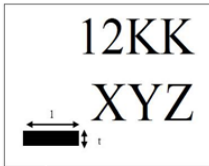
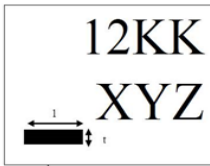




Title of Change:	MiniGates Fab, Assembly Material and Test Change (MicroPak 8lds) with datasheet update		
Proposed First Ship date:	1 March 2020		
Contact Information:	Contact your local ON Semiconductor Sales Office or <logic.fpcn@onsemi.com>		
Samples:	Contact your local ON Semiconductor Sales Office or <PCN.Samples@onsemi.com> 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.		
Type of Notification:	This is an Initial Product/Process Change Notification (IPCN) sent to customers. An IPCN is an advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan. The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN). This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 90 days prior to implementation of the change. In case of questions, contact <PCN.Support@onsemi.com>		
Change Part Identification:	The CS code on the label will be changed from US to JP.		
Change Category:	☒ Wafer Fab Change ☒ Assembly Change ☒ Test Change ☐ Other _____		
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: ON S. Portland, Maine	External Foundry/Subcon Sites: Foundry Subcontractor in Thailand	
Description and Purpose: Qualify new die source for Former Fairchild TinyLogic® and transfer to a new subcon site to increase capacity.			
Material to be changed	Before Change (Existing flow)	Before Change * (Existing flow)	After Change (new flow)
Assy Site	Subcon Thailand	Subcon Thailand	Subcon Thailand
Mold Compound	MC CEL9220HF13H HF	SUMITOMO G770HCD	MOLDING COMPOUND; G700LTD
Wire	Au	Au	PCC
Lead Frame	LF UQFN 8L C7025 Cu 1.6X1.6 ETCHED UPPF	LF UQFN 8L C7025 1.6X1.6MM ETCHED PPF	LF PPF+RT-UPG
Die Attach	DA EPOXY HE ABLEBOND 8006NS 10CC 14G NON CON	DA AB 8006NS 10CC	NON-CONDUCTIVE DIE ATTACH FILM; HR-5104
Die Source	Onsemi Fab in Maine US	Onsemi Fab in Maine US	Foundry in Japan



- This only applies to NC7SP74L8X

	From	To
	<u>MicroPak MLP/ Micro MLP Top And Micro Pak 2 Top Mark Layout</u>	<u>MicroPak MLP/ Micro MLP Top And Micro Pak 2 Top Mark Layout</u>
Product marking change	 Pin #1 identifier l = 0.4 mm (Min) t = 0.08 mm (Min) 1ST LINE MARKING: 12 : Device Code KK : Lot Trace Code (&K) 2ND LINE MARKING: XY : Two Digit Date Code (&2) Z : Assembly Plant Code (&Z) (Appendix A) Existing Plant Code is H and G	 Pin #1 identifier l = 0.4 mm (Min) t = 0.08 mm (Min) 1ST LINE MARKING: 12 : Device Code KK : Lot Trace Code (&K) 2ND LINE MARKING: XY : Two Digit Date Code (&2) Z : Assembly Plant Code (&Z) (Appendix A) New Plant Code is S

Datasheet Changes:

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.

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.



NC7SP/NP

- Adjusted Absolute Maximum Voltage to match new process.

Existing datasheet

Absolute Maximum Ratings (Note 1)

Supply Voltage (V_{CC})	-0.5V to +4.6V
DC Input Voltage (V_{IN})	-0.5V to +4.6V
DC Output Voltage (V_{OUT})	
HIGH or LOW State (Note 2)	-0.5V to $V_{CC} + 0.5V$
$V_{CC} = 0V$	-0.5V to 4.6V

Symbol	Parameter	Min.	Max.	Unit
V_{CC}	Supply Voltage	-0.5	4.6	V
V_{IN}	DC Input Voltage	-0.5	4.6	V
V_{OUT}	DC Output Voltage			
	HIGH or LOW State ⁽¹⁾	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-0.5	4.6	V

New

Absolute Maximum Ratings (Note 1)

Supply Voltage (V_{CC})	-0.5V to +4.3V
DC Input Voltage (V_{IN})	-0.5V to +4.3V
DC Output Voltage (V_{OUT})	
HIGH or LOW State (Note 2)	-0.5V to $V_{CC} + 0.5V$
$V_{CC} = 0V$	-0.5V to 4.3V

Symbol	Parameter	Min.	Max.	Unit
V_{CC}	Supply Voltage	-0.5	4.3	V
V_{IN}	DC Input Voltage	-0.5	4.3	V
V_{OUT}	DC Output Voltage			
	HIGH or LOW State ⁽¹⁾	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-0.5	4.3	V

- High Level Input Voltage and Low Level Input Voltage specification adjusted to remove limits at 0.9 Volts.
- High Level Output Voltage and Low Level Output Voltage specifications adjusted to remove limits at 0.9 Volts.

