



Title of Change:	MiniGates Fab, Assembly Material and Test Change (MicroPak 6lds/MicroPak 2 6lds) with datasheet update.		
Proposed First Ship date:	16 February 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 Semiconductor 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. MicroPak 6lds			
Material to be changed	Before Change (Existing flow)		After Change (New flow)
# Assembly Site	Subcon Thailand (HANA)	Subcon Thailand (UTAC)	Subcon Thailand (STARS)
Wire	Au	Au	PCC
Lead frame	LF UDFN 6L C7025 Cu COL 1.45X1.0 ETCHED UPPF and PS LGAB 6L LOGIC KINSUS 1X1.45X.13	LF UDFN 6L C7025 1.45X1MM ETCHED PPF	LF PPF+RT-UPG; MicroPak 6L 1.45x1
Mold Compound	MC CEL9220HF13H HF and MC NITTO GE100LFCG 14MMX4.6G	SUMITOMO G770HCD	MOLDING COMPOUND; G700LTD
Die Attach	DA EPOXY HE ABLEBOND 8006NS 10CC 14G NON CON and DA FILM LI LE5003 P8AS 100ST	DA AB 8006NS 10CC	NON-CONDUCTIVE DIE ATTACH FILM; HR-5104
Die Source	ON Semiconductor South Portland	ON Semiconductor South Portland	Foundry Japan

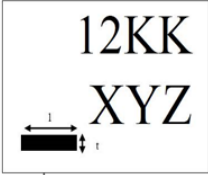
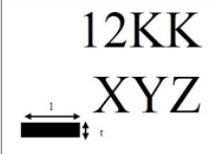
Only NC7SP08L6X run in both sites, others all run in HANA only.



MicroPak 2 6lds

Material to be changed	Before Change (Existing flow)		After Change (New flow)
# Assembly Site	Subcon Thailand (HANA)	Subcon Thailand(UTAC)	Subcon Thailand (STARS)
Wire	Au	Au	PCC
Lead frame	LF UDFN 6L A194 COL 1.0X1.0 ETCHED PPF	LF UDFN 6L C7025 Cu 1X1MM ETCHED PPF	LF PPF+RT-UPG; MicroPak2 6L 1x1
Mold Compound	MC CEL9220HF13H HF	SUMITOMO G770HCD	MOLDING COMPOUND; G700LTD
Die Attach	DA EPOXY HE ABLEBOND 8006NS 10CC 14G NON CON	DA AB 8006NS 10CC	NON-CONDUCTIVE DIE ATTACH FILM; HR-5104
Die Source	ON Semiconductor South Portland	ON Semiconductor South Portland	Foundry Japan

Only NC7SV08FHX run in both sites, others all run in HANA only.

	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



NC75P

- 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⁾		$V_{CC} + 0.5$	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⁾		$V_{CC} + 0.5$	V
	$V_{CC}=0V$	-0.5	4.3	V

