		I _{OH} = -12 mA	2.7	2.2	2.4	2.2				
		I _{OH} = -16 mA	3.0	2.4	2.7	2.4				
		I _{OH} = -24 mA	3.0	2.3	2.5	2.3				
		I _{OH} = -32 mA	4.5	3.8	4.0	3.8				
V _{OL}	Low-Level Output Voltage V _N = V _{TP} or V _{TS}	I _{OL} = 100 μA	1.65 to 5.5	0.0	0.1			0.1	V	
		I _{OL} = 8 mA	1.65	0.08	0.24			0.24		
		I _{OL} = 6 mA	2.3	0.2	0.3			0.3		
		I _{OL} = 12 mA	2.7	0.22	0.4			0.4		
		I _{OL} = 16 mA	3.0	0.25	0.4			0.4		
		I _{OL} = 24 mA	3.0	0.31	0.55			0.55		
		I _{OL} = 32 mA	4.5	0.42	0.55			0.55		
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	0 to 5.5			±0.1	±1.0	μA		
I _{OFF}	Power Off Leakage Current (SOT-23/SOT-553 Packages)	V _N = 5.5 V or V _{OUT} = 5.5 V	0			1	10	μA		
I _{CC}	Quiescent Supply Current	V _N = 5.5 V or GND	5.5			1	10	μA		

New

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	V _{CC} (V)	T _A = 25°C			-55°C ≤ T _A ≤ 125°C			Units
				Min	Typ	Max	Min	Max		
V _{TP}	Positive Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	1.0 1.5 1.7 1.9 2.7 3.1	1.4 1.8 2.0 2.2 3.1 3.6		1.0 1.5 1.7 1.9 2.7 3.1	1.4 1.8 2.0 2.2 3.1 3.6	V	
V _{TP}	Negative Input Threshold Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.2 0.4 0.5 0.6 1.0 1.2	0.5 0.75 0.8 0.8 1.5 1.9	0.8 1.15 1.4 1.5 2.0 2.3	0.2 0.4 0.5 0.6 1.0 1.2	0.5 0.75 0.8 0.8 1.5 1.9	V	
V _{IH}	Input Hysteresis Voltage		1.65 2.3 2.7 3.0 4.5 5.5	0.1 0.25 0.3 0.4 0.6 0.7	0.48 0.75 0.83 0.89 1.2 1.4	0.9 1.1 1.15 1.2 1.5 1.7	0.1 0.25 0.3 0.4 0.6 0.7	0.9 1.1 1.15 1.2 1.5 1.7	V	
V _{OH}	High-Level Output Voltage	V _N = V _{IH} or V _{IL} I _{OH} = -100 μA I _{OH} = -8 mA I _{OH} = -12 mA I _{OH} = -16 mA I _{OH} = -24 mA I _{OH} = -32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	V _{CC} - 0.1 1.29 1.9 2.2 2.4 2.8	V _{CC} 1.4 2.1 2.4 2.7 3.8		V _{CC} - 0.1 1.29 1.9 2.2 2.4 3.8		V	
V _{OL}	Low-Level Output Voltage	V _N = V _{IH} or V _{IL} I _{OL} = 100 μA I _{OL} = 8 mA I _{OL} = 12 mA I _{OL} = 16 mA I _{OL} = 24 mA I _{OL} = 32 mA	1.65 to 5.5 1.65 2.3 2.7 3.0 3.0 4.5	0.0 0.08 0.24 0.22 0.28 0.38	0.1 0.24 0.3 0.4 0.55 0.55		0.1 0.24 0.3 0.4 0.55 0.55		V	
I _{IN}	Input Leakage Current	V _{IN} = 5.5 V or GND	1.65 to 5.5				±0.1*	±1.0	μA	
I _{OFF}	Power Off Leakage Current	V _N = 5.5 V or V _{OUT} = 5.5 V	0				1.0	10	μA	
I _{CC}	Quiescent Supply Current	V _N = V _{CC} or GND	5.5				1.0	10	μA	



