



## Final Product/Process Change Notification

Document #:FPCN22735X

Issue Date: 02 Dec 2019

<b>Title of Change:</b>	MiniGates Fab, Assembly Material and Test Change (SC88A/SOT953/SOT553) with datasheet update.
<b>Proposed First Ship date:</b>	09 Mar 2020 or earlier if approved by customer
<b>Contact Information:</b>	Contact your local ON Semiconductor Sales Office or <logic.fpcn@onsemi.com>
<b>PCN Samples Contact:</b>	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.
<b>Additional Reliability Data:</b>	Contact your local ON Semiconductor Sales Office or Joe.Chapple@onsemi.com
<b>Type of Notification:</b>	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change. ON Semiconductor will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com
<b>Marking of Parts/Traceability of Change:</b>	For NC7 parts, marking style will be different. For NL17 and SL17 part, the CS code on the reel label will be changed from US to JP.
<b>Change Category:</b>	Wafer Fab Change, Assembly Change, Test Change
<b>Change Sub-Category(s):</b>	Manufacturing Process Change, Material Change, Datasheet/Product Doc change, Shipping/Packaging/Marking, Manufacturing Site Addition

**Sites Affected:**

ON Semiconductor Sites	External Foundry/Subcon Sites
Leshan Phoenix Semiconductor, China	HANA Microelectronics, China
ON Semiconductor Cebu, Philippines	Tower Semiconductor, Israel
ON Semiconductor Maine, United States	Towerjazz Semiconductor, Japan (Toyama)
ON Semiconductor Seremban, Malaysia	

**Description and Purpose:**

This FPCN was issued to qualify new die source in Japan for TinyLogic® and standardize the assembly and test site to increase the front end and back end capacity and standardizing materials.

**NC7xxxP5X Series :**

	Before Change Description		After Change Description
<b>LeadFrame</b>	LF SC70 5L Cu A194 STAMPED PPF	LF SC 88A 5L C194 STAMPED	SC88A OP14
<b>Die Attach</b>	DA EPOXY ABLESTICK 2200D	DA EPXY HE ABLESTIK 84-1LMISR4 5CC	Au Eutectic
<b>Bond Wire</b>	Au	Au	Cu
<b>Mold Compound</b>	MC SUMITOMO G600 HF	MC GREEN PA CK5000A 13MMX3.9G	Henkel GR640 HV-L1
<b>Assembly Site</b>	Subcon China	ON Semiconductor, Philippines	ON Semiconductor, in China
<b>Die Source</b>	ON Semiconductor, US Fab	ON Semiconductor, US Fab	External Fab Japan
<b>Plating</b>	Preplated	100% Sn	100% Sn



	From	To
Product marking change	<p>针对于:SC70-5L, SC70-6L</p> <p>Year code Week code Pin 1 dot Plant Code (公司代码)</p> <p>Above marking is for subcon China, ON Philippines is without the plant code dot.</p>	<p><b>MARKING DIAGRAMS</b></p> <p>L2 = Specific Device Marking M = Date Code* • = Pb-Free Package (Note: Microdot may be in either location) *Date Code orientation and/or position may vary depending upon manufacturing location.</p>

**NL17xxxDFT2G Series:**

	Before Change Description	After Change Description
Bond Wire	Au ** and Cu	Cu
Mold Compound	Hitachi GE200F or Henkel GR640 HV-L1	Henkel GR640 HV-L1
Die Source	External Foundry Israel	External Fab Japan

\*\* Only these parts are using Au wire before change

(NL17SG00DFT2G/NL17SG02DFT2G/NL17SG04DFT2G/NL17SG07DFT2G/NL17SG08DFT2G/NL17SG125DFT2G/NL17SG126DFT2G/NL17SG14DFT2G/NL17SG17DFT2G/NL17SG32DFT2G/NL17SG34DFT2G/NL17SG86DFT2G/NL17SGU04DFT2G)

No change in marking.

**NL17xxXV5T2G Series:**

	Before Change Description	After Change Description
Bond Wire	Au	Cu
Assy Site##	ON Semiconductor Seremban, Malaysia	Leshan Phoenix Semiconductor, China
Die Source	External Foundry Israel	External Fab Japan

## Except NL17SV32XV5T2G has no site change, it is currently running in Leshan Phoenix Semiconductor, China

	From	To
Product marking change	<p>LA = Device Code, M = Date Code (orientation at 0 degree), Dot(.) = Lead Free Package</p>	<p>LA = Device Code, M = Date Code (orientation at 90 degree), Dot(.) = Lead Free Package</p>

**NL17xxxP5T5G Series:**

	Before Change Description	After Change Description
Bond Wire	Au	Cu
Die Source	External Foundry Israel	External Fab Japan

No change in marking.

**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.
- Please note that these changes are examples of changes to be made as a family specification. Changes to limits affecting individual part numbers will be noted as such.

There will be other changes that represent a clean-up 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.

**NL17SG**

- Maximum voltage rating changed from 5.5 volts to 4.3 volts.

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +5.5	V
V <sub>IN</sub>	DC Input Voltage	-0.5 to +4.6	V
V <sub>OUT</sub>	DC Output Voltage Output at High or Low State Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.6	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +5.5	V
V <sub>IN</sub>	DC Input Voltage V <sub>CC</sub> ≥ 0.9 V V <sub>CC</sub> = 0.9 V	-0.5 to +5.5 -0.5 to +4.6	V
V <sub>OUT</sub>	DC Output Voltage	-0.5 to V <sub>CC</sub> + 0.5	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +5.5	V
V <sub>IN</sub>	DC Input Voltage	-0.5 to +4.6	V
V <sub>OUT</sub>	DC Output Voltage	-0.5 to V <sub>CC</sub> + 0.5	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +5.5	V
V <sub>IN</sub>	DC Input Voltage	-0.5 to +5.5	V
V <sub>OUT</sub>	DC Output Voltage	-0.5 to V <sub>CC</sub> + 0.5	V

**MAXIMUM RATINGS**

Symbol	Characteristics	Value	Unit
V <sub>CC</sub>	DC Supply Voltage SC-74A, SC-88A, SOT-953, UDFN6 SC-88A (NLV)	-0.5 to +5.5 -0.5 to +4.3	V
V <sub>IN</sub>	DC Input Voltage SC-74A, SC-88A, SOT-953, UDFN6 SC-88A (NLV)	-0.5 to +4.6 -0.5 to +4.3	V
V <sub>OUT</sub>	DC Output Voltage SC-88A (NLV), Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.6 -0.5 to +4.6	V
	DC Output Voltage SC-74A, SC-88A, SOT-953, UDFN6 Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.3 -0.5 to +4.3	V



- Electrostatic Discharge/Latchup adjusted to align with JEDEC Standard.

## Existing datasheet

## New

V <sub>ESD</sub>	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>1500 >100	V
I <sub>LATCHUP</sub>	Latchup Performance Above V <sub>CC</sub> and Below GND at 125°C (Note 4)		±100	mA

  

V <sub>ESD</sub>	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >100	V
I <sub>LATCHUP</sub>	Latchup Performance Above V <sub>CC</sub> and Below GND at 125°C (Note 4)		±75	mA

  

V <sub>ESD</sub>	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)		> 3000 > 200	V
I <sub>LATCHUP</sub>	Latchup Performance Above V <sub>CC</sub> and Below GND at 125°C (Note 4)		±100	mA

  

V <sub>ESD</sub>	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >150	V
I <sub>LATCHUP</sub>	Latchup Performance Above V <sub>CC</sub> and Below GND at 125°C (Note 4)		±100	mA

V <sub>ESD</sub>	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
I <sub>LATCHUP</sub>	Latchup Performance (Note 4)		±100	mA

- Removed minimum limits from Positive Input Threshold Voltage specification.
- Removed maximum limits from Negative Threshold Voltage specification.
- Adjusted limits to family specification and corrected Hysteresis max limits.

## Existing datasheet

## New

Symbol	Parameter	Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-55°C ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>IP</sub>	Positive-Going Input Threshold Voltage		0.9	0.64	0.7	0.86	0.62	0.87	V
			1.1	0.73	0.81	0.95	0.71	1	
			1.4	0.86	0.94	1.16	0.84	1.2	
			1.65	0.95	1.06	1.25	0.94	1.3	
			2.3	1.22	1.36	1.6	1.16	1.65	
			3.0	1.51	1.8	2.05	1.38	2.1	
			3.0	0.09	0.23	0.30	0.08	0.33	
V <sub>IN</sub>	Negative-Going Input Threshold Voltage		1.1	0.15	0.33	0.39	0.12	0.43	V
			1.4	0.3	0.47	0.54	0.25	0.55	
			1.65	0.35	0.6	0.65	0.3	0.65	
			2.3	0.55	0.85	0.88	0.5	0.88	
			3.0	0.95	1.13	1.16	0.9	1.16	
			3.0	0.15	0.5	0.75	0.2	0.8	
			1.1	0.15	0.5	0.75	0.2	0.8	
V <sub>H</sub>	Hysteresis Voltage		1.4	0.15	0.5	0.75	0.2	0.8	V
			1.65	0.15	0.5	0.75	0.2	0.8	
			2.3	0.15	0.5	0.75	0.2	0.8	
			3.0	0.25	0.65	0.85	0.3	0.9	
			3.0	0.15	0.5	0.75	0.2	0.8	
			1.1	0.15	0.5	0.75	0.2	0.8	
			1.4	0.15	0.5	0.75	0.2	0.8	