Existing datasheet

DC Electrical Characteristics

Symbol	Parameter	V_{CC}	Conditions	$T_A = 25^\circ C$		$T_A = -40$ to $85^\circ C$		Units
				Min.	Max.	Min.	Max.	
V_{IH}	HIGH Level Input Voltage	0.90		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			V
		$1.10 \leq V_{CC} \leq 1.30$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$1.65 \leq V_{CC} \leq 1.95$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$2.30 \leq V_{CC} \leq 2.70$		1.6	1.6			
		$3.00 \leq V_{CC} \leq 3.60$		2.1	2.1			
V_{IL}	LOW Level Input Voltage	0.90		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			V
		$1.10 \leq V_{CC} \leq 1.30$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$1.65 \leq V_{CC} \leq 1.95$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$2.30 \leq V_{CC} \leq 2.70$		0.7	0.7			
		$3.00 \leq V_{CC} \leq 3.60$		0.9	0.9			
V_{OH}	HIGH Level Output Voltage	0.90		$V_{CC} - 0.1$	$V_{CC} - 0.1$			V
		$1.10 \leq V_{CC} \leq 1.30$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.40 \leq V_{CC} \leq 1.60$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.65 \leq V_{CC} \leq 1.95$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$2.30 \leq V_{CC} \leq 2.70$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$3.00 \leq V_{CC} \leq 3.60$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.10 \leq V_{CC} \leq 1.30$	$I_{OH} = 0.5mA$	$0.75 \times V_{CC}$	$0.75 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$	$I_{OH} = 1mA$	1.07	0.99			
		$1.65 \leq V_{CC} \leq 1.95$	$I_{OH} = 1.5mA$	1.24	1.22			
		$2.30 \leq V_{CC} \leq 2.70$	$I_{OH} = 2.1mA$	1.95	1.87			
		$3.00 \leq V_{CC} \leq 3.60$	$I_{OH} = 2.6mA$	2.61	2.55			
				0.1	0.1			
V_{OL}	LOW Level Output Voltage	0.90						V
		$1.10 \leq V_{CC} \leq 1.30$						
		$1.40 \leq V_{CC} \leq 1.60$						
		$1.65 \leq V_{CC} \leq 1.95$						
		$2.30 \leq V_{CC} \leq 2.70$						
		$3.00 \leq V_{CC} \leq 3.60$						
		$1.10 \leq V_{CC} \leq 1.30$	$I_{OL} = 0.5mA$	$0.30 \times V_{CC}$	$0.30 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$	$I_{OL} = 1mA$	0.31	0.37			
		$1.65 \leq V_{CC} \leq 1.95$	$I_{OL} = 1.5mA$	0.31	0.35			
		$2.30 \leq V_{CC} \leq 2.70$	$I_{OL} = 2.1mA$	0.31	0.33			
		$3.00 \leq V_{CC} \leq 3.60$	$I_{OL} = 2.6mA$	0.31	0.33			

New

DC Electrical Characteristics

Symbol	Parameter	V_{CC}	Conditions	$T_A = 25^\circ C$		$T_A = -40$ to $85^\circ C$		Units
				Min.	Max.	Min.	Max.	
V_{IH}	HIGH Level Input Voltage	0.90		V_{CC}	V_{CC}			V
		$1.10 \leq V_{CC} \leq 1.30$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$1.65 \leq V_{CC} \leq 1.95$		$0.85 \times V_{CC}$	$0.85 \times V_{CC}$			
		$2.30 \leq V_{CC} \leq 2.70$		1.6	1.6			
		$3.00 \leq V_{CC} \leq 3.60$		2.1	2.1			
V_{IL}	LOW Level Input Voltage	0.90		GND	GND			V
		$1.10 \leq V_{CC} \leq 1.30$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$1.65 \leq V_{CC} \leq 1.95$		$0.35 \times V_{CC}$	$0.35 \times V_{CC}$			
		$2.30 \leq V_{CC} \leq 2.70$		0.7	0.7			
		$3.00 \leq V_{CC} \leq 3.60$		0.9	0.9			
V_{OH}	HIGH Level Output Voltage	0.90		$V_{CC} - 0.1$	$V_{CC} - 0.1$			V
		$1.10 \leq V_{CC} \leq 1.30$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.40 \leq V_{CC} \leq 1.60$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.65 \leq V_{CC} \leq 1.95$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$2.30 \leq V_{CC} \leq 2.70$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$3.00 \leq V_{CC} \leq 3.60$		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		$1.10 \leq V_{CC} \leq 1.30$	$I_{OH} = 0.5mA$	$0.75 \times V_{CC}$	$0.75 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$	$I_{OH} = 1mA$	1.07	0.99			
		$1.65 \leq V_{CC} \leq 1.95$	$I_{OH} = 1.5mA$	1.24	1.22			
		$2.30 \leq V_{CC} \leq 2.70$	$I_{OH} = 2.1mA$	1.95	1.87			
		$3.00 \leq V_{CC} \leq 3.60$	$I_{OH} = 2.6mA$	2.61	2.55			
V_{OL}	LOW Level Output Voltage	0.90						V
		$1.10 \leq V_{CC} \leq 1.30$						
		$1.40 \leq V_{CC} \leq 1.60$						
		$1.65 \leq V_{CC} \leq 1.95$						
		$2.30 \leq V_{CC} \leq 2.70$						
		$3.00 \leq V_{CC} \leq 3.60$						
		$1.10 \leq V_{CC} \leq 1.30$	$I_{OL} = 0.5mA$	$0.30 \times V_{CC}$	$0.30 \times V_{CC}$			
		$1.40 \leq V_{CC} \leq 1.60$	$I_{OL} = 1mA$	0.31	0.37			
		$1.65 \leq V_{CC} \leq 1.95$	$I_{OL} = 1.5mA$	0.31	0.35			
		$2.30 \leq V_{CC} \leq 2.70$	$I_{OL} = 2.1mA$	0.31	0.33			
		$3.00 \leq V_{CC} \leq 3.60$	$I_{OL} = 2.6mA$	0.31	0.33			



Existing datasheet

DC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Units	Conditions
			Min	Max	Min	Max		
V _{IH}	HIGH Level Input Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 1.6 2.1	0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 1.6 2.1			V	
V _{IL}	LOW Level Input Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.9 0.9	0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.7 0.9			V	
V _{OL}	LOW Level Output Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	0.1 0.1 0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1 0.1 0.1			V	I _{OL} = 20 μA
								I _{OL} = 0.5 mA
								I _{OL} = 1 mA
								I _{OL} = 1.5 mA
								I _{OL} = 2.1 mA
								I _{OL} = 2.6 mA

New

DC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Units	Conditions
			Min	Max	Min	Max		
V _{IH}	HIGH Level Input Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 1.6 2.1	V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 0.65 × V _{CC} 1.6 2.1			V	
V _{IL}	LOW Level Input Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	GND 0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.9 0.9	GND 0.35 × V _{CC} 0.35 × V _{CC} 0.35 × V _{CC} 0.7 0.9			V	
V _{OL}	LOW Level Output Voltage	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	0.1 0.1 0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1 0.1 0.1			V	I _{OL} = 20 μA
								I _{OL} = 0.5 mA
								I _{OL} = 1 mA
								I _{OL} = 1.5 mA
								I _{OL} = 2.1 mA
								I _{OL} = 2.6 mA

- Positive Threshold Voltage adjusted to remove lower limits and remove limits at 0.90 Volts.
- Negative Threshold Voltage adjusted to remove upper limits and remove limits at 0.90 Volts.
- Hysteresis Voltage adjusted to remove limits at 0.90 Volts.