- Adjusted Power Dissipation to reflect new die.
- Adjusted Thermal Resistance to reflect new die.
- 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 x V_{CC}	0.85 x V_{CC}			V
		1.10 ≤ V_{CC} ≤ 1.30		0.85 x V_{CC}	0.85 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60		0.85 x V_{CC}	0.85 x V_{CC}			
		1.65 ≤ V_{CC} ≤ 1.95		0.85 x V_{CC}	0.85 x V_{CC}			
		2.30 ≤ V_{CC} ≤ 2.70		1.6	1.6			
		3.00 ≤ V_{CC} ≤ 3.60		2.1	2.1			
V_{IL}	LOW Level Input Voltage	0.90		0.35 x V_{CC}	0.35 x V_{CC}			V
		1.10 ≤ V_{CC} ≤ 1.30		0.35 x V_{CC}	0.35 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60		0.35 x V_{CC}	0.35 x V_{CC}			
		1.65 ≤ V_{CC} ≤ 1.95		0.35 x V_{CC}	0.35 x V_{CC}			
		2.30 ≤ V_{CC} ≤ 2.70		0.7	0.7			
		3.00 ≤ V_{CC} ≤ 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 ≤ V_{CC} ≤ 1.30		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.40 ≤ V_{CC} ≤ 1.60		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.65 ≤ V_{CC} ≤ 1.95		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		2.30 ≤ V_{CC} ≤ 2.70		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		3.00 ≤ V_{CC} ≤ 3.60		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.10 ≤ V_{CC} ≤ 1.30	$I_{OH} = 0.5mA$	0.75 x V_{CC}	0.75 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60	$I_{OH} = 1mA$	1.07	0.99			
		1.65 ≤ V_{CC} ≤ 1.95	$I_{OH} = 1.5mA$	1.24	1.22			
		2.30 ≤ V_{CC} ≤ 2.70	$I_{OH} = 2.1mA$	1.95	1.87			
		3.00 ≤ V_{CC} ≤ 3.60	$I_{OH} = 2.6mA$	2.61	2.55			
		0.90		0.1	0.1			
V_{OL}	LOW Level Output Voltage	1.10 ≤ V_{CC} ≤ 1.30		0.1	0.1			V
		1.40 ≤ V_{CC} ≤ 1.60		0.1	0.1			
		1.65 ≤ V_{CC} ≤ 1.95		0.1	0.1			
		2.30 ≤ V_{CC} ≤ 2.70		0.1	0.1			
		3.00 ≤ V_{CC} ≤ 3.60		0.1	0.1			
		1.10 ≤ V_{CC} ≤ 1.30	$I_{OL} = 0.5mA$	0.30 x V_{CC}	0.30 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60	$I_{OL} = 1mA$	0.31	0.37			
		1.65 ≤ V_{CC} ≤ 1.95	$I_{OL} = 1.5mA$	0.31	0.35			
		2.30 ≤ V_{CC} ≤ 2.70	$I_{OL} = 2.1mA$	0.31	0.33			
		3.00 ≤ V_{CC} ≤ 3.60	$I_{OL} = 2.6mA$	0.31	0.33			
		0.90		0.1	0.1			
		1.10 ≤ V_{CC} ≤ 1.30		0.1	0.1			

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 ≤ V_{CC} ≤ 1.30		0.85 x V_{CC}	0.85 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60		0.85 x V_{CC}	0.85 x V_{CC}			
		1.65 ≤ V_{CC} ≤ 1.95		0.85 x V_{CC}	0.85 x V_{CC}			
		2.30 ≤ V_{CC} ≤ 2.70		1.6	1.6			
		3.00 ≤ V_{CC} ≤ 3.60		2.1	2.1			
V_{IL}	LOW Level Input Voltage	0.90		GND	GND			V
		1.10 ≤ V_{CC} ≤ 1.30		0.35 x V_{CC}	0.35 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60		0.35 x V_{CC}	0.35 x V_{CC}			
		1.65 ≤ V_{CC} ≤ 1.95		0.35 x V_{CC}	0.35 x V_{CC}			
		2.30 ≤ V_{CC} ≤ 2.70		0.7	0.7			
		3.00 ≤ V_{CC} ≤ 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 ≤ V_{CC} ≤ 1.30		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.40 ≤ V_{CC} ≤ 1.60		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.65 ≤ V_{CC} ≤ 1.95		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		2.30 ≤ V_{CC} ≤ 2.70		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		3.00 ≤ V_{CC} ≤ 3.60		$V_{CC} - 0.1$	$V_{CC} - 0.1$			
		1.10 ≤ V_{CC} ≤ 1.30	$I_{OH} = 0.5mA$	0.75 x V_{CC}	0.75 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60	$I_{OH} = 1mA$	1.07	0.99			
		1.65 ≤ V_{CC} ≤ 1.95	$I_{OH} = 1.5mA$	1.24	1.22			
		2.30 ≤ V_{CC} ≤ 2.70	$I_{OH} = 2.1mA$	1.95	1.87			
		3.00 ≤ V_{CC} ≤ 3.60	$I_{OH} = 2.6mA$	2.61	2.55			
		0.90		0.1	0.1			
V_{OL}	LOW Level Output Voltage	1.10 ≤ V_{CC} ≤ 1.30		0.1	0.1			V
		1.40 ≤ V_{CC} ≤ 1.60		0.1	0.1			
		1.65 ≤ V_{CC} ≤ 1.95		0.1	0.1			
		2.30 ≤ V_{CC} ≤ 2.70		0.1	0.1			
		3.00 ≤ V_{CC} ≤ 3.60		0.1	0.1			
		1.10 ≤ V_{CC} ≤ 1.30	$I_{OL} = 0.5mA$	0.30 x V_{CC}	0.30 x V_{CC}			
		1.40 ≤ V_{CC} ≤ 1.60	$I_{OL} = 1mA$	0.31	0.37			
		1.65 ≤ V_{CC} ≤ 1.95	$I_{OL} = 1.5mA$	0.31	0.35			
		2.30 ≤ V_{CC} ≤ 2.70	$I_{OL} = 2.1mA$	0.31	0.33			
		3.00 ≤ V_{CC} ≤ 3.60	$I_{OL} = 2.6mA$	0.31	0.33			
		0.90		0.1	0.1			
		1.10 ≤ V_{CC} ≤ 1.30		0.1	0.1			