Symbol	Parameter	Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25 °C			T <sub>A</sub> = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>IP</sub>	Positive Input Threshold Voltage		0.9	-	0.7	0.86	-	0.86	V
			1.1 to 1.3	-	0.81	0.95	-	0.95	
			1.4 to 1.6	-	0.94	1.16	-	1.16	
			1.65 – 1.95	-	1.06	1.3	-	1.3	
			2.3 to < 2.7	-	1.36	1.73	-	1.73	
			2.7 to 3.6	-	1.8	2.24	-	2.24	
			3.0	0.10	0.23	-	0.10	-	
V <sub>IN</sub>	Negative Input Threshold Voltage		1.1 to 1.3	0.15	0.33	-	0.15	-	V
			1.4 to 1.6	0.3	0.47	-	0.3	-	
			1.65 – 1.95	0.35	0.6	-	0.35	-	
			2.3 to < 2.7	0.55	0.85	-	0.55	-	
			2.7 to 3.6	0.95	1.13	-	0.95	-	
			3.0	0.15	0.27	0.7	0.15	0.7	
			1.1 to 1.3	0.2	0.35	0.8	0.2	0.8	
V <sub>H</sub>	Low-Level Input Voltage		1.4 to 1.6	0.25	0.41	0.86	0.25	0.86	V
			1.65 – 1.95	0.30	0.46	0.9	0.30	0.9	
			2.3 to < 2.7	0.40	0.56	1.05	0.40	1.05	
			2.7 to 3.6	0.49	0.59	1.1	0.49	1.1	
			3.0	0.15	0.27	0.7	0.15	0.7	
			1.1 to 1.3	0.2	0.35	0.8	0.2	0.8	
			1.4 to 1.6	0.25	0.41	0.86	0.25	0.86	

- Power Off Leakage Current specification added.
- Input Leakage Current specification adjusted to remove crossover with Power-Off Leakage Current specification.

I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 3.6 V or V <sub>OUT</sub> = 3.6 V	0	-	-	1.0	-	5.0	μA
------------------	---------------------------	--	---	---	---	-----	---	-----	----

I <sub>IN</sub>	Input Leakage Current	0 ≤ V <sub>IN</sub> ≤ 3.6 V	0 to 3.6	±0.1	±1.0	μA
-----------------	-----------------------	-----------------------------	----------	------	------	----



- Propagation Delay specification adjusted to remove limits at 0.9 volts.
- Minimum Limits removed from all Propagation Delay specifications.

## Existing datasheet

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

## New

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

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

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

**NL175V**

- Maximum voltage rating changed from 4.6 volts to 4.3 volts to represent new die. (Excluding Automotive Devices)
- Thermal Resistance and Power Dissipation updated.
- Electrostatic Discharge updated to reflect JEDEC standard.

**Existing datasheet****MAXIMUM RATINGS**

Symbol	Rating	Value	Units
$V_{CC}$	DC Supply Voltage	-0.5 to +4.6	V
$V_I$	DC Input Voltage	-0.5 to +4.6	V
$V_O$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V

$\theta_{JA}$	Thermal Resistance (Note 1)	250	°C/W
$P_D$	Power Dissipation in Still Air at 85°C	250	mW

$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	3000 200	V
-----------	--	-------------	---

$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	2000 300	V
-----------	--	-------------	---

$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	4000 200	V
-----------	--	-------------	---

**New****MAXIMUM RATINGS**

Symbol	Characteristics	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +4.3	V
$V_{IN}$	DC Input Voltage	-0.5 to +4.3	V
$V_{OUT}$	DC Output Voltage Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +4.3 -0.5 to +4.3	V

$\theta_{JA}$	Thermal Resistance (Note 2)	SC-88A SC-74A SOT-553 SOT-953 UDFN6	659 555 562 560 382	°C/W
$P_D$	Power Dissipation in Still Air	SC-88A SC-74A SOT-553 SOT-953 UDFN6	190 225 222 223 327	mW

$V_{ESD}$	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
$I_{LATCHUP}$	Latchup Performance (Note 4)		≥ 100	mA

- Remove minimum limits from all propagation delay specifications.
- Changed temperature conditions to match family specification.

**Existing datasheet****AC CHARACTERISTICS** (Input  $t_r = t_f = 3.0$  nS)

		-40°C		25°C			85°C			
Symbol	Parameter	Condition	V <sub>CC</sub>	Min	Typ	Max	Min	Max	Units	
T <sub>PHL</sub> T <sub>PLH</sub>	Propagation Delay	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1.0 MΩ	0.90		13				nS	
		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2.0 kΩ	1.10 ≤ V <sub>CC</sub> ≤ 1.30 1.40 ≤ V <sub>CC</sub> ≤ 1.60	3.0 1.0	6.0 3.2	15.8 8.7	1.0 1.0	18.6 9.7	nS	
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 500 Ω	1.65 ≤ V <sub>CC</sub> ≤ 1.95 2.30 ≤ V <sub>CC</sub> ≤ 2.70 2.70 ≤ V <sub>CC</sub> ≤ 3.60	1.0 0.8 0.7	2.0 1.2 1.0	6.0 4.1 3.3	1.0 0.7 0.6	6.8 4.7 4.0	nS	

**New****AC CHARACTERISTICS** (Input  $t_r = t_f = 3.0$  nS)

				25 °C			T <sub>A</sub> = -55°C to +125°C		
Symbol	Parameter	Condition	V <sub>CC</sub>	Min	Typ	Max	Min	Max	Units
T <sub>PHL</sub> T <sub>PLH</sub>	Propagation Delay	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1.0 MΩ	0.90		13				nS
		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2.0 kΩ	1.10 ≤ V <sub>CC</sub> ≤ 1.30 1.40 ≤ V <sub>CC</sub> ≤ 1.60	6.0 3.2	15 8.7		18.6 9.7	nS	
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 500 Ω	1.65 ≤ V <sub>CC</sub> ≤ 1.95 2.30 ≤ V <sub>CC</sub> ≤ 2.70 2.70 ≤ V <sub>CC</sub> ≤ 3.60	2.0 1.2 1.0	6.0 4.1 3.3		6.8 4.7 4.0	nS	

**NC7SP**

- 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

**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	4.6	V
$V_{IN}$	DC Input Voltage	-0.5	4.6	V
$V_{OUT}$	DC Output Voltage			
	HIGH or LOW State <sup>(1)</sup>	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-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			
	HIGH or LOW State <sup>(1)</sup>	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-0.5	4.3	V

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

**Existing datasheet****New**

$P_D$	Power Dissipation at +85°C	SC70-5	150	mW
		MicroPak™-6	130	
		MicroPak2™-6	120	

$P_D$	Power Dissipation In Still Air	SC-74A	225	mW
		SC70-5	190	
		MicroPak™-6	327	
		MicroPak2™-6	327	

$\theta_{JA}$	Thermal Resistance	SC70-5	425	°C/W
		MicroPak™-6	500	
		MicroPak2™-6	560	

$\theta_{JA}$	Thermal Resistance	SC-74A	555	°C/W
		SC70-5	659	
		MicroPak™-6	382	
		MicroPak2™-6	382	

- Positive Threshold Voltage adjusted to remove lower limits.
- Negative Threshold Voltage adjusted to remove upper limits.

**Existing datasheet****New**

Symbol	Parameter	Conditions	$V_{CC}$ (V)	$T_A = +25^\circ C$		$T_A = -40^\circ C$ to $+85^\circ C$		Units
$V_P$	Positive Threshold Voltage		0.90	0.30	0.60	0.30	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	
$V_N$	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	
			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	

Symbol	Parameter	Conditions	$V_{CC}$ (V)	$T_A = +25^\circ C$		$T_A = -40^\circ C$ to $+85^\circ C$		Units
$V_P$	Positive Threshold Voltage		0.90		0.60		0.60	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	
$V_N$	Negative Threshold Voltage		0.90	0.10		0.10		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	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	





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

## Existing datasheet

AC Electrical Characteristics											
Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number	
			Min	Typ	Max	Min	Max				
t <sub>PLZ</sub>	Propagation Delay	0.90		24					ns	C <sub>L</sub> = 10 pF R <sub>U</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	4.0	9	18.7	3.5	30.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	2.0	6	12.4	1.5	13.9				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.5	5	9.6	1.0	12.1				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.0	4	9.0	0.8	10.0				
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	1.0	3	8.7	0.5	9.0					
t <sub>PZH</sub>	Propagation Delay	0.90		27					ns	C <sub>L</sub> = 15 pF R <sub>U</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	5.0	10	20.2	4.5	33.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	3.0	7	13.3	2.5	16.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	2.0	5	10.3	2.0	12.6				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.5	4	9.4	1.0	10.2				
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	1.0	3	9.1	0.5	9.7					
t <sub>PLZ</sub>	Propagation Delay	0.90		34					ns	C <sub>L</sub> = 30 pF R <sub>U</sub> = 5000 Ω R <sub>O</sub> = 5000 Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	6.0	12	24.0	5.0	43.0				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	4.0	8	16.0	3.0	18.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	2.0	6	12.0	2.0	14.0				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.0	5	11.0	1.0	12.0				
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	0.8	4	10.0	0.5	11.0					