DC Electrical Characteristics

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Units
				Min	Max	Min	Max	
V _{IP}	Positive Threshold Voltage		0.90 1.10 1.40 1.65 2.30 3.00	0.30 0.40 0.50 0.70 1.00 1.50	0.50 1.00 1.20 1.50 1.90 2.60	0.30 0.40 0.50 0.70 1.00 1.50	0.50 1.00 1.20 1.50 1.90 2.60	V
V _{IN}	Negative Threshold Voltage		0.90 1.10 1.40 1.65 2.30 3.00	0.15 0.20 0.25 0.40 0.6 0.6	0.15 0.20 0.25 0.40 1.50 1.50	0.15 0.20 0.25 0.40 0.60 0.60	0.15 0.20 0.25 0.40 1.50 1.50	V
V _{HY}	Hysteresis Voltage		0.90 1.10 1.40 1.65 2.30 3.00	0.07 0.08 0.09 0.10 0.25 0.60	0.07 0.08 0.09 0.10 1.10 1.80	0.07 0.08 0.09 0.10 0.25 1.80	0.07 0.08 0.09 0.10 1.10 1.80	V

DC Electrical Characteristics

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Units
				Min	Max	Min	Max	
V _{IP}	Positive Threshold Voltage		0.90 1.10 1.40 1.65 2.30 3.00		1.00 1.20 1.50 1.90 2.60			V
V _{IN}	Negative Threshold Voltage		0.90 1.10 1.40 1.65 2.30 3.00	0.15 0.20 0.25 0.40 0.6 0.6		0.15 0.20 0.25 0.40 0.60 0.60		V
V _{HY}	Hysteresis Voltage		0.90 1.10 1.40 1.65 2.30 3.00	0.08 0.09 0.10 0.25 0.60	0.08 0.09 0.10 1.10 1.80	0.08 0.09 0.10 1.10 1.80	0.08 0.09 0.10 1.10 1.80	V

- Removed Minimum limits from all propagation delays and Output enable Time and Output Disable Time specifications.

Existing datasheet

AC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	T _A = +25°C			T _A = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Typ	Max			
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	4.0	9	18.7	3.5	30.9		ns	C _L = 10 pF R _U = 5000Ω R _D = 5000Ω	Figures 1, 2
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	5.0	10	20.2	4.5	33.9		ns	C _L = 15 pF R _U = 5000Ω R _D = 5000Ω	Figures 1, 2
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60	6.0	12	24.0	5.0	43.0		ns	C _L = 30 pF R _U = 5000 Ω R _D = 5000 Ω	Figures 1, 2

New

AC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	T _A = +25°C			T _A = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Typ	Max			
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60		9	18.7		30.9		ns	C _L = 10 pF R _U = 5000Ω R _D = 5000Ω	Figures 1, 2
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60		10	20.2		33.9		ns	C _L = 15 pF R _U = 5000Ω R _D = 5000Ω	Figures 1, 2
t _{PLZ}	Propagation Delay	0.90 1.10 ≤ V _{CC} ≤ 1.30 1.40 ≤ V _{CC} ≤ 1.60 1.65 ≤ V _{CC} ≤ 1.95 2.30 ≤ V _{CC} ≤ 2.70 3.00 ≤ V _{CC} ≤ 3.60		12	24.0		43.0		ns	C _L = 30 pF R _U = 5000 Ω R _D = 5000 Ω	Figures 1, 2



AC Electrical Characteristics (Continued)

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C			T _A =-40 to +85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Typ.	Max.		
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =30pF, R _L =1MΩ		34					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.5	12.0	23.4	5.0	51.1			
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	13.8	3.0	17.7			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	10.6	2.0	14.0			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	7.6	1.0	9.9			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =30pF, R _L =5000Ω		37					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.4	5.0	51.9			
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	14.5	3.0	17.9			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	11.7	2.0	14.7			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	9.1	1.0	11.1			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =30pF, R _L =5000Ω		36					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.8	5.0	53.5			
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	17.1	3.0	21.1			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	16.5	2.0	20.5			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	15.2	1.0	16.7			
		3.00 ≤ V _{CC} ≤ 3.60		0.8	4.0	14.8	0.5	16.3			

AC Electrical Characteristics (Continued)

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C			T _A =-40 to +85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =30pF, R _L =1MΩ		34					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			12.0	23.4		51.1			
		1.40 ≤ V _{CC} ≤ 1.60			8.0	13.8		17.7			
		1.65 ≤ V _{CC} ≤ 1.95			6.0	10.6		14.0			
		2.30 ≤ V _{CC} ≤ 2.70			5.0	7.6		9.9			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =30pF, R _L =5000Ω		37					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			13.0	24.4		51.9			
		1.40 ≤ V _{CC} ≤ 1.60			8.0	14.5		17.9			
		1.65 ≤ V _{CC} ≤ 1.95			6.0	11.7		14.7			
		2.30 ≤ V _{CC} ≤ 2.70			5.0	9.1		11.1			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =30pF, R _L =5000Ω		36					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			13.0	24.8		53.5			
		1.40 ≤ V _{CC} ≤ 1.60			8.0	17.1		21.1			
		1.65 ≤ V _{CC} ≤ 1.95			6.0	16.5		20.5			
		2.30 ≤ V _{CC} ≤ 2.70			5.0	15.2		16.7			
		3.00 ≤ V _{CC} ≤ 3.60			4.0	14.8		16.3			

- Maximum limits adjusted for the NC7SP125 and NC7SP126 on some propagation delays, Output Enable times and Output Disable Times.
- Minimum limits removed from all propagation delays, Output Enable Times and Output Disable Times.