- すべての伝播遅延と出カインエーブル時間と出力ディスエーブル時間の仕様から下限を削除

Existing datasheet

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PHL}	Propagation Delay AN to YN (Figures 4 and 5, Table 1)	$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	1.8 ± 0.15	2.0	9.0	10	2.0	10.5	10.5	ns
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	2.5 ± 0.2	1.0	7.5	1.0	8.0	8.0	8.0	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	3.3 ± 0.3	0.8	5.2	0.8	5.5	5.5	5.5	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	3.3 ± 0.3	1.2	5.7	1.2	6.0	6.0	6.0	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	5.0 ± 0.5	0.5	4.5	0.5	4.8	4.8	4.8	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	5.0 ± 0.5	0.8	5.0	0.8	5.3	5.3	5.3	
t_{PDH} t_{PDL}	Output Enable Time (Figures 6, 7 and 8, Table 1)	$R_L = 250\text{ }\Omega$ $C_L = 50\text{ pF}$	1.8 ± 0.15	2.0	7.6	9.5	2.0	10	10	ns
			2.5 ± 0.2	1.8	8.5	1.8	9.0	9.0	9.0	
			3.3 ± 0.3	1.2	6.2	1.2	6.5	6.5	6.5	
			5.0 ± 0.5	0.8	5.5	0.8	5.8	5.8	5.8	
t_{PHZ} t_{PLZ}	Output Disable Time (Figures 6, 7 and 8, Table 1)	R_L and $R_I = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	1.8 ± 0.15	2.0	8.0	10	2.0	10.5	10.5	ns
			2.5 ± 0.2	1.5	8.0	1.5	8.5	8.5	8.5	
			3.3 ± 0.3	0.8	5.7	0.8	6.0	6.0	6.0	
			5.0 ± 0.5	0.3	4.7	0.3	5.0	5.0	5.0	

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PHL}	Propagation Delay (Figure 3 and 4)	$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	1.65	2.0	9.1	15	2.0	15.6	15.6	ns
			1.8	2.0	7.6	12.5	2.0	13	13	
			2.5 ± 0.2	1.0	5.0	9.0	1.0	9.5	9.5	
			3.3 ± 0.3	1.0	3.7	6.3	1.0	6.5	6.5	
			5.0 ± 0.5	0.5	3.1	5.2	0.5	5.5	5.5	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	3.3 ± 0.3	1.5	4.4	7.2	1.5	7.5	7.5	
			5.0 ± 0.5	0.8	3.7	5.9	0.8	6.2	6.2	

New

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PHL}	Propagation Delay, A to Y (Figures 3 and 4)	$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	1.65 to 1.95	–	6.0	10	–	10.5	10.5	ns
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	2.3 to 2.7	–	3.4	7.5	–	8.0	8.0	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	3.0 to 3.6	–	2.5	5.2	–	5.5	5.5	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	–	–	2.9	5.7	–	6.0	6.0	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	4.5 to 5.5	–	2.0	4.5	–	4.8	4.8	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	–	–	2.3	5.0	–	5.3	5.3	
t_{PDH} t_{PDL}	Output Enable Time, OE to Y (Figures 3 and 4)		1.65 to 1.95	–	6.5	9.5	–	10	10	ns
			2.3 to 2.7	–	3.6	8.5	–	9.0	9.0	
			3.0 to 3.6	–	2.8	6.2	–	6.5	6.5	
			4.5 to 5.5	–	2.0	5.5	–	5.8	5.8	
t_{PHZ} t_{PLZ}	Output Disable Time, OE to Y (Figures 3 and 4)		1.65 to 1.95	–	5.0	10	–	10.5	10.5	ns
			2.3 to 2.7	–	3.3	8.0	–	8.5	8.5	
			3.0 to 3.6	–	2.7	5.7	–	6.0	6.0	
			4.5 to 5.5	–	2.6	4.7	–	5.0	5.0	

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PLH} t_{PHL}	Propagation Delay, A to Y (Figures 3 and 4)	$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	1.65 to 1.95	–	9.1	15	–	15.6	15.6	ns
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	2.3 to 2.7	–	5.0	9.0	–	9.5	9.5	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	3.0 to 3.6	–	3.7	6.3	–	6.5	6.5	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	–	–	4.4	7.2	–	7.5	7.5	
		$R_L = 1\text{ M}\Omega$ $C_L = 15\text{ pF}$	4.5 to 5.5	–	3.1	5.2	–	5.5	5.5	
		$R_L = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	–	–	3.7	5.9	–	6.2	6.2	

- すべての伝播遅延と出カインエーブル時間と出力ディスエーブル時間の仕様から下限を削除。
- 容量性特性を、新規プロセスを反映するために調整。

Existing datasheet

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 2.5$ ns; $C_L = 50$ pF; $R_L = 500\text{ }\Omega$)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Unit
				Min	Typ	Max	Min	Max	Max	
t_{PZL}	Propagation Delay (Figure 3 and 4)	$R_L = R_I = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	1.8 ± 0.15	0.8	5.3	11.6	0.8	12.0	12.0	ns
			2.5 ± 0.2	1.2	3.7	5.8	1.2	6.4	6.4	
			3.3 ± 0.3	0.8	2.9	4.4	0.8	4.8	4.8	
			5.0 ± 0.5	0.5	2.3	3.5	0.5	3.9	3.9	
t_{PLZ}	Propagation Delay (Figure 3 and 4)	$R_L = R_I = 500\text{ }\Omega$ $C_L = 50\text{ pF}$	1.8 ± 0.15	0.8	5.3	11.6	0.8	12.0	12.0	ns
			2.5 ± 0.2	1.2	2.8	5.8	1.2	6.4	6.4	
			3.3 ± 0.3	0.8	2.1	4.4	0.8	4.8	4.8	
			5.0 ± 0.5	0.5	1.4	3.5	0.5	3.9	3.9	

CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$ or V_{CC}	> 4.0	pF
C_{PD}	Power Dissipation Capacitance (Note 6)	10 MHz, $V_{CC} = 3.3\text{ V}$, $V_I = 0\text{ V}$ or V_{CC} 10 MHz, $V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$ or V_{CC}	25 30	pF

CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$ or V_{CC}	> 2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$ or V_{CC}	4.0	pF
C_{PD}	Power Dissipation Capacitance (Note 6)	10 MHz, $V_{CC} = 5.5\text{ V}$, $V_I = 0\text{ V}$ or V_{CC}	4.0	pF

New

AC ELECTRICAL CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	V_{CC} (V)	$T_A = 25^\circ\text{C}$			$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			Units
				Min	Typ	Max	Min	Max	Max	
t_{PZL}	Propagation Delay, (Figures 3 and 4)		1.65 to 1.95	–	6.0	9.0	–	9.5	9.5	ns
			2.3 to 2.7	–	3.6	6.1	–	6.5	6.5	
			3.0 to 3.6	–	2.7	5.6	–	6.0	6.0	
			4.5 to 5.5	–	2.1	4.4	–	4.8	4.8	
t_{PLZ}	Propagation Delay, (Figures 3 and 4)		1.65 to 1.95	–	4.0	9.0	–	9.5	9.5	ns
			2.3 to 2.7	–	2.8	6.1	–	6.5	6.5	
			3.0 to 3.6	–	2.5	5.6	–	6.0	6.0	
			4.5 to 5.5	–	2.2	4.4	–	4.8	4.8	

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC} 10 MHz, $V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	9 11	pF

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0$ ns)

Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC} 10 MHz, $V_{CC} = 5.5\text{ V}$, $V_{IN} = 0\text{ V}$ or V_{CC}	9 11	pF



- 容量性特性を、新規プロセスを反映するために調整。
- 出力容量を追加。

CAPACITIVE CHARACTERISTICS				
Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}, V_I = 0\text{ V or }V_{CC}$	> 2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 7)	10 MHz, $V_{CC} = 3.3\text{ V}, V_I = 0\text{ V or }V_{CC}$ 10 MHz, $V_{CC} = 5.5\text{ V}, V_I = 0\text{ V or }V_{CC}$	9 11	pF

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0\text{ ns}$)				
Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$ 10 MHz, $V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	9 11	pF

CAPACITIVE CHARACTERISTICS				
Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}, V_I = 0\text{ V or }V_{CC}$	7.0	pF
C_{PD}	Power Dissipation Capacitance (Note 8)	10 MHz, $V_{CC} = 3.3\text{ V}, V_I = 0\text{ V or }V_{CC}$ 10 MHz, $V_{CC} = 5.5\text{ V}, V_I = 0\text{ V or }V_{CC}$	9 11	pF

CAPACITIVE CHARACTERISTICS ($t_R = t_F = 3.0\text{ ns}$)				
Symbol	Parameter	Condition	Typical	Units
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	2.5	pF
C_{OUT}	Output Capacitance	$V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 5)	10 MHz, $V_{CC} = 3.3\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$ 10 MHz, $V_{CC} = 5.5\text{ V}, V_{IN} = 0\text{ V or }V_{CC}$	9 11	pF

影響を受ける部品の一覧:

注: 標準の部品番号(既製品)のみが部品一覧に記載されます。本 PCN に影響を受けるカスタム 部品は、PCN メールの顧客の特定の PCN の付属文書、または PCN カスタマイズポータルに記載されています。

NL17SZ00DFT2G

NL17SZ08DFT2G

NL17SZ17DFT2G

NL17SZ02DFT2G

NL17SZ125DFT2G

NL17SZ32DFT2G

NL17SZ04DFT2G

NL17SZ126DFT2G

NL17SZ86DFT2G

NL17SZ06DFT2G

NL17SZ14DFT2G

NL17SZU04DFT2G

NL17SZ07DFT2G

NL17SZ16DFT2G

NL18SZ125DFT2G