## New

AC Electrical Characteristics										
Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = -25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLZ</sub>	Propagation Delay	0.90		24				ns	C <sub>L</sub> = 10 pF R <sub>D</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		9	18.7		30.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		6	12.4		13.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		5	9.6		12.1			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		4	9.0		10.0			
3.00 ≤ V <sub>CC</sub> ≤ 3.60		3	8.7		9.0					
t <sub>PZH</sub>	Propagation Delay	0.90		27				ns	C <sub>L</sub> = 15 pF R <sub>D</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		10	20.2		33.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		7	13.3		16.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		5	10.3		12.6			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		4	9.4		10.2			
3.00 ≤ V <sub>CC</sub> ≤ 3.60		3	9.1		9.7					
t <sub>PLZ</sub>	Propagation Delay	0.90		34				ns	C <sub>L</sub> = 30 pF R <sub>D</sub> = 5000 Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		12	24.0		43.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		8	16.0		18.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		6	12.0		14.0			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		5	11.0		12.0			
3.00 ≤ V <sub>CC</sub> ≤ 3.60		4	10.0		11.0					

## AC Electrical Characteristics (Continued)

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

## AC Electrical Characteristics (Continued)

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40 to +85°C			Units	Figure
				Min.	Typ.	Max.	Min.	Max.			
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay	0.90				34				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1MΩ		12.0	23.4		51.1			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	13.8		17.7			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	10.6		14.0			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	7.6		9.9			
t <sub>PEL</sub> , t <sub>PHL</sub>	Output Enable Time	0.90				37				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> = 30pF, R <sub>L</sub> = 5000Ω		13.0	24.4		51.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	14.5		17.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	11.7		14.7			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	9.1		11.1			
t <sub>PLZ</sub> , t <sub>PHL</sub>	Output Disable Time	0.90				36				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> = 30pF, R <sub>L</sub> = 5000Ω		13.0	24.8		53.5			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	17.1		21.1			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	16.5		20.5			
		2.30 ≤ V <sub>CC</sub> ≤ 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 <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C		T <sub>A</sub> =+40 to +85°C		Units	Figure
				Min.	Typ.	Max.	Min.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =1MΩ		26			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		4.0	10.0	19.1	3.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		2.0	6.0	11.2	1.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		1.5	5.0	8.6	1.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	4.0	6.3	0.8		
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =5000Ω		29			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		4.0	8.0	17.5	3.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		2.0	6.0	11.9	1.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		1.5	5.0	9.7	1.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	4.0	7.7	0.8		
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =5000Ω		28			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		4.0	8.0	20.5	3.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		2.0	6.0	15.3	1.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		1.5	5.0	14.7	1.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	4.0	13.7	0.8		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =1MΩ		28			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	10.0	20.5	4.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	7.0	11.8	2.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.0	9.1	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.5	4.0	6.6	1.0		
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =5000Ω		31			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	11.0	18.2	4.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	7.0	12.5	2.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.0	10.2	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.5	4.0	8.0	1.0		
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =5000Ω		30			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	11.0	21.6	4.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	7.0	15.9	2.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.0	15.2	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.5	4.0	14.1	1.0		

Continued on following page...

## New

## AC Electrical Characteristics

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C		T <sub>A</sub> =+40 to +85°C		Units	Figure
				Min.	Typ.	Max.	Min.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =1MΩ		26			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			10.0	26			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	11.2			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	8.6			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	6.3			
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =5000Ω		29			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			8.0	26			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	11.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	9.7			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	7.7			
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =5000Ω		28			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			8.0	20.5			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	15.3			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	14.7			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	13.7			
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =1MΩ		28			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			10.0	27			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	11.8			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	9.1			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	6.6			
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =5000Ω		31			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			11.0	27			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	12.5			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	10.2			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	8.0			
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =5000Ω		30			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			11.0	21.6			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	15.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	15.2			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	14.1			

Continued on following page...

## AC Electrical Characteristics (Continued)

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C		T <sub>A</sub> =+40 to +85°C		Units	Figure
				Min.	Typ.	Min.	Typ.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =1MΩ		34			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.5	12.0	23.4	5.0		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	13.8	3.0		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	10.6	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	7.6	1.0		
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =5000Ω		37			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	13.0	24.4	5.0		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	14.5	3.0		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	11.7	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	9.1	1.0		
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =5000Ω		36			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	13.0	24.8	5.0		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	17.1	3.0		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	16.5	2.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	15.2	1.0		

## AC Electrical Characteristics (Continued)

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C		T <sub>A</sub> =+40 to +85°C		Units	Figure
				Min.	Typ.	Min.	Typ.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =1MΩ		34			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			12.0	30			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	13.8			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	10.6			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	7.6			
t <sub>ONL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =5000Ω		37			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			13.0	30			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	14.5			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	11.7			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	9.1			
t <sub>OFF</sub> , t <sub>OFF</sub>	Output Disable Time	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =5000Ω		36			ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			13.0	24.8			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	17.1			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	16.5			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	15.2			

**NC7SV**

- 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 <sub>CC</sub>	Supply Voltage		-0.5	4.6	V
V <sub>IN</sub>	DC Input Voltage		-0.5	4.6	V
V <sub>OUT</sub>	DC Output Voltage	HIGH or LOW State <sup>(1)</sup>	-0.5	V <sub>CC</sub> to +0.5	V
		V <sub>CC</sub> =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 <sup>(4)</sup>	-0.5	$V_{CC} + 0.5$	V
		$V_{CC}=0V$	-0.5	4.3	V

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

**Existing datasheet**

$P_D$	Power Dissipation at +85°C	SC70-5	150	mW
		MicroPak™-6	130	
		MicroPak2™-6	120	

$\theta_{JA}$	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	

$\theta_{JA}$	Thermal Resistance	SC-74A	555	°C/W
		SC70-5	659	
		MicroPak™-6	382	
		MicroPak2™-6	382	

- Positive Threshold Voltage adjusted to remove lower limits.
- Negative Threshold Voltage adjusted to remove upper limits.
- Adjusted Positive Threshold voltage max at 0.9V and Hysteresis voltage max at 0.9V.

**Existing datasheet**

Symbol	Parameter	$V_{CC}$ (V)	$T_A = +25^\circ\text{C}$		$T_A = -40^\circ\text{C to } -85^\circ\text{C}$		Units	Conditions
			Min	Max	Min	Max		
$V_{IH}$	Positive Threshold Voltage	0.90	0.3	0.7	0.3	0.7	V	
		1.10	0.4	1.0	0.4	1.0		
		1.40	0.5	1.25	0.5	1.4		
		1.65	0.7	1.5	0.7	1.5		
		2.30	1.0	1.8	1.0	1.8		
		2.70	1.3	2.2	1.3	2.2		
$V_{IL}$	Negative Threshold Voltage	0.90	0.10	0.6	0.10	0.6	V	
		1.10	0.15	0.7	0.15	0.7		
		1.40	0.20	0.8	0.20	0.8		
		1.65	0.25	0.9	0.25	0.9		
		2.30	0.4	1.15	0.4	1.15		
		2.70	0.6	1.5	0.6	1.5		
$V_{H}$	Hysteresis Voltage	0.90	0.07	0.5	0.07	0.5	V	
		1.10	0.08	0.6	0.08	0.6		
		1.40	0.10	0.8	0.10	0.8		
		1.65	0.15	1.0	0.15	1.0		
		2.30	0.25	1.1	0.25	1.1		
		2.70	0.40	1.2	0.40	1.2		

**New**

Symbol	Parameter	$V_{CC}$ (V)	$T_A = +25^\circ\text{C}$		$T_A = -40^\circ\text{C to } -85^\circ\text{C}$		Units	Conditions
			Min	Max	Min	Max		
$V_{IH}$	Positive Threshold Voltage	0.90	0.8	0.8	0.8	0.8	V	
		1.10	1.0	1.0	1.0	1.0		
		1.40	1.25	1.25	1.4	1.4		
		1.65	1.5	1.5	1.5	1.5		
		2.30	1.8	1.8	1.8	1.8		
		2.70	2.2	2.2	2.2	2.2		
$V_{IL}$	Negative Threshold Voltage	0.90	0.10	0.10	0.10	0.10	V	
		1.10	0.15	0.15	0.15	0.15		
		1.40	0.20	0.20	0.20	0.20		
		1.65	0.25	0.25	0.25	0.25		
		2.30	0.4	0.4	0.4	0.4		
		2.70	0.6	0.6	0.6	0.6		
$V_{H}$	Hysteresis Voltage	0.90	0.07	0.6	0.07	0.6	V	
		1.10	0.08	0.6	0.08	0.6		
		1.40	0.10	0.8	0.10	0.8		
		1.65	0.15	1.0	0.15	1.0		
		2.30	0.25	1.1	0.25	1.1		
		2.70	0.40	1.2	0.40	1.2		



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

## Existing datasheet

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	13						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	3.0	6.0	9.8	1.9	14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.0	3.5	5.3	0.8	5.7			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	0.9	3.0	4.3	0.8	4.6		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	2.0	2.8	0.7	3.0		R <sub>L</sub> = 500Ω	
t <sub>PDH</sub>	Output Enable Time	0.90	14						C <sub>L</sub> = 30 pF	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	3.0	6.0	9.7	2.0	16.4		R <sub>D</sub> = 1kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.2	4.0	6.0	1.0	7.5		R <sub>D</sub> = 1kΩ	
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	3.0	4.5	0.9	5.0		S <sub>1</sub> = GND for t <sub>PDH</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	2.0	3.0	0.7	3.4		S <sub>1</sub> = V <sub>I</sub> for t <sub>PDH</sub>	
t <sub>PLZ</sub>	Output Disable Time	0.90	14						V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.0	9.5	2.0	14.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.2	3.0	5.5	1.1	7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.6	0.8	5.8		S <sub>1</sub> = GND for t <sub>PLZ</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	1.5	4.2	0.5	5.0		S <sub>1</sub> = V <sub>I</sub> for t <sub>PLZ</sub>	
t <sub>PLZ</sub>	Output Disable Time	0.90	14						V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.0	9.5	2.0	14.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.2	3.0	5.5	1.1	7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.6	0.8	5.8		S <sub>1</sub> = GND for t <sub>PLZ</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	1.5	4.2	0.5	5.0		S <sub>1</sub> = V <sub>I</sub> for t <sub>PLZ</sub>	