Existing datasheet

AC Electrical Characteristics

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C			T _A =-40 to +85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =10pF, R _L =1MΩ		26					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		4.0	10.0	19.1	3.5	39.6			
		1.40 ≤ V _{CC} ≤ 1.60		2.0	6.0	11.2	1.5	14.5			
		1.65 ≤ V _{CC} ≤ 1.95		1.5	5.0	8.6	1.0	11.6			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	4.0	6.3	0.8	8.2			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =10pF, R _L =5000Ω		29					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		4.0	8.0	17.5	3.5	40.4			
		1.40 ≤ V _{CC} ≤ 1.60		2.0	6.0	11.9	1.5	14.8			
		1.65 ≤ V _{CC} ≤ 1.95		1.5	5.0	9.7	1.0	12.3			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	4.0	7.7	0.8	10.5			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =10pF, R _L =5000Ω		28					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		4.0	8.0	20.5	3.5	42.0			
		1.40 ≤ V _{CC} ≤ 1.60		2.0	6.0	15.3	1.5	18.0			
		1.65 ≤ V _{CC} ≤ 1.95		1.5	5.0	14.7	1.0	17.8			
		2.30 ≤ V _{CC} ≤ 2.70		1.0	4.0	13.7	0.8	15.0			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =15pF, R _L =1MΩ		28					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.0	10.0	20.5	4.5	42.5			
		1.40 ≤ V _{CC} ≤ 1.60		3.0	7.0	11.8	2.5	15.4			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	5.0	9.1	2.0	12.2			
		2.30 ≤ V _{CC} ≤ 2.70		1.5	4.0	6.6	1.0	8.6			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =15pF, R _L =5000Ω		31					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.0	11.0	18.2	4.5	43.3			
		1.40 ≤ V _{CC} ≤ 1.60		3.0	7.0	12.5	2.5	15.5			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	5.0	10.2	2.0	12.9			
		2.30 ≤ V _{CC} ≤ 2.70		1.5	4.0	8.0	1.0	9.9			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =15pF, R _L =5000Ω		30					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.0	11.0	21.6	4.5	44.9			
		1.40 ≤ V _{CC} ≤ 1.60		3.0	7.0	15.9	2.5	18.8			
		1.65 ≤ V _{CC} ≤ 1.95		2.0	5.0	15.2	2.0	18.2			
		2.30 ≤ V _{CC} ≤ 2.70		1.5	4.0	14.1	1.0	15.4			
		3.00 ≤ V _{CC} ≤ 3.60		1.0	3.0	13.9	0.5	15.1			

Continued on following page...

New

AC Electrical Characteristics

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C			T _A =-40 to +85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =10pF, R _L =1MΩ		26					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			10.0	26		39.6			
		1.40 ≤ V _{CC} ≤ 1.60			6.0	11.2		14.5			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	8.6		11.6			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	6.3		8.2			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	5.3		7.2			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =10pF, R _L =5000Ω R _D =5000Ω		29					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			8.0	26		40.4			
		1.40 ≤ V _{CC} ≤ 1.60			6.0	11.9		14.8			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	9.7		12.3			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	7.7		10.5			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	6.9		8.6			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =10pF, R _L =5000Ω R _D =5000Ω		28					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			8.0	20.5		42.0			
		1.40 ≤ V _{CC} ≤ 1.60			6.0	15.3		18.0			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	14.7		17.8			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	13.7		15.0			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	13.5		14.8			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =15pF, R _L =1MΩ		28					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			10.0	27		42.5			
		1.40 ≤ V _{CC} ≤ 1.60			7.0	11.8		15.4			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	9.1		12.2			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	6.6		8.6			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	5.6		7.5			
t _{OL} , t _{OL}	Output Enable Time	0.90	C _L =15pF, R _L =5000Ω R _D =5000Ω		31					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			11.0	27		43.3			
		1.40 ≤ V _{CC} ≤ 1.60			7.0	12.5		15.5			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	10.2		12.9			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	8.0		9.9			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	7.2		8.9			
t _{OL} , t _{OL}	Output Disable Time	0.90	C _L =15pF, R _L =5000Ω R _D =5000Ω		30					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			11.0	21.6		44.9			
		1.40 ≤ V _{CC} ≤ 1.60			7.0	15.9		18.8			
		1.65 ≤ V _{CC} ≤ 1.95			5.0	15.2		18.2			
		2.30 ≤ V _{CC} ≤ 2.70			4.0	14.1		15.4			
		3.00 ≤ V _{CC} ≤ 3.60			3.0	13.9		15.1			



AC Electrical Characteristics (Continued)

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C		T _A =+40 to +85°C		Units	Figure
				Min.	Typ.	Min.	Typ.		
t _{inL} , t _{inH}	Propagation Delay	0.90	C _L =30pF, R _L =1MΩ	34					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.5	12.0	23.4	5.0	51.1	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	13.8	3.0	17.7	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	10.6	2.0	14.0	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	7.6	1.0	9.9	
t _{enL} , t _{enH}	Output Enable Time	0.90	C _L =30pF, R _L =5000Ω	37					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.4	5.0	51.9	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	14.5	3.0	17.9	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	11.7	2.0	14.7	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	9.1	1.0	11.1	
t _{ozL} , t _{ozH}	Output Disable Time	0.90	C _L =30pF, R _L =5000Ω	36					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.8	5.0	53.5	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	17.1	3.0	21.1	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	16.5	2.0	20.5	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	15.2	1.0	16.7	
		3.00 ≤ V _{CC} ≤ 3.60		0.8	4.0	14.8	0.5	16.3	

AC Electrical Characteristics (Continued)