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	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	V	
		1.10 ≤ V _{CC} ≤ 1.30	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		1.40 ≤ V _{CC} ≤ 1.60	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		1.65 ≤ V _{CC} ≤ 1.95	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		2.30 ≤ V _{CC} ≤ 2.70	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		3.00 ≤ V _{CC} ≤ 3.60	2.1	2.1	2.1	2.1		
V _{IL}	LOW Level Input Voltage	0.90	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	V	
		1.10 ≤ V _{CC} ≤ 1.30	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		1.40 ≤ V _{CC} ≤ 1.60	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		1.65 ≤ V _{CC} ≤ 1.95	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		2.30 ≤ V _{CC} ≤ 2.70	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		3.00 ≤ V _{CC} ≤ 3.60	0.9	0.9	0.9	0.9		
V _{OL}	LOW Level Output Voltage	0.90	0.1	0.1	0.1	0.1	V	I _{OL} = 20 μA
		1.10 ≤ V _{CC} ≤ 1.30	0.1	0.1	0.1	0.1		
		1.40 ≤ V _{CC} ≤ 1.60	0.1	0.1	0.1	0.1		
		1.65 ≤ V _{CC} ≤ 1.95	0.1	0.1	0.1	0.1		
		2.30 ≤ V _{CC} ≤ 2.70	0.1	0.1	0.1	0.1		
		3.00 ≤ V _{CC} ≤ 3.60	0.1	0.1	0.1	0.1		
		1.10 ≤ V _{CC} ≤ 1.30	0.30 × V _{CC}	0.30 × V _{CC}	0.30 × V _{CC}	0.30 × V _{CC}		I _{OL} = 0.5 mA
		1.40 ≤ V _{CC} ≤ 1.60	0.31	0.31	0.31	0.31		I _{OL} = 1 mA
		1.65 ≤ V _{CC} ≤ 1.95	0.31	0.31	0.31	0.31		I _{OL} = 1.5 mA
		2.30 ≤ V _{CC} ≤ 2.70	0.31	0.31	0.31	0.31		I _{OL} = 2.1 mA
		3.00 ≤ V _{CC} ≤ 3.60	0.31	0.31	0.31	0.31		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	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	V	
		1.10 ≤ V _{CC} ≤ 1.30	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		1.40 ≤ V _{CC} ≤ 1.60	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		1.65 ≤ V _{CC} ≤ 1.95	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		2.30 ≤ V _{CC} ≤ 2.70	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}	0.65 × V _{CC}		
		3.00 ≤ V _{CC} ≤ 3.60	2.1	2.1	2.1	2.1		
V _{IL}	LOW Level Input Voltage	0.90	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	V	
		1.10 ≤ V _{CC} ≤ 1.30	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		1.40 ≤ V _{CC} ≤ 1.60	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		1.65 ≤ V _{CC} ≤ 1.95	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		2.30 ≤ V _{CC} ≤ 2.70	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}	0.35 × V _{CC}		
		3.00 ≤ V _{CC} ≤ 3.60	0.9	0.9	0.9	0.9		
V _{OL}	LOW Level Output Voltage	0.90	0.1	0.1	0.1	0.1	V	I _{OL} = 20 μA
		1.10 ≤ V _{CC} ≤ 1.30	0.1	0.1	0.1	0.1		
		1.40 ≤ V _{CC} ≤ 1.60	0.1	0.1	0.1	0.1		
		1.65 ≤ V _{CC} ≤ 1.95	0.1	0.1	0.1	0.1		
		2.30 ≤ V _{CC} ≤ 2.70	0.1	0.1	0.1	0.1		
		3.00 ≤ V _{CC} ≤ 3.60	0.1	0.1	0.1	0.1		
		1.10 ≤ V _{CC} ≤ 1.30	0.30 × V _{CC}	0.30 × V _{CC}	0.30 × V _{CC}	0.30 × V _{CC}		I _{OL} = 0.5 mA
		1.40 ≤ V _{CC} ≤ 1.60	0.31	0.31	0.31	0.31		I _{OL} = 1 mA
		1.65 ≤ V _{CC} ≤ 1.95	0.31	0.31	0.31	0.31		I _{OL} = 1.5 mA
		2.30 ≤ V _{CC} ≤ 2.70	0.31	0.31	0.31	0.31		I _{OL} = 2.1 mA
		3.00 ≤ V _{CC} ≤ 3.60	0.31	0.31	0.31	0.31		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 _{th}	Positive Threshold Voltage		0.90	0.50	0.60	0.50	0.60	V
			1.10	0.40	1.00	0.40	1.00	
			1.40	0.50	1.20	0.50	1.20	
			1.65	0.70	1.50	0.70	1.50	
			2.30	1.00	1.90	1.00	1.90	
			3.00	1.50	2.60	1.50	2.60	
V _{th}	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	
			3.00	0.6	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	0.10	1.00	0.10	1.00	
			2.30	0.25	1.10	0.25	1.10	
			3.00	0.60	1.80	0.60	1.80	