## New

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	13						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	9.8		14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.5	5.3		5.7			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		3.0	4.3		4.6		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70		2.0	2.8		3.0		R <sub>L</sub> = 500Ω	
t <sub>PDH</sub>	Output Enable Time	0.90	14						C <sub>L</sub> = 30 pF	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	9.7		16.4		R <sub>D</sub> = 1kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	6.0		7.5		R <sub>D</sub> = 1kΩ	
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		3.0	4.5		5.0		S <sub>1</sub> = GND for t <sub>PDH</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70		2.0	3.0		3.4		S <sub>1</sub> = V <sub>I</sub> for t <sub>PDH</sub>	
t <sub>PLZ</sub>	Output Disable Time	0.90	14						V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	9.5		14.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	5.5		7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.6		5.8		S <sub>1</sub> = GND for t <sub>PLZ</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70		1.5	4.2		5.0		S <sub>1</sub> = V <sub>I</sub> for t <sub>PLZ</sub>	
t <sub>PLZ</sub>	Output Disable Time	0.90	14						V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	9.5		14.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	5.5		7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.6		5.8		S <sub>1</sub> = GND for t <sub>PLZ</sub>	
		2.30 ≤ V <sub>CC</sub> < 2.70		1.5	4.2		5.0		S <sub>1</sub> = V <sub>I</sub> for t <sub>PLZ</sub>	

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	12						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.9	10.0	1.0	14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.0	3.2	6.1	0.9	7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.2	0.7	6.2		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	1.8	3.7	0.6	4.4		R <sub>L</sub> = 500Ω	
t <sub>PLZ</sub>	Output Disable Time	0.90	12						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.9	10.0	1.0	14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.0	3.2	6.1	0.9	7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.2	0.7	6.2		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70	0.8	1.8	3.7	0.6	4.4		R <sub>L</sub> = 500Ω	

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	12						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.9	10.0		14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.2	6.1		7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.2		6.2		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70		1.8	3.7		4.4		R <sub>L</sub> = 500Ω	
t <sub>PLZ</sub>	Output Disable Time	0.90	12						C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.9	10.0		14.9		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ	
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.2	6.1		7.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.2		6.2		C <sub>L</sub> = 30 pF	
		2.30 ≤ V <sub>CC</sub> < 2.70		1.8	3.7		4.4		R <sub>L</sub> = 500Ω	

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40 to +85°C		Units	Figure
				Min.	Typ.	Max.	Min.	Max.		
t <sub>PLH</sub> , t <sub>PLZ</sub>	Propagation Delay	0.90	C <sub>L</sub> = 15pF, R <sub>L</sub> = 1kΩ		13					Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ	3.0	6.0	15.0	1.0	18.6		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ	1.0	3.2	8.7	1.0	9.7		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ	1.0	2.0	6.0	1.0	6.8		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ	0.8	1.2	3.6	0.7	4.7		
		2.70 ≤ V <sub>CC</sub> ≤ 3.60	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ	0.7	1.0	3.3	0.6	4.0		

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

## Reliability Data Summary:

QV DEVICE Name : NC7SP125P5X

RMS : S1765

PACKAGE : SC88A

Test	Specification	Condition	Interval	Results
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/804
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/234
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/297
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/273
UHASt	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/234
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	1008 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90



QV DEVICE Name : NL17SG14P5T5G

RMS : 56472

PACKAGE : SOT953

Test	Specification	Condition	Interval	Results
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/720
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/249
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/234
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/252
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/234
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	1008 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90

QV DEVICE Name : NL17SV16XV5T2G

RMS : 51763

PACKAGE : SOT553

Test	Specification	Condition	Interval	Results
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/753
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/252
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/252
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/249
UHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/252
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	2016 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90

**Electrical Characteristics Summary:**

Electrical characteristics available upon request.

**List of Affected Parts:**

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

Part Number	Qualification Vehicle
NL17SV02XV5T2G	NL17SV16XV5T2G
NL17SG04DFT2G	NC7SP125P5X
NL17SG04P5T5G	NL17SG14P5T5G
NL17SV04XV5T2G	NL17SV16XV5T2G



## Final Product/Process Change Notification

Document #:FPCN22735X

Issue Date: 02 Dec 2019

NL17SG07DFT2G	NC7SP125P5X
NL17SG07P5T5G	NL17SG14P5T5G
NL17SG08DFT2G	NC7SP125P5X
NL17SG08P5T5G	NL17SG14P5T5G
NL17SV08XV5T2G	NL17SV16XV5T2G
NL17SG14DFT2G	NC7SP125P5X
NL17SG14P5T5G	NL17SG14P5T5G
NL17SV16XV5T2G	NL17SV16XV5T2G
NL17SG17DFT2G	NC7SP125P5X
NL17SG17P5T5G	NL17SG14P5T5G
NL17SG32DFT2G	NC7SP125P5X
NL17SG32P5T5G	NL17SG14P5T5G
NL17SV32XV5T2G	NL17SV16XV5T2G
NL17SG34DFT2G	NC7SP125P5X
NC7SPU04P5X	NC7SP125P5X
NC7SV04P5X	NC7SP125P5X
NC7SP00P5X	NC7SP125P5X
NC7SP125P5X	NC7SP125P5X
NC7SP17P5X	NC7SP125P5X
NC7SV34P5X	NC7SP125P5X
NC7SP86P5X	NC7SP125P5X
NC7SV05P5X	NC7SP125P5X
NC7SV00P5X	NC7SP125P5X
NC7SV08P5X	NC7SP125P5X
NC7SV17P5X	NC7SP125P5X
NC7SP14P5X	NC7SP125P5X
NC7SV126P5X	NC7SP125P5X
NC7SP08P5X	NC7SP125P5X
NC7SP04P5X	NC7SP125P5X
NC7SP02P5X	NC7SP125P5X
NC7SV86P5X	NC7SP125P5X
NC7SP32P5X	NC7SP125P5X
NC7SVU04P5X	NC7SP125P5X
NC7SV02P5X	NC7SP125P5X



## Final Product/Process Change Notification

Document #:FPCN22735X

Issue Date: 02 Dec 2019

NC7SP34P5X	NC7SP125P5X
NC7SP126P5X	NC7SP125P5X
NC7SV14P5X	NC7SP125P5X
NC7SV125P5X	NC7SP125P5X
NC7SP38P5X	NC7SP125P5X
NC7SP05P5X	NC7SP125P5X
NC7SV32P5X	NC7SP125P5X
NL17SGU04P5T5G	NL17SG14P5T5G
NL17SGU04DFT2G	NC7SP125P5X
NL17SG126P5T6G	NL17SG14P5T5G
NL17SG126P5T5G	NL17SG14P5T5G
NL17SG126DFT2G	NC7SP125P5X
NL17SG125P5T5G	NL17SG14P5T5G
NL17SG125DFT2G	NC7SP125P5X
NL17SG86P5T5G	NL17SG14P5T5G
NL17SG86DFT2G	NC7SP125P5X
NL17SG34P5T5G	NL17SG14P5T5G
NL17SG02P5T5G	NL17SG14P5T5G
NL17SG02DFT2G	NC7SP125P5X
NL17SV00XV5T2G	NL17SV16XV5T2G
NL17SG00P5T5G	NL17SG14P5T5G
NL17SG00DFT2G	NC7SP125P5X

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。





## 最終製品 / プロセス変更通知

文書番号# : FPCN22735X

発行日 : 02 Dec 2019

変更件名:	データシート更新を伴う MiniGates のウェハー工場、組立拠点と材料、および検査変更 (SC88A/SOT953/SOT553)
初回出荷予定日:	09 Mar 2020 またはお客様からの承認が得られた場合はそれ以前
連絡先情報:	現地のオン・セミコンダクター営業所または <logic.fpcn@onsemi.com> にお問い合わせください。
サンプル:	現地のオン・セミコンダクター営業所または <PCN.Samples@onsemi.com> にお問い合わせください。 サンプルは、この変更の初回通知、初回 PCN の日付から 30 日以内に要求してください。 サンプル納入時は、依頼日、数量、特別梱包材/ラベル条件によって異なります。
追加の信頼性データ:	お客様の地域のオン・セミコンダクター営業所または <Joe.Chapple@onsemi.com> にお問い合わせください。
通知種別:	これは、お客様宛の最終製品 / プロセス変更通知 (FPCN) です。FPCN は、変更実施の 90 日前に発行されます。 オン・セミコンダクターは、この通知の送付から 30 日以内に書面による問い合わせがない限り、この変更が承諾されたものとみなします。お問い合わせは、<PCN.Support@onsemi.com> 宛てにお願いします。
変更部品の識別:	NC7 製品では、マーキングスタイルは異なるものになります。NL17 製品および SL17 製品では、リールラベルの CS コードは US から JP に変更されます。