Symbol	Parameter	V _{CC}	Conditions	T _A =+25°C		T _A =+40 to +85°C		Units	Figure
				Min.	Typ.	Min.	Typ.		
t _{inL} , t _{inH}	Propagation Delay	0.90	C _L =30pF, R _L =1MΩ	34					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		5.5	12.0	23.4	5.0	51.1	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	13.8	3.0	17.7	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	10.6	2.0	14.0	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	7.6	1.0	9.9	
t _{enL} , t _{enH}	Output Enable Time	0.90	C _L =30pF, R _L =5000Ω	37					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.4	5.0	51.9	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	14.5	3.0	17.9	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	11.7	2.0	14.7	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	9.1	1.0	11.1	
t _{ozL} , t _{ozH}	Output Disable Time	0.90	C _L =30pF, R _L =5000Ω	36					ns Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		6.0	13.0	24.8	5.0	53.5	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	8.0	17.1	3.0	21.1	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	6.0	16.5	2.0	20.5	
		2.30 ≤ V _{CC} ≤ 2.70		1.0	5.0	15.2	1.0	16.7	
		3.00 ≤ V _{CC} ≤ 3.60		0.8	4.0	14.8	0.5	16.3	

NC7SV/WV/WP

- Adjusted Absolute Maximum Voltage to match new process.

Existing datasheet

Absolute Maximum Ratings (Note 1)

Supply Voltage (V _{CC})	-0.5V to +4.6V
DC Input Voltage (V _{IN})	-0.5V to +4.6V
DC Output Voltage (V _{OUT})	-0.5V to V _{CC} + 0.5V
HIGH or LOW State (Note 2)	-0.5V to 4.6V
V _{CC} = 0V	

New

Absolute Maximum Ratings (Note 1)

Supply Voltage (V _{CC})	-0.5V to +4.3V
DC Input Voltage (V _{IN})	-0.5V to +4.3V
DC Output Voltage (V _{OUT})	-0.5V to V _{CC} + 0.5V
HIGH or LOW State (Note 2)	-0.5V to 4.3V
V _{CC} = 0V	

Symbol	Parameter	Min.	Max.	Unit
V _{CC}	Supply Voltage	-0.5	4.6	V
V _{IN}	DC Input Voltage	-0.5	4.6	V
V _{OUT}	DC Output Voltage	-0.5	V _{CC} + 0.5	V
	HIGH or LOW State ⁽¹⁾	-0.5	4.6	V
	V _{CC} =0V			

Symbol	Parameter	Min.	Max.	Unit
V _{CC}	Supply Voltage	-0.5	4.3	V
V _{IN}	DC Input Voltage	-0.5	4.3	V
V _{OUT}	DC Output Voltage	-0.5	V _{CC} + 0.5	V
	HIGH or LOW State ⁽¹⁾	-0.5	4.3	V
	V _{CC} =0V			

- High Level Input Voltage and Low Level Input Voltage specification adjusted limits at 0.9 Volts.
- High Level Output Voltage and Low Level Output Voltage specifications adjusted to remove limits at 0.9 Volts.

Existing datasheet

DC Electrical Characteristics

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =+40 to +85°C		Units
				Min.	Max.	Min.	Max.	
V _{ih}	HIGH Level Input Voltage	0.90		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		1.6	1.6	1.6	1.6	
V _{il}	LOW Level Input Voltage	0.90		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		0.7	0.7	0.7	0.7	
		3.00 ≤ V _{CC} ≤ 3.60		0.8	0.8	0.8	0.8	

New

DC Electrical Characteristics

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =+40 to +85°C		Units
				Min.	Max.	Min.	Max.	
V _{ih}	HIGH Level Input Voltage	0.90		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		1.6	1.6	1.6	1.6	
V _{il}	LOW Level Input Voltage	0.90		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	0.5 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		0.7	0.7	0.7	0.7	
		3.00 ≤ V _{CC} ≤ 3.60		0.8	0.8	0.8	0.8	



Existing datasheet

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OH}	HIGH Level Output Voltage	0.90		V _{CC} -0.1		V _{CC} -0.1		V	I _{OH} = -100 μA
		1.10 ≤ V _{CC} ≤ 1.30		V _{CC} -0.1		V _{CC} -0.1			
		1.40 ≤ V _{CC} ≤ 1.60		V _{CC} -0.2		V _{CC} -0.2			
		1.65 ≤ V _{CC} ≤ 1.95		V _{CC} -0.2		V _{CC} -0.2			
		2.30 ≤ V _{CC} ≤ 2.70		V _{CC} -0.2		V _{CC} -0.2			
		2.70 ≤ V _{CC} ≤ 3.60		V _{CC} -0.2		V _{CC} -0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} = -2 mA	75% × V _{CC}		75% × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} = -4 mA	75% × V _{CC}		75% × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} = -6 mA	1.25		1.25			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} = -12 mA	2.00		2.00			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -18 mA	1.7		1.7			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -24 mA	2.2		2.2			

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OL}	LOW Level Output Voltage	0.90		0.1		0.1		V	I _{OL} = 100 μA
		1.10 ≤ V _{CC} ≤ 1.30		0.1		0.1			
		1.40 ≤ V _{CC} ≤ 1.60		0.2		0.2			
		1.65 ≤ V _{CC} ≤ 1.95		0.2		0.2			
		2.30 ≤ V _{CC} ≤ 2.70		0.2		0.2			
		2.70 ≤ V _{CC} ≤ 3.60		0.2		0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} = 2 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} = 4 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} = 6 mA	0.3		0.3			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} = 12 mA	0.4		0.4			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 18 mA	0.6		0.6			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 24 mA	0.4		0.4			