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 _{th}	Positive Threshold Voltage		0.90					V
			1.10		1.00		1.00	
			1.40		1.20		1.20	
			1.65		1.50		1.50	
			2.30		1.90		1.90	
			3.00		2.60		2.60	
V _{th}	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		
			3.00	0.6		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	0.10	1.00	0.10	1.00	
			2.30	0.25	1.10	0.25	1.10	
			3.00	0.60	1.80	0.60	1.80	

- 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	Max		
t _{PLZ}	Propagation Delay	0.90	24						
		1.10 ≤ V _{CC} ≤ 1.30	4.0	9	18.7	3.5	30.9	C _L = 10 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60	2.0	6	12.4	1.5	13.9		
		1.65 ≤ V _{CC} ≤ 1.95	1.5	5	9.6	1.0	12.1		
		2.30 ≤ V _{CC} ≤ 2.70	1.0	4	9.0	0.8	10.0		
		3.00 ≤ V _{CC} ≤ 3.60	1.0	3	8.7	0.5	9.0		
t _{PLZ}	Propagation Delay	0.90	27						
		1.10 ≤ V _{CC} ≤ 1.30	5.0	10	20.2	4.5	33.9	C _L = 15 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60	3.0	7	13.3	2.5	16.0		
		1.65 ≤ V _{CC} ≤ 1.95	2.0	5	10.3	2.0	12.6		
		2.30 ≤ V _{CC} ≤ 2.70	1.5	4	9.4	1.0	10.2		
		3.00 ≤ V _{CC} ≤ 3.60	1.0	3	9.1	0.5	9.7		
t _{PLZ}	Propagation Delay	0.90	34						
		1.10 ≤ V _{CC} ≤ 1.30	6.0	12	24.0	5.0	43.0	C _L = 30 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60	4.0	8	16.0	3.0	18.0		
		1.65 ≤ V _{CC} ≤ 1.95	2.0	6	12.0	2.0	14.0		
		2.30 ≤ V _{CC} ≤ 2.70	1.0	5	11.0	1.0	12.0		
		3.00 ≤ V _{CC} ≤ 3.60	0.8	4	10.0	0.5	11.0		