変更カテゴリ: ウェハファブの変更, アセンブリの変更, 検査の変更

変更サブカテゴリ: 製造プロセスの変更, 材料の変更, データシート/製品資料の変更, 出荷/パッケージング/表記, 製造拠点の追加

## 影響を受ける拠点:

オン・セミコンダクター拠点:	外部製造工場 / 下請業者拠点:
Leshan Phoenix Semiconductor, China	HANA Microelectronics, China
ON Semiconductor Cebu, Philippines	Tower Semiconductor, Israel
ON Semiconductor Maine, United States	Towerjazz Semiconductor, Japan (Toyama)
ON Semiconductor Seremban, Malaysia	

## 説明および目的:

この FPCN は、フロントエンドおよびバックエンドの生産能力の拡大と、材料を標準化するために、TinyLogic®の新しいダイ供給拠点として日本におけるファウンドリーの認定、組立と検査拠点を標準化することを目的として発行されたものです。

## NC7xxxP5X Series :

	変更前の表記		変更後の表記
リードフレーム	LF SC70 5L Cu A194 STAMPED PPF	LF SC 88A 5L C194 STAMPED	SC88A OP14
ダイ接着剤	DA EPOXY ABLESTICK 2200D	DA EPXY HE ABLESTIK 84-1LMISR4 5CC	Au Eutectic
ボンドワイヤー	Au	Au	Cu
モールド・コンパウンド	MC SUMITOMO G600 HF	MC GREEN PA CK5000A 13MMX3.9G	Henkel GR640 HV-L1
組立拠点	Subcon China	ON Semiconductor, Philippines	ON Semiconductor, in China
ダイ供給	ON Semiconductor, US Fab	ON Semiconductor, US Fab	External Fab Japan
めっき	Preplated	100% Sn	100% Sn



	変更前	変更後
製品マーキング変更	<p>針对于: SC70-5L, SC70-6L</p> <p>上記のマーキングは、中国外注品の仕様であり、ON フィリピン品は工場コードのドットはありません。</p>	<p><b>MARKING DIAGRAMS</b></p> <p>         L2 = Specific Device Marking          M = Date Code*          • = Pb-Free Package          (Note: Microdot may be in either location)          *Date Code orientation and/or position may vary depending upon manufacturing location.       </p>

**NL17xxxDFT2G Series:**

	変更前の表記	変更後の表記
ボンドワイヤー	Au ** and Cu	Cu
モールド・コンパウンド	Hitachi GE200F or Henkel GR640 HV-L1	Henkel GR640 HV-L1
ダイ供給	External Foundry Israel	External Fab Japan

\*\* これらの製品のみ、変更前は Au ワイヤを使用しています

(NL17SG00DFT2G/NL17SG02DFT2G/NL17SG04DFT2G/NL17SG07DFT2G/NL17SG08DFT2G/NL17SG125DFT2G/NL17SG126DFT2G/NL17SG14DFT2G/NL17SG17DFT2G/NL17SG32DFT2G/NL17SG34DFT2G/NL17SG86DFT2G/NL17SGU04DFT2G)

マーキングに変更はありません。

**NL17xxXV5T2G Series:**

	変更前の表記	変更後の表記
ボンドワイヤー	Au	Cu
組み立て拠点	ON Semiconductor Seremban, Malaysia	Leshan Phoenix Semiconductor, China
ダイ供給	External Foundry Israel	External Fab Japan

## ただし、NL17SV32XV5T2G を除き拠点の変更はなく、現在オン乐山で実施されています。

	From	To
製品マーキング変更	<p>LA = Device Code, M = Date Code (orientation at 0 degree), Dot(.) = Lead Free Package</p>	<p>LA = Device Code, M = Date Code (orientation at 90 degree), Dot(.) = Lead Free Package</p>

**NL17xxxP5T5G Series:**

	変更前の表記	変更後の表記
ボンドワイヤー	Au	Cu
ダイ供給	External Foundry (イスラエル)	External Fab (日本)

マーキングには変更はありません。

**データシートの変更:**

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。
- これらの変更はファミリー仕様として加えられる変更の例です。個々の製品番号に影響を及ぼす規格への変更はそうように記述されます。

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。
- スイッチング波形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、お客様にさらなる情報を提供するための、デバイス注文情報の書式設定。

**NL17SG**

- 最大定格電圧が 5.5V から 4.3V に変更。**

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +5.5	V
$V_{IN}$	DC Input Voltage	-0.5 to +4.6	V
$V_{OUT}$	DC Output Voltage Output at High or Low State Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +4.6	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +5.5	V
$V_{IN}$	DC Input Voltage $V_{CC} \geq 0.9$ V $V_{CC} = 0.9$ V	-0.5 to +5.5 -0.5 to +4.6	V
$V_{OUT}$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +5.5	V
$V_{IN}$	DC Input Voltage	-0.5 to +4.6	V
$V_{OUT}$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V

**MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +5.5	V
$V_{IN}$	DC Input Voltage	-0.5 to +5.5	V
$V_{OUT}$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V

**MAXIMUM RATINGS**

Symbol	Characteristics	Value	Unit
$V_{CC}$	DC Supply Voltage SC-74A, SC-88A, SOT-953, UDFN6	-0.5 to +5.5 -0.5 to +4.3	V
$V_{IN}$	DC Input Voltage SC-74A, SC-88A, SOT-953, UDFN6	-0.5 to +4.6 -0.5 to +4.3	V
$V_{OUT}$	DC Output Voltage SC-88A (NLV), Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +4.6 -0.5 to +4.6	V
	DC Output Voltage SC-74A, SC-88A, SOT-953, UDFN6 Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +4.3 -0.5 to +4.3	V



- JEDEC 規格に合わせるために静電放電/ラッチアップを調整。

## Existing datasheet

$V_{ESD}$	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>1500 >100	V
$I_{LATCHUP}$	Latchup Performance Above $V_{CC}$ and Below GND at 125°C (Note 4)		±100	mA
$V_{ESD}$	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >100	V
$I_{LATCHUP}$	Latchup Performance Above $V_{CC}$ and below GND at 125°C (Note 4)		±75	mA
$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)		>3000 >200	V
$I_{LATCHUP}$	Latchup Performance Above $V_{CC}$ and Below GND at 125°C (Note 4)		±100	mA
$V_{ESD}$	ESD Withstand Voltage	Human Body Model (Note 2) Machine Model (Note 3)	>2000 >150	V
$I_{LATCHUP}$	Latchup Performance Above $V_{CC}$ and Below GND at 125°C (Note 4)		±100	mA

## New

$V_{ESD}$	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
$I_{LATCHUP}$	Latchup Performance (Note 4)		±100	mA

- 入力の正しいしきい値電圧の仕様から下限値を削除。
- 負のしきい値電圧の仕様から上限値を削除。
- 規格をファミリー仕様に調整してヒステリシス電圧上限値を修正。

## Existing datasheet

Symbol	Parameter	Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-55°C ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>T+</sub>	Positive-Going Input Threshold Voltage		0.9	0.64	0.7	0.86	0.62	0.87	V
			1.1	0.73	0.81	0.95	0.71	1	
			1.4	0.86	0.94	1.16	0.84	1.2	
			1.65	0.95	1.06	1.25	0.94	1.3	
			2.3	1.22	1.36	1.6	1.18	1.65	
			3.0	1.51	1.8	2.05	1.38	2.1	
V <sub>T-</sub>	Negative-Going Input Threshold Voltage		0.9	0.09	0.23	0.30	0.08	0.33	V
			1.1	0.15	0.33	0.39	0.12	0.43	
			1.4	0.3	0.47	0.54	0.25	0.55	
			1.65	0.35	0.6	0.65	0.3	0.65	
			2.3	0.55	0.85	0.88	0.5	0.88	
			3.0	0.95	1.13	1.16	0.9	1.16	
V <sub>H</sub>	Hysteresis Voltage		0.9	0.15	0.5	0.75	0.2	0.8	V
			1.1	0.15	0.5	0.75	0.2	0.8	
			1.4	0.15	0.5	0.75	0.2	0.8	
			1.65	0.15	0.5	0.75	0.2	0.8	
			2.3	0.15	0.5	0.75	0.2	0.8	
			3.0	0.25	0.65	0.85	0.3	0.9	

## New

Symbol	Parameter	Conditions	$V_{CC}$ (V)	$T_A = 25\text{ }^{\circ}\text{C}$			$T_A = -55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$		Unit
				Min	Typ	Max	Min	Max	
$V_{T+}$	Positive Input Threshold Voltage		0.9	-	0.7	0.86	-	0.86	V
			1.1 to 1.3	-	0.81	0.95	-	0.95	
			1.4 to 1.6	-	0.94	1.16	-	1.16	
			1.65 – 1.95	-	1.06	1.3	-	1.3	
			2.3 to < 2.7	-	1.36	1.73	-	1.73	
			2.7 to 3.6	-	1.8	2.24	-	2.24	
$V_{T-}$	Negative Input Threshold Voltage		0.9	0.10	0.23	-	0.10	-	V
			1.1 to 1.3	0.15	0.33	-	0.15	-	
			1.4 to 1.6	0.3	0.47	-	0.3	-	
			1.65 – 1.95	0.35	0.6	-	0.35	-	
			2.3 to < 2.7	0.55	0.85	-	0.55	-	
			2.7 to 3.6	0.95	1.13	-	0.95	-	
$V_H$	Low-Level Input Voltage		0.9	0.15	0.27	0.7	0.15	0.7	V
			1.1 to 1.3	0.2	0.35	0.8	0.2	0.8	
			1.4 to 1.6	0.25	0.41	0.86	0.25	0.86	
			1.65 – 1.95	0.30	0.46	0.9	0.30	0.9	
			2.3 to < 2.7	0.40	0.56	1.05	0.40	1.05	
			2.7 to 3.6	0.49	0.59	1.1	0.49	1.1	