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OH}	HIGH Level Output Voltage	0.90		V _{CC} -0.1		V _{CC} -0.1		V	I _{OH} = -100 μA
		1.10 ≤ V _{CC} ≤ 1.30		V _{CC} -0.1		V _{CC} -0.1			
		1.40 ≤ V _{CC} ≤ 1.60		V _{CC} -0.2		V _{CC} -0.2			
		1.65 ≤ V _{CC} ≤ 1.95		V _{CC} -0.2		V _{CC} -0.2			
		2.30 ≤ V _{CC} ≤ 2.70		V _{CC} -0.2		V _{CC} -0.2			
		2.70 ≤ V _{CC} ≤ 3.60		V _{CC} -0.2		V _{CC} -0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} = -2 mA	75% × V _{CC}		75% × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} = -4 mA	75% × V _{CC}		75% × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} = -6 mA	1.25		1.25			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} = -12 mA	2.0		2.0			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -18 mA	1.8		1.8			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -24 mA	2.2		2.2			

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OL}	LOW Level Output Voltage	0.90		0.1		0.1		V	I _{OL} = 100 μA
		1.10 ≤ V _{CC} ≤ 1.30		0.1		0.1			
		1.40 ≤ V _{CC} ≤ 1.60		0.2		0.2			
		1.65 ≤ V _{CC} ≤ 1.95		0.2		0.2			
		2.30 ≤ V _{CC} ≤ 2.70		0.2		0.2			
		2.70 ≤ V _{CC} ≤ 3.60		0.2		0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} = 2 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} = 4 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} = 6 mA	0.3		0.3			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} = 12 mA	0.4		0.4			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 18 mA	0.6		0.6			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 24 mA	0.4		0.4			

New

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OH}	HIGH Level Output Voltage	0.90		V _{CC} -0.1		V _{CC} -0.1		V	I _{OH} = -100 μA
		1.10 ≤ V _{CC} ≤ 1.30		V _{CC} -0.1		V _{CC} -0.1			
		1.40 ≤ V _{CC} ≤ 1.60		V _{CC} -0.2		V _{CC} -0.2			
		1.65 ≤ V _{CC} ≤ 1.95		V _{CC} -0.2		V _{CC} -0.2			
		2.30 ≤ V _{CC} ≤ 2.70		V _{CC} -0.2		V _{CC} -0.2			
		2.70 ≤ V _{CC} ≤ 3.60		V _{CC} -0.2		V _{CC} -0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} = -2 mA	75% × V _{CC}		75% × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} = -4 mA	75% × V _{CC}		75% × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} = -6 mA	1.25		1.25			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} = -12 mA	2.00		2.00			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -18 mA	1.7		1.7			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -24 mA	2.2		2.2			

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OL}	LOW Level Output Voltage	0.90		0.1		0.1		V	I _{OL} = 100 μA
		1.10 ≤ V _{CC} ≤ 1.30		0.1		0.1			
		1.40 ≤ V _{CC} ≤ 1.60		0.2		0.2			
		1.65 ≤ V _{CC} ≤ 1.95		0.2		0.2			
		2.30 ≤ V _{CC} ≤ 2.70		0.2		0.2			
		2.70 ≤ V _{CC} ≤ 3.60		0.2		0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} = 2 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} = 4 mA	0.25 × V _{CC}		0.25 × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} = 6 mA	0.3		0.3			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} = 12 mA	0.4		0.4			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 18 mA	0.6		0.6			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} = 24 mA	0.4		0.4			

Symbol	Parameter	V _{CC} (V)		T _A = -25°C		T _A = -40°C to +85°C		Units	Conditions
		Min	Max	Min	Max	Min	Max		
V _{OH}	HIGH Level Output Voltage	0.90		V _{CC} -0.1		V _{CC} -0.1		V	I _{OH} = -100 μA
		1.10 ≤ V _{CC} ≤ 1.30		V _{CC} -0.1		V _{CC} -0.1			
		1.40 ≤ V _{CC} ≤ 1.60		V _{CC} -0.2		V _{CC} -0.2			
		1.65 ≤ V _{CC} ≤ 1.95		V _{CC} -0.2		V _{CC} -0.2			
		2.30 ≤ V _{CC} ≤ 2.70		V _{CC} -0.2		V _{CC} -0.2			
		2.70 ≤ V _{CC} ≤ 3.60		V _{CC} -0.2		V _{CC} -0.2			
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} = -2 mA	75% × V _{CC}		75% × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} = -4 mA	75% × V _{CC}		75% × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} = -6 mA	1.25		1.25			
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} = -12 mA	2.0		2.0			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -18 mA	1.8		1.8			
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} = -24 mA	2.2		2.2			

V _{OL}	LOW Level Output Voltage	2.10 ≤ V _{CC} ≤ 3.60		2.2	2.2	V	I _{OL} = -24 mA
		0.90					
		1.10 ≤ V _{CC} ≤ 1.30		0.1	0.1		
		1.40 ≤ V _{CC} ≤ 1.60		0.2	0.2		
		1.65 ≤ V _{CC} ≤ 1.95		0.2	0.2		
		2.30 ≤ V _{CC} ≤ 2.70		0.2	0.2		
		2.70 ≤ V _{CC} ≤ 3.60		0.2	0.2		
		1.10 ≤ V _{CC} ≤ 1.30		0.25 × V _{CC}	0.25 × V _{CC}		
		1.40 ≤ V _{CC} ≤ 1.60		0.25 × V _{CC}	0.25 × V _{CC}		
		1.65 ≤ V _{CC} ≤ 1.95		0.3	0.3		
		2.30 ≤ V _{CC} ≤ 2.70		0.4	0.4		
		2.70 ≤ V _{CC} ≤ 3.60		0.4	0.4		
2.30 ≤ V _{CC} ≤ 2.70		0.6	0.6				
2.70 ≤ V _{CC} ≤ 3.60		0.4	0.4				
2.70 ≤ V _{CC} ≤ 3.60		0.55	0.55				
							I _{OL} = 2 mA
							I _{OL} = 4 mA
							I _{OL} = 6 mA
							I _{OL} = 12 mA
							I _{OL} = 18 mA
							I _{OL} = 24 mA