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	Max		
t _{PLZ}	Propagation Delay	0.90	24						
		1.10 ≤ V _{CC} ≤ 1.30		9	18.7		30.9	C _L = 10 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60		6	12.4		13.9		
		1.65 ≤ V _{CC} ≤ 1.95		5	9.6		12.1		
		2.30 ≤ V _{CC} ≤ 2.70		4	9.0		10.0		
		3.00 ≤ V _{CC} ≤ 3.60		3	8.7		9.0		
t _{PLZ}	Propagation Delay	0.90	27						
		1.10 ≤ V _{CC} ≤ 1.30		10	20.2		33.9	C _L = 15 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60		7	13.3		16.0		
		1.65 ≤ V _{CC} ≤ 1.95		5	10.3		12.6		
		2.30 ≤ V _{CC} ≤ 2.70		4	9.4		10.2		
		3.00 ≤ V _{CC} ≤ 3.60		3	9.1		9.7		
t _{PLZ}	Propagation Delay	0.90	34						
		1.10 ≤ V _{CC} ≤ 1.30		12	24.0		43.0	C _L = 30 pF R _D = 5000Ω	Figures 1, 2
		1.40 ≤ V _{CC} ≤ 1.60		8	16.0		18.0		
		1.65 ≤ V _{CC} ≤ 1.95		6	12.0		14.0		
		2.30 ≤ V _{CC} ≤ 2.70		5	11.0		12.0		
		3.00 ≤ V _{CC} ≤ 3.60		4	10.0		11.0		



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 _{PHL} , t _{PLH}	Propagation Delay	0.90	C _L =30pF, R _D =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 _{ON}	Output Enable Time	0.90	C _L =30pF, R _D =5000Ω R _S =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 _{OH} , t _{OFF}	Output Disable Time	0.90	C _L =30pF, R _D =5000Ω R _S =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	

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.		
t _{PHL} , t _{PLH}	Propagation Delay	0.90	C _L =30pF, R _D =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 _{ON}	Output Enable Time	0.90	C _L =30pF, R _D =5000Ω R _S =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 _{OH} , t _{OFF}	Output Disable Time	0.90	C _L =30pF, R _D =5000Ω R _S =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	

- 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.		
t _{PHL} , t _{PLH}	Propagation Delay	0.90	C _L =10pF, R _D =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 _{ON}	Output Enable Time	0.90	C _L =10pF, R _D =5000Ω R _S =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 _{OH} , t _{OFF}	Output Disable Time	0.90	C _L =10pF, R _D =5000Ω R _S =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	

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.		
t _{PHL} , t _{PLH}	Propagation Delay	0.90	C _L =10pF, R _D =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	
t _{OL} , t _{ON}	Output Enable Time	0.90	C _L =10pF, R _D =5000Ω R _S =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	
t _{OH} , t _{OFF}	Output Disable Time	0.90	C _L =10pF, R _D =5000Ω R _S =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	

Continued on following page...



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.	Min.			
t _{PLH} , t _{PLH}	Propagation Delay	0.90	C _L =30pF, R _D =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			
		3.00 ≤ V _{CC} ≤ 3.60		0.8	4.0	6.4	0.5	8.9			
t _{enL} , t _{enH}	Output Enable Time	0.90	C _L =30pF, R _D =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			
		3.00 ≤ V _{CC} ≤ 3.60		0.8	4.0	8.1	0.5	10.1			
t _{ovL} , t _{ovH}	Output Disable Time	0.90	C _L =30pF, R _D =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.	Min.		
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	30		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 _{enL} , t _{enH}	Output Enable Time	0.90	C _L =30pF, R _D =5000Ω		37				ns	Figure 5 Figure 6
		1.10 ≤ V _{CC} ≤ 1.30			13.0	30		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 _{ovL} , t _{ovH}	Output Disable Time	0.90	C _L =30pF, R _D =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	16.5		16.7		
		3.00 ≤ V _{CC} ≤ 3.60		4.0	14.8		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)	
V _{CC} = 0V	-0.5V to +4.6V