- 電源オフリーク電流仕様を追加。
- 電源オフリーク電流仕様とのクロスオーバーを除去するために入力リーク電流仕様を調整。

$I_{OFF}$	Power Off Leakage Current	$V_{IN} = 3.6\text{ V}$ or $V_{OUT} = 3.6\text{ V}$	0	-	-	1.0	-	5.0	$\mu\text{A}$
-----------	---------------------------	--	---	---	---	-----	---	-----	---------------

$I_{IN}$	Input Leakage Current	$0 \leq V_{IN} \leq 3.6\text{ V}$	0 to 3.6	±0.1	±1.0	$\mu\text{A}$
----------	-----------------------	-----------------------------------	----------	------	------	---------------



- ・ 伝播遅延仕様の 0.9V における規格を削除。
- ・ すべての伝播遅延仕様から下限値を削除。

## Existing datasheet

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

## New

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

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

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



## NL17SV

- 新規のダイを示すために最大定格電圧を 4.6V から 4.3V に変更。(車載品番を除く)
- 熱抵抗と消費電力を更新。
- JEDEC 規格を反映するために静電放電を更新。

## Existing datasheet

## MAXIMUM RATINGS

Symbol	Rating	Value	Units
$V_{CC}$	DC Supply Voltage	-0.5 to +4.6	V
$V_I$	DC Input Voltage	-0.5 to +4.6	V
$V_O$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V

## New

## MAXIMUM RATINGS

Symbol	Characteristics	Value	Unit
$V_{CC}$	DC Supply Voltage	-0.5 to +4.3	V
$V_{IH}$	DC Input Voltage	-0.5 to +4.3	V
$V_{OUT}$	DC Output Voltage Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +4.3 -0.5 to +4.3	V

$\theta_{JA}$	Thermal Resistance (Note 1)	250	°C/W
$P_D$	Power Dissipation in Still Air at 85°C	250	mW

$\theta_{JA}$	Thermal Resistance (Note 2)	SC-88A SC-74A SOT-553 SOT-953 UDFN6	659 555 562 560 382	°C/W
$P_D$	Power Dissipation in Still Air	SC-88A SC-74A SOT-553 SOT-953 UDFN6	190 225 222 223 327	mW

$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	3000 200	V
$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	2000 300	V
$V_{ESD}$	ESD Withstand Voltage Human Body Model (Note 2) Machine Model (Note 3)	4000 200	V

$V_{ESD}$	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	2000 1000	V
$I_{LATCHUP}$	Latchup Performance (Note 4)		≥ 100	mA

- すべての伝播遅延仕様から下限値を削除。
- ファミリー仕様に合わせて温度条件を変更。

## Existing datasheet

AC CHARACTERISTICS (Input  $t_i = t_f = 3.0$  nS)

		-40°C		25°C			85°C			
Symbol	Parameter	Condition	V <sub>CC</sub>	Min	Typ	Max	Min	Max	Units	
T <sub>PHL</sub> T <sub>PLH</sub>	Propagation Delay	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1.0 MΩ	0.90		13				nS	
		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2.0 kΩ	1.10 ≤ V <sub>CC</sub> ≤ 1.30 1.40 ≤ V <sub>CC</sub> ≤ 1.60	3.0 1.0	6.0 3.2	15.8 8.7	1.0 1.0	18.6 9.7	nS	
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 500 Ω	1.65 ≤ V <sub>CC</sub> ≤ 1.95 2.30 ≤ V <sub>CC</sub> ≤ 2.70 2.70 ≤ V <sub>CC</sub> ≤ 3.60	1.0 0.8 0.7	2.0 1.2 1.0	6.0 4.1 3.3	1.0 0.7 0.6	6.8 4.7 4.0	nS	

## New

AC CHARACTERISTICS (Input  $t_i = t_f = 3.0$  nS)

				25 °C			T <sub>A</sub> = -55°C to +125°C			
Symbol	Parameter	Condition	V <sub>CC</sub>	Min	Typ	Max	Min	Max	Units	
T <sub>PHL</sub> T <sub>PLH</sub>	Propagation Delay	C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1.0 MΩ	0.90		13				nS	
		C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2.0 kΩ	1.10 ≤ V <sub>CC</sub> ≤ 1.30 1.40 ≤ V <sub>CC</sub> ≤ 1.60		6.0 3.2	15 8.7		18.6 9.7	nS	
		C <sub>L</sub> = 30 pF, R <sub>L</sub> = 500 Ω	1.65 ≤ V <sub>CC</sub> ≤ 1.95 2.30 ≤ V <sub>CC</sub> ≤ 2.70 2.70 ≤ V <sub>CC</sub> ≤ 3.60		2.0 1.2 1.0	6.0 4.1 3.3		6.8 4.7 4.0	nS	



## NC7SP

- 新規プロセスに合わせて絶対最大電圧を調整。

## 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 <sup>(A)</sup>	-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 <sup>(A)</sup>	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-0.5	4.3	V

- 新規のダイを反映するために消費電力を調整。
- 新規のダイを反映するために熱抵抗を調整。

## Existing datasheet

$P_D$	Power Dissipation at +85°C	SC70-5	150	mW
		MicroPak™-6	130	
		MicroPak2™-6	120	

$\theta_{JA}$	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	

$\theta_{JA}$	Thermal Resistance	SC-74A	555	°C/W
		SC70-5	659	
		MicroPak™-6	382	
		MicroPak2™-6	382	

- 正のしきい値電圧から下限値を削除。
- 負のしきい値電圧から上限値を削除。

## Existing datasheet

Symbol	Parameter	Conditions	$V_{CC}$ (V)	$T_A = +25^\circ C$		$T_A = -40^\circ C$ to $+85^\circ C$		Units
				Min.	Max.	Min.	Max.	
$V_{th}$	Positive Threshold Voltage		0.90	0.30	0.60	0.30	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	
			3.00	0.10	0.60	0.10	0.60	
$V_{th}$	Negative Threshold Voltage		1.10	0.15	0.70	0.15	0.70	V
			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	0.60	1.50	0.60	1.50	
			3.00	0.07	0.50	0.07	0.50	
			3.00	0.08	0.60	0.08	0.60	
$V_{th}$	Hysteresis Voltage		1.10	0.09	0.80	0.09	0.80	V
			1.40	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	
			3.00	0.07	0.50	0.07	0.50	
			3.00	0.08	0.60	0.08	0.60	
			3.00	0.09	0.80	0.09	0.80	

## New

Symbol	Parameter	Conditions	$V_{CC}$ (V)	$T_A = +25^\circ C$		$T_A = -40^\circ C$ to $+85^\circ C$		Units
				Min.	Max.	Min.	Max.	
$V_{th}$	Positive Threshold Voltage		0.90		0.60		0.60	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	
			3.00	0.10		0.10		
$V_{th}$	Negative Threshold Voltage		1.10		0.15		0.15	V
			1.40		0.20		0.20	
			1.65		0.25		0.25	
			2.30		0.40		0.40	
			3.00		0.60		0.60	
			3.00	0.07		0.07		
			3.00	0.08		0.08		
$V_{th}$	Hysteresis Voltage		1.10		0.09		0.09	V
			1.40		0.10		0.10	
			2.30		0.25		0.25	
			3.00		0.60		0.60	
			3.00	0.07		0.07		
			3.00	0.08		0.08		
			3.00	0.09		0.09		





- すべての伝播遅延と出力カインープル時間と出力デセイル時間の仕様から下限値を削除。

## Existing datasheet

AC Electrical Characteristics										
Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLZ</sub>	Propagation Delay	0.90		24					C <sub>L</sub> = 10 pF R <sub>D</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	4.0	9	18.7	3.5	30.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	2.0	6	12.4	1.5	13.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.5	5	9.6	1.0	12.1			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.0	4	9.0	0.8	10.0			
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	1.0	3	8.7	0.5	9.0				
t <sub>PHL</sub>	Propagation Delay	0.90		27					C <sub>L</sub> = 15 pF R <sub>D</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	5.0	10	20.2	4.5	33.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	3.0	7	13.3	2.5	16.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	2.0	5	10.3	2.0	12.6			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.5	4	9.4	1.0	10.2			
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	1.0	3	9.1	0.5	9.7				
t <sub>PLZ</sub>	Propagation Delay	0.90		34					C <sub>L</sub> = 30 pF R <sub>D</sub> = 5000 Ω R <sub>O</sub> = 5000 Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	6.0	12	24.0	5.0	43.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	4.0	8	16.0	3.0	18.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	2.0	6	12.0	2.0	14.0			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	1.0	5	11.0	1.0	12.0			
	3.00 ≤ V <sub>CC</sub> ≤ 3.60	0.8	4	10.0	0.5	11.0				

## New

AC Electrical Characteristics										
Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = -25°C			T <sub>A</sub> = -40°C to +85°C		Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max			
t <sub>PLZ</sub>	Propagation Delay	0.90		24				ns	C <sub>L</sub> = 10 pF R <sub>D</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figure 1.2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		9	18.7		30.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		6	12.4		13.9			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		5	9.6		12.1			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		4	9.0		10.0			
		3.00 ≤ V <sub>CC</sub> ≤ 3.60		3	8.7					
t <sub>PHL</sub>	Propagation Delay	0.90		27				ns	C <sub>L</sub> = 15 pF R <sub>D</sub> = 5000Ω R <sub>O</sub> = 5000Ω	Figure 1.2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		10	20.2		33.9			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		7	13.3		16.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		5	10.3		12.6			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		4	9.4		10.2			
		3.00 ≤ V <sub>CC</sub> ≤ 3.60		3	9.1					
t <sub>PLZ</sub>	Propagation Delay	0.90		34				ns	C <sub>L</sub> = 30 pF R <sub>D</sub> = 5000 Ω R <sub>O</sub> = 5000 Ω	Figure 1.2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		12	24.0		43.0			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		8	16.0		18.0			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		6	12.0		14.0			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		5	11.0		12.0			
		3.00 ≤ V <sub>CC</sub> ≤ 3.60		4	10.0					

## AC Electrical Characteristics (Continued)

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

## AC Electrical Characteristics (Continued)

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

- NC7SP125 および NC7SP126 で一部の伝播遅延と出力カインープル時間と出力デセイル時間の上限値を調整。
- すべての伝播遅延と出力カインープル時間と出力デセイル時間から下限値を削除。



## Existing datasheet

## AC Electrical Characteristics

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

Continued on following page...

## New

## AC Electrical Characteristics

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C					Units	Figure
				Min.	Typ.	Max.	Min.	Max.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =10pF, R <sub>L</sub> =1MΩ		26				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			10.0	26		39.6		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	11.2		14.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	8.6		11.6		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	6.3		8.2		
t <sub>OL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =10pF, R <sub>D</sub> =5000Ω		29				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			8.0	26		40.4		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	11.9		14.8		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	9.7		12.3		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	7.7		10.5		
t <sub>OLZ</sub> , t <sub>OLZ</sub>	Output Disable Time	0.90	C <sub>L</sub> =10pF, R <sub>D</sub> =5000Ω		28				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			8.0	20.5		42.0		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			6.0	15.3		18.0		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	14.7		17.8		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	13.7		15.0		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =1MΩ		28				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			10.0	27		42.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	11.8		15.4		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	9.1		12.2		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	6.6		8.6		
t <sub>OL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =15pF, R <sub>D</sub> =5000Ω		31				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			11.0	27		43.3		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	12.5		15.5		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	10.2		12.9		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	8.0		9.9		
t <sub>OLZ</sub> , t <sub>OLZ</sub>	Output Disable Time	0.90	C <sub>L</sub> =15pF, R <sub>D</sub> =5000Ω		30				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			11.0	21.6		44.9		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			7.0	15.9		18.8		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			5.0	15.2		18.2		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			4.0	14.1		15.4		

Continued on following page...

## AC Electrical Characteristics (Continued)

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C					Units	Figure
				Min.	Typ.	Min.	Typ.	Min.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =1MΩ		34				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.5	12.0	23.4	5.0	51.1		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	13.8	3.0	17.7		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	10.6	2.0	14.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	7.6	1.0	9.9		
t <sub>OL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =30pF, R <sub>D</sub> =5000Ω		37				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	13.0	24.4	5.0	51.9		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	14.5	3.0	17.9		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	11.7	2.0	14.7		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	9.1	1.0	11.1		
t <sub>OLZ</sub> , t <sub>OLZ</sub>	Output Disable Time	0.90	C <sub>L</sub> =30pF, R <sub>D</sub> =5000Ω		36				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	13.0	24.8	5.0	53.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	8.0	17.1	3.0	21.1		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	6.0	16.5	2.0	20.5		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.0	5.0	15.2	1.0	16.7		

## AC Electrical Characteristics (Continued)

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C					Units	Figure
				Min.	Typ.	Min.	Typ.	Min.		
t <sub>PHL</sub> , t <sub>PLH</sub>	Propagation Delay	0.90	C <sub>L</sub> =30pF, R <sub>L</sub> =1MΩ		34				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			12.0	30		51.1		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	13.8		17.7		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	10.6		14.0		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	7.6		9.9		
t <sub>OL</sub> , t <sub>OLH</sub>	Output Enable Time	0.90	C <sub>L</sub> =30pF, R <sub>D</sub> =5000Ω		37				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			13.0	30		51.9		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	14.5		17.9		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	11.7		14.7		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	9.1		11.1		
t <sub>OLZ</sub> , t <sub>OLZ</sub>	Output Disable Time	0.90	C <sub>L</sub> =30pF, R <sub>D</sub> =5000Ω		36				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30			13.0	24.8		53.5		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			8.0	17.1		21.1		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			6.0	16.5		20.5		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			5.0	15.2		16.7		

**NC7SV**

- 新規プロセスに合わせて絶対最大電圧を調整。

**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 <sup>(1)</sup>	-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 <sup>(1)</sup>	-0.5	$V_{CC} + 0.5$	V
	$V_{CC} = 0V$	-0.5	4.3	V

- 新規のダイを反映するために消費電力を調整。
- 新規のダイを反映するために熱抵抗を調整。

**Existing datasheet**

$P_D$	Power Dissipation at +85°C	SC70-5	MicroPak™-6	MicroPak2™-6	Unit
		150	130	120	mW

$\theta_{JA}$	Thermal Resistance	SC70-5	MicroPak™-6	MicroPak2™-6	Unit
		425	500	560	°C/W

**New**

$P_D$	Power Dissipation In Still Air	SC-74A	SC70-5	MicroPak™-6	MicroPak2™-6	Unit
		225	190	327	327	mW

$\theta_{JA}$	Thermal Resistance	SC-74A	SC70-5	MicroPak™-6	MicroPak2™-6	Unit
		555	659	382	382	°C/W

- 正のしきい値電圧から下限値を削除。
- 負のしきい値電圧から上限値を削除。
- 正のしきい値電圧の 0.9V における上限値とヒステリシス電圧の 0.9V における上限値を削除。

**Existing datasheet**

Symbol	Parameter	$V_{CC}$ (V)	$T_A = +25^\circ\text{C}$		$T_A = -40^\circ\text{C to } +85^\circ\text{C}$		Units	Conditions
			Min	Max	Min	Max		
$V_T$	Positive Threshold Voltage	0.90	0.3	0.7	0.3	0.7	V	
		1.10	0.4	1.0	0.4	1.0		
		1.40	0.5	1.25	0.5	1.4		
		1.65	0.7	1.5	0.7	1.5		
		2.30	1.0	1.8	1.0	1.8		
		2.70	1.3	2.2	1.3	2.2		
$V_N$	Negative Threshold Voltage	0.90	0.10	0.6	0.10	0.6	V	
		1.10	0.15	0.7	0.15	0.7		
		1.40	0.20	0.8	0.20	0.8		
		1.65	0.25	0.9	0.25	0.9		
		2.30	0.4	1.15	0.4	1.15		
		2.70	0.6	1.5	0.6	1.5		
$V_H$	Hysteresis Voltage	0.90	0.07	0.5	0.07	0.5	V	
		1.10	0.08	0.6	0.08	0.6		
		1.40	0.10	0.8	0.10	0.8		
		1.65	0.15	1.0	0.15	1.0		
		2.30	0.25	1.1	0.25	1.1		
		2.70	0.40	1.2	0.40	1.2		

**New**

Symbol	Parameter	$V_{CC}$ (V)	$T_A = +25^\circ\text{C}$		$T_A = -40^\circ\text{C to } +85^\circ\text{C}$		Units	Conditions
			Min	Max	Min	Max		
$V_T$	Positive Threshold Voltage	0.90		0.8		0.8	V	
		1.10		1.0		1.0		
		1.40		1.25		1.4		
		1.65		1.5		1.5		
		2.30		1.8		1.8		
		2.70		2.2		2.2		
$V_N$	Negative Threshold Voltage	0.90	0.10		0.10		V	
		1.10	0.15		0.15			
		1.40	0.20		0.20			
		1.65	0.25		0.25			
		2.30	0.4		0.4			
		2.70	0.6		0.6			
$V_H$	Hysteresis Voltage	0.90	0.07	0.6	0.07	0.6	V	
		1.10	0.08	0.6	0.08	0.6		
		1.40	0.10	0.8	0.10	0.8		
		1.65	0.15	1.0	0.15	1.0		
		2.30	0.25	1.1	0.25	1.1		
		2.70	0.40	1.2	0.40	1.2		



- すべての伝播遅延と出力カインエーブル時間と出力デセイル時間の仕様から下限値を削除。

## Existing datasheet

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	13							C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ C <sub>L</sub> = 30 pF R <sub>L</sub> = 500Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	3.0	6.0	9.8	1.9	14.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.0	3.5	5.3	0.8	5.7				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	0.9	3.0	4.3	0.8	4.6				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	0.8	2.0	2.8	0.7	3.0				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60	0.5	1.0	2.6	0.5	2.8				
t <sub>PDH</sub>	Output Enable Time	0.90	14							C <sub>L</sub> = 30 pF R <sub>D</sub> = 1kΩ R <sub>S</sub> = 1kΩ S <sub>1</sub> = V <sub>I</sub> for t <sub>PDH</sub> V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	3.0	6.0	9.7	2.0	16.4				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.2	4.0	6.0	1.0	7.5				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	3.0	4.5	0.9	5.0				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	0.8	2.0	3.0	0.7	3.4				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60	0.5	1.2	2.6	0.4	2.9				
t <sub>PLZ</sub>	Output Disable Time	0.90	14							C <sub>L</sub> = 30 pF R <sub>D</sub> = 1kΩ R <sub>S</sub> = 1kΩ S <sub>1</sub> = GND for t <sub>PLZ</sub> V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.0	9.5	2.0	14.0				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.2	3.0	5.5	1.1	7.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.6	0.8	5.8				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	0.8	1.5	4.2	0.5	5.0				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60	0.5	1.0	3.9	0.4	4.2				