Existing datasheet

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =-40 to 85°C		Units
				Min.	Max.	Min.	Max.	
V _P	Positive Threshold Voltage	0.90		0.30	0.70	0.30	0.70	V
		1.10		0.40	1.00	0.40	1.00	
		1.40		0.50	1.25	0.50	1.40	
		1.65		0.70	1.50	0.70	1.50	
		2.30		1.00	1.80	1.00	1.80	
		2.70		1.50	2.20	1.50	2.20	
V _N	Negative Threshold Voltage	0.90		0.10	0.60	0.10	0.60	V
		1.10		0.15	0.70	0.15	0.70	
		1.40		0.20	0.80	0.20	0.80	
		1.65		0.25	0.90	0.25	0.90	
		2.30		0.40	1.15	0.40	1.15	
		2.70		0.60	1.50	0.60	1.50	
V _H	Hysteresis Voltage	0.90		0.07	0.50	0.07	0.50	V
		1.10		0.08	0.60	0.08	0.60	
		1.40		0.09	0.80	0.09	0.80	
		1.65		0.15	1.00	0.15	1.00	
		2.30		0.25	1.10	0.25	1.10	
		2.70		0.60	1.20	0.60	1.20	

New

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =-40 to 85°C		Units
				Min.	Max.	Min.	Max.	
V _P	Positive Threshold Voltage	0.90						V
		1.10			1.00		1.00	
		1.40			1.25		1.40	
		1.65			1.50		1.50	
		2.30			1.80		1.80	
		2.70			2.20		2.20	
V _N	Negative Threshold Voltage	0.90						V
		1.10		0.15		0.15		
		1.40		0.20		0.20		
		1.65		0.25		0.25		
		2.30		0.40		0.40		
		2.70		0.60		0.60		
V _H	Hysteresis Voltage	0.90						V
		1.10		0.08	0.60	0.08	0.60	
		1.40		0.09	0.80	0.09	0.80	
		1.65		0.15	1.00	0.15	1.00	
		2.30		0.25	1.10	0.25	1.10	
		2.70		0.60	1.20	0.60	1.20	

- Removed Minimum limits from all propagation delays and Output enable Time and Output Disable Time specifications.

Existing datasheet

Symbol	Parameter	V _{CC} (V)	T _A =25°C			T _A =-40°C to 85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max				
t _{PLH}	Propagation Delay	0.90		13						C _L = 15 pF, R _L = 1 kΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	3.0	6.0	9.8	1.9	14.9		ns	C _L = 15 pF, R _L = 2 kΩ	
		1.40 ≤ V _{CC} ≤ 1.60	1.0	3.5	5.3	0.8	5.7				
		1.65 ≤ V _{CC} ≤ 1.95	0.9	3.0	4.3	0.8	4.6				
		2.30 ≤ V _{CC} ≤ 2.70	0.8	2.0	2.8	0.7	3.0				
		2.70 ≤ V _{CC} ≤ 3.60	0.5	1.0	2.6	0.5	2.8				
t _{PDH}	Output Enable Time	0.90		14						C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	3.0	6.0	9.7	2.0	16.4		ns	R _D = 1kΩ	
		1.40 ≤ V _{CC} ≤ 1.60	1.2	4.0	6.0	1.0	7.5			S _I = GND for t _{PDH}	
		1.65 ≤ V _{CC} ≤ 1.95	1.0	3.0	4.5	0.9	5.0			S _I = V _I for t _{PDH}	
		2.30 ≤ V _{CC} ≤ 2.70	0.8	2.0	3.0	0.7	3.4			V _I = 2 × V _{CC}	
		2.70 ≤ V _{CC} ≤ 3.60	0.5	1.2	2.6	0.4	2.9				
t _{PLZ}	Output Disable Time	0.90		14						C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	2.0	5.0	9.5	2.0	14.0		ns	R _D = 1kΩ	
		1.40 ≤ V _{CC} ≤ 1.60	1.2	3.0	5.5	1.1	7.0			S _I = GND for t _{PLZ}	
		1.65 ≤ V _{CC} ≤ 1.95	1.0	2.0	5.6	0.8	5.8			S _I = V _I for t _{PLZ}	
		2.30 ≤ V _{CC} ≤ 2.70	0.8	1.5	4.2	0.5	5.0				
		2.70 ≤ V _{CC} ≤ 3.60	0.5	1.0	3.9	0.4	4.2				

New

Symbol	Parameter	V _{CC} (V)	T _A =25°C			T _A =-40°C to 85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max				
t _{PLH}	Propagation Delay	0.90		13						C _L = 15 pF, R _L = 1 kΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		6.0	9.8		14.9		ns	C _L = 15 pF, R _L = 2 kΩ	
		1.40 ≤ V _{CC} ≤ 1.60		3.5	5.3		5.7				
		1.65 ≤ V _{CC} ≤ 1.95		3.0	4.3		4.6				
		2.30 ≤ V _{CC} ≤ 2.70		2.0	2.8		3.0				
		2.70 ≤ V _{CC} ≤ 3.60		1.0	2.6		2.8				
t _{PDH}	Output Enable Time	0.90		14						C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		6.0	9.7		16.4		ns	R _D = 1kΩ	
		1.40 ≤ V _{CC} ≤ 1.60		4.0	6.0		7.5			S _I = GND for t _{PDH}	
		1.65 ≤ V _{CC} ≤ 1.95		3.0	4.5		5.0			S _I = V _I for t _{PDH}	
		2.30 ≤ V _{CC} ≤ 2.70		2.0	3.0		3.4			V _I = 2 × V _{CC}	
		2.70 ≤ V _{CC} ≤ 3.60		1.2	2.6		2.9				
t _{PLZ}	Output Disable Time	0.90		14						C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		5.0	9.5		14.0		ns	R _D = 1kΩ	
		1.40 ≤ V _{CC} ≤ 1.60		3.0	5.5		7.0			S _I = GND for t _{PLZ}	
		1.65 ≤ V _{CC} ≤ 1.95		2.0	5.6		5.8			S _I = V _I for t _{PLZ}	
		2.30 ≤ V _{CC} ≤ 2.70		1.5	4.2		5.0				
		2.70 ≤ V _{CC} ≤ 3.60		1.0	3.9		4.2				