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)	
V _{CC} = 0V	-0.5V to +4.3V

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} to +0.5	V
	HIGH or LOW State ⁽¹⁾			
	V _{CC} =0V	-0.5	4.6	V

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} to +0.5	V
	HIGH or LOW State ⁽¹⁾			
	V _{CC} =0V	-0.5	4.3	V

- Adjusted Power Dissipation to reflect new die.
- Adjusted Thermal Resistance to reflect new die.

Existing datasheet

P _D	Power Dissipation at +85°C	SC70-5	150	mW
		MicroPak™-6	130	
		MicroPak2™-6	120	
θ _{JA}	Thermal Resistance	SC70-5	425	°C/W
		MicroPak™-6	500	
		MicroPak2™-6	560	

New

P _D	Power Dissipation In Still Air	SC-74A	225	mW
		SC70-5	190	
		MicroPak™-6	327	
		MicroPak2™-6	327	
θ _{JA}	Thermal Resistance	SC-74A	555	°C/W
		SC70-5	659	
		MicroPak™-6	382	
		MicroPak2™-6	382	



- 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		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		1.6	1.6	1.6	1.6	
		2.70 ≤ V _{CC} ≤ 3.60		2.0	2.0	2.0	2.0	
V _{il}	LOW Level Input Voltage	0.90		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		0.7	0.7	0.7	0.7	
		2.70 ≤ 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		V _{CC}	V _{CC}	V _{CC}	V _{CC}	V
		1.10 ≤ V _{CC} ≤ 1.30		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	0.55 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		1.6	1.6	1.6	1.6	
		2.70 ≤ V _{CC} ≤ 3.60		2.0	2.0	2.0	2.0	
V _{il}	LOW Level Input Voltage	0.90		0.90	0.90	0.90	0.90	V
		1.10 ≤ V _{CC} ≤ 1.30		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95		35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	35 × V _{CC}	
		2.30 ≤ V _{CC} ≤ 2.70		0.7	0.7	0.7	0.7	
		2.70 ≤ V _{CC} ≤ 3.60		0.8	0.8	0.8	0.8	

Existing datasheet

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =40 to 85°C		Units
				Min.	Max.	Min.	Max.	
V _{oh}	HIGH Level Output Voltage	0.90		V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} =-100μA	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} =-2mA	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} =-4mA	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} =-6mA	1.25	1.25	1.25	1.25	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} =-6mA	2.00	2.00	2.00	2.00	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-12mA	1.8	1.8	1.8	1.8	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-18mA	2.2	2.2	2.2	2.2	
V _{ol}	LOW Level Output Voltage	0.90		0.1	0.1	0.1	0.1	V
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} =100μA	0.1	0.1	0.1	0.1	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} =2mA	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} =4mA	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} =6mA	0.3	0.3	0.3	0.3	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} =12mA	0.4	0.4	0.4	0.4	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =12mA	0.4	0.4	0.4	0.4	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =18mA	0.6	0.6	0.6	0.6	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =24mA	0.55	0.55	0.55	0.55	

New

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =40 to 85°C		Units
				Min.	Max.	Min.	Max.	
V _{oh}	HIGH Level Output Voltage	0.90		V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} =-100μA	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	V _{CC} -0.1	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-100μA	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	V _{CC} -0.2	
		1.10 ≤ V _{CC} ≤ 1.30	I _{OH} =-2mA	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OH} =-4mA	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	75 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OH} =-6mA	1.25	1.25	1.25	1.25	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OH} =-6mA	2.00	2.00	2.00	2.00	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-12mA	1.8	1.8	1.8	1.8	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OH} =-18mA	2.2	2.2	2.2	2.2	
V _{ol}	LOW Level Output Voltage	0.90		0.1	0.1	0.1	0.1	V
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} =100μA	0.1	0.1	0.1	0.1	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =100μA	0.2	0.2	0.2	0.2	
		1.10 ≤ V _{CC} ≤ 1.30	I _{OL} =2mA	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	
		1.40 ≤ V _{CC} ≤ 1.60	I _{OL} =4mA	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	0.25 × V _{CC}	
		1.65 ≤ V _{CC} ≤ 1.95	I _{OL} =6mA	0.3	0.3	0.3	0.3	
		2.30 ≤ V _{CC} ≤ 2.70	I _{OL} =12mA	0.4	0.4	0.4	0.4	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =12mA	0.4	0.4	0.4	0.4	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =18mA	0.6	0.6	0.6	0.6	
		2.70 ≤ V _{CC} ≤ 3.60	I _{OL} =24mA	0.55	0.55	0.55	0.55	