## New

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	13							C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ C <sub>L</sub> = 30 pF R <sub>L</sub> = 500Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	9.8		14.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.5	5.3		5.7				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		3.0	4.3		4.6				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		2.0	2.8		3.0				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60		1.0	2.6		2.8				
t <sub>PDH</sub>	Output Enable Time	0.90	14							C <sub>L</sub> = 30 pF R <sub>D</sub> = 1kΩ R <sub>S</sub> = 1kΩ S <sub>1</sub> = GND for t <sub>PDH</sub> V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		6.0	9.7		16.4				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		4.0	6.0		7.5				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		3.0	4.5		5.0				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		2.0	3.0		3.4				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60		1.2	2.6		2.9				
t <sub>PLZ</sub>	Output Disable Time	0.90	14							C <sub>L</sub> = 30 pF R <sub>D</sub> = 1kΩ R <sub>S</sub> = 1kΩ S <sub>1</sub> = GND for t <sub>PLZ</sub> V <sub>I</sub> = 2 × V <sub>CC</sub>	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.0	9.5		14.0				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.0	5.5		7.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.6		5.8				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.5	4.2		5.0				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60		1.0	3.9		4.2				

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	12							C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ C <sub>L</sub> = 30 pF R <sub>L</sub> = 500Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	2.0	5.9	10.0	1.0	14.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60	1.0	3.2	6.1	0.9	7.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95	1.0	2.0	5.2	0.7	6.2				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	0.8	1.8	3.7	0.6	4.4				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60	0.7	1.5	3.3	0.5	3.8				

Symbol	Parameter	V <sub>CC</sub> (V)	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C			Units	Conditions	Figure Number
			Min	Typ	Max	Min	Max	Max			
t <sub>PLH</sub>	Propagation Delay	0.90	12							C <sub>L</sub> = 15 pF, R <sub>L</sub> = 1 MΩ C <sub>L</sub> = 15 pF, R <sub>L</sub> = 2 kΩ C <sub>L</sub> = 30 pF R <sub>L</sub> = 500Ω	Figures 1, 2
		1.10 ≤ V <sub>CC</sub> ≤ 1.30		5.9	10.0		14.9				
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		3.2	6.1		7.0				
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		2.0	5.2		6.2				
		2.30 ≤ V <sub>CC</sub> ≤ 2.70		1.8	3.7		4.4				
		2.70 ≤ V <sub>CC</sub> ≤ 3.60		1.5	3.3		3.8				

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> =+25°C			T <sub>A</sub> =-40 to 85°C		Units	Figure
				Min.	Typ	Max.	Min.	Max.		
t <sub>PLH</sub> , t <sub>PLZ</sub>	Propagation Delay	0.90	C <sub>L</sub> =15pF, R <sub>L</sub> =R <sub>O</sub> =1kΩ		13				ns	Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> =30pF, R <sub>L</sub> =R <sub>O</sub> =1kΩ	3.0	6.0	15.0	1.0	18.6		
		1.40 ≤ V <sub>CC</sub> ≤ 1.60		1.0	3.2	8.7	1.0	9.7		
		1.65 ≤ V <sub>CC</sub> ≤ 1.95		1.0	2.0	6.0	1.0	6.8		
		2.30 ≤ V <sub>CC</sub> ≤ 2.70	C <sub>L</sub> =30pF, R <sub>L</sub> =R <sub>O</sub> =1kΩ	0.8	1.2	3.6	0.7	4.7		
		2.70 ≤ V <sub>CC</sub> ≤ 3.60		0.7	1.0	3.3	0.6	4.0		

Symbol	Parameter	V <sub>CC</sub>	Conditions	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40 to +85°C			Units	Figure
				Min	Typ	Max	Min	Max	Max		
t <sub>PLH</sub> , t <sub>PLZ</sub>	Propagation Delay	0.90	C <sub>L</sub> = 15pF, R <sub>L</sub> = 1kΩ		13						Figure 5 Figure 6
		1.10 ≤ V <sub>CC</sub> ≤ 1.30	C <sub>L</sub> = 30pF, R <sub>L</sub> = 1kΩ		6.0	15.0		18.6			
		1.40 ≤ V <sub>CC</sub> ≤ 1.60			3.2	8.7		9.7			
		1.65 ≤ V <sub>CC</sub> ≤ 1.95			2.0	6.0		6.8			
		2.30 ≤ V <sub>CC</sub> ≤ 2.70			1.2	3.6		4.7			
		2.70 ≤ V <sub>CC</sub> ≤ 3.60			1.0	3.3		4.0			

## 信頼性データの要約:

デバイス名: NC75P125P5X

RMS : 51765

パッケージ : SC88A

テスト	仕様	条件	間隔	結果
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/804
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/234
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/297
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/273
UHA	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/234
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	1008 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90



デバイス名 :: NL17SG14P5T5G

RMS : 56472

パッケージ : SOT953

テスト	仕様	条件	間隔	結果
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/720
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/249
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/234
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/252
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/234
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	1008 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90

デバイス名 : NL17SV16XV5T2G

RMS : 51763

パッケージ : SOT553

テスト	仕様	条件	間隔	結果
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/753
HTSL	JESD22-A103	Ta=150°C	2016 hrs	0/252
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/252
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	192 hrs	0/249
UHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/252
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	2016 hrs	0/252
ELFR	JESD22-A108	Ta=125°C, 100 % max rated Vcc x 1.2	48 hrs	0/2400
RSH	JESD22- B106	Ta = 265C, 10 sec		0/90

## 電気的特性の要約:

電気的特性への影響はありません。

## 影響を受ける部品の一覧:

注: 部品一覧には標準部品番号 (既製品) のみが記載されています。本 PCN の影響を受けるカスタム部品番号は、PCN メールで提供される顧客個別の付録、または PCN カスタマイズポータルに記載されています。

部品番号	認定試験用ピークル
NL17SG02P5T5G	NL17SG14P5T5G
NL17SG34P5T5G	NL17SG14P5T5G
NL17SG86DFT2G	NC7SP125P5X
NL17SG86P5T5G	NL17SG14P5T5G
NL17SG125DFT2G	NC7SP125P5X
NL17SG125P5T5G	NL17SG14P5T5G



## 最終製品 / プロセス変更通知

文書番号# : FPCN22735X

発行日 : 02 Dec 2019

NL17SG126DFT2G	NC7SP125P5X
NL17SG126P5T5G	NL17SG14P5T5G
NL17SG126P5T6G	NL17SG14P5T5G
NL17SGU04DFT2G	NC7SP125P5X
NL17SGU04P5T5G	NL17SG14P5T5G
NC7SV32P5X	NC7SP125P5X
NC7SP05P5X	NC7SP125P5X
NC7SP38P5X	NC7SP125P5X
NC7SV125P5X	NC7SP125P5X
NC7SV14P5X	NC7SP125P5X
NC7SP126P5X	NC7SP125P5X
NC7SP34P5X	NC7SP125P5X
NC7SV02P5X	NC7SP125P5X
NC7SVU04P5X	NC7SP125P5X
NC7SP32P5X	NC7SP125P5X
NC7SV86P5X	NC7SP125P5X
NC7SP02P5X	NC7SP125P5X
NC7SP04P5X	NC7SP125P5X
NC7SP08P5X	NC7SP125P5X
NC7SV126P5X	NC7SP125P5X
NC7SP14P5X	NC7SP125P5X
NC7SV17P5X	NC7SP125P5X
NC7SV08P5X	NC7SP125P5X
NC7SV00P5X	NC7SP125P5X
NC7SV05P5X	NC7SP125P5X
NC7SP86P5X	NC7SP125P5X
NC7SV34P5X	NC7SP125P5X
NC7SP17P5X	NC7SP125P5X
NC7SP125P5X	NC7SP125P5X
NC7SP00P5X	NC7SP125P5X
NC7SV04P5X	NC7SP125P5X
NC7SPU04P5X	NC7SP125P5X
NL17SG34DFT2G	NC7SP125P5X
NL17SV32XV5T2G	NL17SV16XV5T2G
NL17SG32P5T5G	NL17SG14P5T5G
NL17SG32DFT2G	NC7SP125P5X



## 最終製品 / プロセス変更通知

文書番号# : FPCN22735X

発行日 : 02 Dec 2019

NL17SG17P5T5G	NL17SG14P5T5G
NL17SG17DFT2G	NC7SP125P5X
NL17SV16XV5T2G	NL17SV16XV5T2G
NL17SG14P5T5G	NL17SG14P5T5G
NL17SG14DFT2G	NC7SP125P5X
NL17SV08XV5T2G	NL17SV16XV5T2G
NL17SG08P5T5G	NL17SG14P5T5G
NL17SG08DFT2G	NC7SP125P5X
NL17SG07P5T5G	NL17SG14P5T5G
NL17SG07DFT2G	NC7SP125P5X
NL17SV04XV5T2G	NL17SV16XV5T2G
NL17SG04P5T5G	NL17SG14P5T5G
NL17SG04DFT2G	NC7SP125P5X
NL17SG00DFT2G	NC7SP125P5X
NL17SV02XV5T2G	NL17SV16XV5T2G
NL17SG00P5T5G	NL17SG14P5T5G
NL17SV00XV5T2G	NL17SV16XV5T2G
NL17SG02DFT2G	NC7SP125P5X