Symbol	Parameter	V _{CC} (V)	T _A =25°C			T _A =-40°C to 85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max				
t _{PLH}	Propagation Delay	0.90		12						C _L = 15 pF, R _L = 1 kΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	2.0	5.9	10.0	1.0	14.9		ns	C _L = 15 pF, R _L = 2 kΩ	
		1.40 ≤ V _{CC} ≤ 1.60	1.0	3.2	6.1	0.9	7.0				
		1.65 ≤ V _{CC} ≤ 1.95	1.0	2.0	5.2	0.7	6.2				
		2.30 ≤ V _{CC} ≤ 2.70	0.8	1.8	3.7	0.6	4.4				
		2.70 ≤ V _{CC} ≤ 3.60	0.7	1.5	3.3	0.5	3.8				

Symbol	Parameter	V _{CC} (V)	T _A =25°C			T _A =-40°C to 85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max				
t _{PLH}	Propagation Delay	0.90		12						C _L = 15 pF, R _L = 1 kΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		5.9	10.0		14.9		ns	C _L = 15 pF, R _L = 2 kΩ	
		1.40 ≤ V _{CC} ≤ 1.60		3.2	6.1		7.0				
		1.65 ≤ V _{CC} ≤ 1.95		2.0	5.2		6.2				
		2.30 ≤ V _{CC} ≤ 2.70		1.8	3.7		4.4				
		2.70 ≤ V _{CC} ≤ 3.60		1.5	3.3		3.8				

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C			T _A =-40 to 85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t _{PLH} , t _{PLZ}	Propagation Delay	0.90			13					ns	Figure 5
		1.10 ≤ V _{CC} ≤ 1.30	C _L = 15 pF, R _L = 1 kΩ		3.0	6.0	15.0	1.0	18.6		
		1.40 ≤ V _{CC} ≤ 1.60	C _L = 30 pF, R _L = 1 kΩ	1.0	3.2	8.7	1.0	9.7			
		1.65 ≤ V _{CC} ≤ 1.95	C _L = 30 pF, R _L = 1 kΩ	1.0	2.0	6.0	1.0	6.8			
		2.30 ≤ V _{CC} ≤ 2.70	C _L = 30 pF, R _L = 1 kΩ	0.8	1.2	3.6	0.7	4.7			
		2.70 ≤ V _{CC} ≤ 3.60	C _L = 30 pF, R _L = 1 kΩ	0.7	1.0	3.3	0.6	4.0			

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C			T _A =-40 to 85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t _{PLH} , t _{PLZ}	Propagation Delay	0.90	C _L =15pF, R _L =R _O =1kΩ	Green	13					ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			6.0	15.0		18.6			
		1.40 ≤ V _{CC} ≤ 1.60			3.2	8.7		9.7			
		1.65 ≤ V _{CC} ≤ 1.95			2.0	6.0		6.8			
		2.30 ≤ V _{CC} ≤ 2.70	C _L =30pF, R _L =R _O =1kΩ		1.2	3.6		4.7			
		2.70 ≤ V _{CC} ≤ 3.60			1.0	3.3		4.0			

**Qualification Plan:**

Qualification Vehicle : NC7SZ74L8X
 Package : UQFN 1.6x1.6mm 8L, 0.5P
 RMS : W45201

Test	Specification	Condition	Interval
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
HTSL	JESD22-A103	Ta= 150°C	1008 hours
PC	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
TC + PC	JESD22-A104	Ta= -65°C to +150°C	500 cycles
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours
RSH	JESD22- B106	Ta = 265C, 10 sec	-
SD	JSTD002	Ta = 245C, 5 sec	-

Qualification Vehicle : NC7SP74L8X
 Package : UQFN 1.6x1.6mm 8L, 0.5P
 RMS : TBD

Test	Specification	Condition	Interval
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
HTSL	JESD22-A103	Ta= 150°C	1008 hours
PC	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
TC + PC	JESD22-A104	Ta= -65°C to +150°C	500 cycles
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours
RSH	JESD22- B106	Ta = 265C, 10 sec	-
SD	JSTD002	Ta = 245C, 5 sec	-

Estimated date for qualification completion: 31 December 2019

**List of Affected Parts:**

Note: Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the [PCN Customized Portal](#).

Part Number	Qualification Vehicle
NC7SP74L8X	NC7SP74L8X, NC7SZ74L8X
NC7SV74L8X	NC7SP74L8X, NC7SZ74L8X
NC7WP08L8X	NC7SP74L8X, NC7SZ74L8X
NC7WP00L8X	NC7SP74L8X, NC7SZ74L8X
NC7WP02L8X	NC7SP74L8X, NC7SZ74L8X
NC7WP125L8X	NC7SP74L8X, NC7SZ74L8X
NC7WP32L8X	NC7SP74L8X, NC7SZ74L8X
NC7NP34L8X	NC7SP74L8X, NC7SZ74L8X
NC7NP14L8X	NC7SP74L8X, NC7SZ74L8X

Appendix A: Changed Products

Product	Customer Part Number	Qualification Vehicle
NC7NP14L8X		NC7SP74L8X, NC7SZ74L8X
NC7NP34L8X		NC7SP74L8X, NC7SZ74L8X
NC7SP74L8X		NC7SP74L8X, NC7SZ74L8X
NC7SV74L8X		NC7SP74L8X, NC7SZ74L8X
NC7WP00L8X		NC7SP74L8X, NC7SZ74L8X
NC7WP02L8X		NC7SP74L8X, NC7SZ74L8X
NC7WP08L8X		NC7SP74L8X, NC7SZ74L8X
NC7WP125L8X		NC7SP74L8X, NC7SZ74L8X
NC7WP32L8X		NC7SP74L8X, NC7SZ74L8X