Symbol	Parameter	V _{CC} (V)	T _A = 25°C		T _A = -40°C to +85°C		Units	Conditions
			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	0.75 × V _{CC}		0.75 × V _{CC}			
		1.40 ≤ V _{CC} ≤ 1.60	0.75 × V _{CC}		0.75 × V _{CC}			
		1.65 ≤ V _{CC} ≤ 1.95	1.25		1.25			
		2.30 ≤ V _{CC} < 2.70	2.0		2.0			
		2.70 ≤ V _{CC} < 2.70	1.8		1.8			
		2.70 ≤ V _{CC} ≤ 3.60	2.2		2.2			
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	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	0.8		0.8			
2.70 ≤ V _{CC} ≤ 3.60	0.4		0.4					
2.70 ≤ V _{CC} ≤ 3.60	0.55		0.55					



- 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.

Existing datasheet

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =-40 to 85°C		Units
				Min.	Max.	Min.	Max.	
V _{th}	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 _{th}	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 _{th}	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 _{th}	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	Max			
t _{PLH}	Propagation Delay	0.90		13					ns	C _L = 15 pF, R _L = 1 MΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	3.0	6.0	9.8	1.9	14.9			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			C _L = 30 pF	
		2.30 ≤ V _{CC} ≤ 2.70	0.8	2.0	2.8	0.7	3.0			R _L = 500Ω	
		2.70 ≤ V _{CC} ≤ 3.60	0.5	1.0	2.6	0.5	2.8				
t _{PDH}	Output Enable Time	0.90		14					ns	C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	3.0	6.0	9.7	2.0	16.4			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			V _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					ns	C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	2.0	5.0	9.5	2.0	14.0			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			V _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	Max			
t _{PLH}	Propagation Delay	0.90		13					ns	C _L = 15 pF, R _L = 1 MΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		6.0	9.8		14.9			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			C _L = 30 pF	
		2.30 ≤ V _{CC} ≤ 2.70		2.0	2.8		3.0			R _L = 500Ω	
		2.70 ≤ V _{CC} ≤ 3.60		1.0	2.6		2.8				
t _{PDH}	Output Enable Time	0.90		14					ns	C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		6.0	9.7		16.4			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			V _I = V _I for t _{PDH}	
		2.30 ≤ V _{CC} ≤ 2.70		2.0	3.0		3.4				
		2.70 ≤ V _{CC} ≤ 3.60		1.2	2.6		2.9				
t _{PLZ}	Output Disable Time	0.90		14					ns	C _L = 30 pF	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		5.0	9.5		14.0			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			V _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	Max			
t _{PLH}	Propagation Delay	0.90		12					ns	C _L = 15 pF, R _L = 1 MΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30	2.0	5.9	10.0	1.0	14.9			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			C _L = 30 pF	
		2.30 ≤ V _{CC} ≤ 2.70	0.8	1.8	3.7	0.6	4.4			R _L = 500Ω	
		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	Max			
t _{PLH}	Propagation Delay	0.90		12					ns	C _L = 15 pF, R _L = 1 MΩ	Figures 1, 2
		1.10 ≤ V _{CC} ≤ 1.30		5.9	10.0		14.9			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			C _L = 30 pF	
		2.30 ≤ V _{CC} ≤ 2.70		1.8	3.7		4.4			R _L = 500Ω	
		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.	Max.	Min.	Max.		
t _{PLH} , t _{PLZ}	Propagation Delay	0.90		13				ns	Figure 6
		1.10 ≤ V _{CC} ≤ 1.30		3.0	6.0	1.0	18.6		
		1.40 ≤ V _{CC} ≤ 1.60		1.0	3.2	0.7	9.7		
		1.65 ≤ V _{CC} ≤ 1.95		1.0	2.0	0.6	6.8		
		2.30 ≤ V _{CC} ≤ 2.70		0.8	1.2	0.6	4.7		
		2.70 ≤ V _{CC} ≤ 3.60		0.7	1.0	0.6	4.0		

Symbol	Parameter	V _{CC}	Conditions	T _A =25°C		T _A =-40 to 85°C		Units	Figure
				Min.	Max.	Min.	Max.		
t _{PLH} , t _{PLZ}	Propagation Delay	0.90		13				ns	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		1.2	3.6		4.7		
		2.70 ≤ V _{CC} ≤ 3.60		1.0	3.3		4.0		

**Qualification Plan:****Qualification Vehicle :** NC7SV57FHX**Package :** uPAK2 1.00 x1.00mm 6L, 0.35P**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	-

Qualification Vehicle: NC7SPU04L6X**Package :** uPAK 1.45 x1.00mm 6L, 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	-

Qualification Vehicle: NC7SZ18FHX**Package :** uPAK2 1.00 x1.00mm 6L, 0.35P**RMS :** W44998

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: NC7SZ374L6X

Package : uPAK 1.45 x1.00mm 6L, 0.5P

RMS : W45056 / W53124

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 October 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
NC7SP08L6X	NC7SPU04L6X NC7SZ374L6X NC7SV57FHX NC7SZ18FHX
NC7SP04L6X	
NC7SV08L6X	
NC7SPU04L6X	
NC7SP125L6X	
NC7SP126L6X	
NC7SV17L6X	
NC7SP14L6X	
NC7SV04L6X	
NC7WV17L6X	
NC7SV02L6X	
NC7WV04L6X	
NC7WV16L6X	
NC7SV126L6X	
NC7WV07L6X	
NC7SP32L6X	
NC7SP17L6X	
NC7SV00L6X	
NC7SV125L6X	



NC7SP19L6X	NC7SPU04L6X NC7SZ374L6X NC7SV57FHX NC7SZ18FHX
NC7SV11L6X	
NC7SP157L6X	
NC7SP00L6X	
NC7SV157L6X	
NC7WP14L6X	
NC7SP38L6X	
NC7SP34L6X	
NC7SV32L6X	
NC7SVU04L6X	
NC7SV57L6X	
NC7SV86L6X	
NC7SP05L6X	
NC7SV19L6X	
NC7WV14L6X	
NC7SV14L6X	
NC7SP02L6X	
NC7SV58L6X	
NC7SV34L6X	
NC7SP58L6X	
NC7SP57L6X	
NC7SP86L6X	
NC7SV05L6X	
NC7SV08FHX	
NC7SV32FHX	
NC7SV17FHX	
NC7SP08FHX	
NC7SV04FHX	
NC7SP17FHX	
NC7SV05FHX	
NC7SV57FHX	
NC7SP126FHX	
NC7SV00FHX	
NC7SV02FHX	
NC7SP04FHX	
NC7SV58FHX	

Appendix A: Changed Products

Product	Customer Part Number	Qualification Vehicle
NC7SP00L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP02L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP04FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP04L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP05L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP08FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP08L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP125L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP126FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP126L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP14L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP157L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP17FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP17L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP19L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP32L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP34L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX,



		NC7SZ18FHX
NC7SP38L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP57L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP58L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP86L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SPU04L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV00FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV00L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV02FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV02L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV04FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV04L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV05FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV05L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV08FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV08L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV11L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV125L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV126L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV14L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX



NC7SV157L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV17FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV17L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV19L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV32FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV32L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV34L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV57FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV57L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV58FHX		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV58L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SV86L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SVU04L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WP14L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WV04L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WV07L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WV14L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WV16L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7WV17L6X		NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX