



Final Product/Process Change Notification

Document #:FPCN24019X

Issue Date:22 Apr 2021

Title of Change:	Logic Minigatetm datasheet corrections for NC7SPXXX devices	
Proposed First Ship date:	29 Jul 2021 or earlier if approved by customer	
Contact Information:	Contact your local ON Semiconductor Sales Office or logic.fpcn@onsemi.com	
PCN Samples Contact:	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.	
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or ChangKit.Mok@onsemi.com	
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change. 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	
Marking of Parts/ Traceability of Change:	No change	
Change Category:	Datasheet	
Change Sub-Category(s):	Datasheet/Product Doc change	
Sites Affected:		
ON Semiconductor Sites	External Foundry/Subcon Sites	
None	None	
Description and Purpose: In an effort to update old datasheets to a new standardized datasheet format, several typo errors and procedures were identified not following industry standard. The following changes will be made to the datasheet to standardize ON Semiconductor family of devices Minigate™. There are no product material changes as a result of this change. There is no product marking change as a result of this change.		



NC7SP05 – AC

Existing

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	Max			
t _{PLZ}	Propagation Delay	0.90		24							
t _{PLZ}	Propagation Delay	1.10 ≤ V _{CC} ≤ 1.30	4.0	9	18.7	3.5	30.9		ns	C _L = 10 pF R _I = 5000Ω R _O = 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 _{PZL}	Propagation Delay	0.90		27							
t _{PZL}	Propagation Delay	1.10 ≤ V _{CC} ≤ 1.30	5.0	10	20.2	4.5	33.9		ns	C _L = 15 pF R _I = 5000Ω R _O = 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 _{PZL}	Propagation Delay	0.90		34							
t _{PZL}	Propagation Delay	1.10 ≤ V _{CC} ≤ 1.30	6.0	12	24.0	5.0	43.0		ns	C _L = 30 pF R _I = 5000Ω R _O = 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	Conditions	V _{CC} (V)	T _A = 25°C			T _A = -40°C to +85°C			Unit
				Min	Typ	Max	Min	Max	Max	
t _{PLZ}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 10 pF	0.9	-	32.1	-	-	-	-	ns
t _{PLZ}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 10 pF	1.10 to 1.30	-	9.6	25.9	-	-	30.9	ns
			1.40 to 1.60	-	5.4	12.4	-	-	13.9	ns
			1.65 to 1.95	-	4.4	9.6	-	-	12.1	ns
			2.3 to 2.7	-	3.4	9.0	-	-	10.0	ns
			3.0 to 3.6	-	3.2	8.7	-	-	9.0	ns
t _{PZL}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 15 pF	0.9	-	33.6	-	-	-	-	ns
t _{PZL}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 15 pF	1.10 to 1.30	-	10.4	27.2	-	-	33.9	ns
			1.40 to 1.60	-	6.0	13.3	-	-	16.0	ns
			1.65 to 1.95	-	5.0	10.3	-	-	12.6	ns
			2.3 to 2.7	-	4.0	9.4	-	-	10.2	ns
			3.0 to 3.6	-	3.8	9.1	-	-	9.7	ns
t _{PZL}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 30 pF	0.9	-	39.1	-	-	-	-	ns
t _{PZL}	Propagation Delay, A to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 30 pF	1.10 to 1.30	-	12.7	31.0	-	-	43.0	ns
			1.40 to 1.60	-	7.9	16.0	-	-	18.0	ns
			1.65 to 1.95	-	7.0	12.0	-	-	14.0	ns
			2.3 to 2.7	-	5.9	11.0	-	-	12.0	ns
			3.0 to 3.6	-	5.5	10.6	-	-	11.0	ns

NC7SP126 – AC

Existing

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 10 pF	0.9	–	50.6	–	–	–	ns
			1.10 to 1.30	–	13.2	17.5	–	40.4	
			1.40 to 1.60	–	6.7	11.9	–	14.8	
			1.65 to 1.95	–	4.7	9.7	–	12.3	
			2.3 to 2.7	–	3.0	7.7	–	10.5	
			3.0 to 3.6	–	2.5	6.9	–	8.6	

New

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 10 pF	0.9	-	50.6	-	-	-	ns
			1.10 to 1.30	-	13.2	26.7	-	40.4	
			1.40 to 1.60	-	6.7	11.9	-	14.8	
			1.65 to 1.95	-	4.7	9.7	-	12.3	
			2.3 to 2.7	-	3.0	7.7	-	10.5	
			3.0 to 3.6	-	2.5	6.9	-	8.6	

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 15 pF	0.9	–	52.2	–	–	–	ns
			1.10 to 1.30	–	13.7	18.2	–	43.3	
			1.40 to 1.60	–	7.1	12.5	–	15.5	
			1.65 to 1.95	–	5.1	10.2	–	12.9	
			2.3 to 2.7	–	3.2	8.0	–	9.9	
			3.0 to 3.6	–	2.7	7.2	–	8.9	

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 15 pF	0.9	-	52.2	-	-	-	ns
			1.10 to 1.30	-	13.7	27.9	-	43.3	
			1.40 to 1.60	-	7.1	12.5	-	15.5	
			1.65 to 1.95	-	5.1	10.2	-	12.9	
			2.3 to 2.7	-	3.2	8.0	-	9.9	
			3.0 to 3.6	-	2.7	7.2	-	8.9	

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 30 pF	0.9	–	56.8	–	–	–	–	ns
			1.10 to 1.30	–	15.4	24.4	–	–	51.9	–
			1.40 to 1.60	–	8.5	14.5	–	–	17.9	–
			1.65 to 1.95	–	6.2	11.7	–	–	14.7	–
			2.3 to 2.7	–	3.9	9.1	–	–	11.1	–
			3.0 to 3.6	–	3.3	8.1	–	–	10.1	–

t _{PZH} , t _{PZL}	Output Enable Time, OE to Y (Figures 3 and 4)	R _I = R _L = 5 kΩ C _L = 30 pF	0.9	–	56.8	–	–	–	ns
			1.10 to 1.30	–	15.4	31.6	–	–	51.9
			1.40 to 1.60	–	8.5	14.5	–	–	17.9
			1.65 to 1.95	–	6.2	11.7	–	–	14.7
			2.3 to 2.7	–	3.9	9.1	–	–	11.1
			3.0 to 3.6	–	3.3	8.1	–	–	10.1



Reliability Data Summary:

QV DEVICE: NC7SZ18FHXRMS: W44998PACKAGE: UDFN-6 (MicroPAK2 1.00x1.00mm 6L)

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours	0/80
HTSL	JESD22-A103	Ta= 150°C	2016 hours	0/80
PC	J-STD-020 JESD-A113	MSL 1@260°C	-	0/240
TC + PC	JESD22-A104	Ta= -65°C to +150°C	1000 cycles	0/80
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, Vcc bias	192 hours	0/80
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/80
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 10 sec	-	0/10

QV DEVICE: NC7SZ374L6XRMS: W45056PACKAGE: SIP-6 (MicroPAK 1.45 x1.00mm 6L)

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours	0/80
HTSL	JESD22-A103	Ta= 150°C	2016 hours	0/80
PC	J-STD-020 JESD-A113	MSL 1@260°C	-	0/240
TC + PC	JESD22-A104	Ta= -65°C to +150°C	1000 cycles	0/240
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, Vcc bias	96 hours	0/80
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/80
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 10 sec	-	0/10

QV DEVICE: NC7SV57FHXRMS : W61419PACKAGE : uPAK2 1.00 x1.00mm 6L, 0.35P

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours	0/80
HTSL	JESD22-A103	Ta= 150°C	1008 hours	0/80
PC	J-STD-020 JESD-A113	MSL 1 @ 260°C	-	0/240
TC + PC	JESD22-A104	Ta= -65°C to +150°C	500 cycles	0/80
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours	0/80
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/80
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 5 sec	-	0/10

QV DEVICE NAME: **NC7SPU04L6X**RMS: **W61417**PACKAGE: **uPAK 1.45 x1.00mm 6L, 0.5P**

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours	0/80
HTSL	JESD22-A103	Ta= 150°C	1008 hours	0/80
PC	J-STD-020 JESD-A113	MSL 1 @ 260°C	-	0/240
TC + PC	JESD22-A104	Ta= -65°C to +150°C	500 cycles	0/80
HAST + PC	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours	0/80
uHAST + PC	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours	0/80
RSH	JESD22- B106	Ta = 265C, 10 sec	-	0/30
SD	JSTD002	Ta = 245C, 5 sec	-	0/10

QV DEVICE NAME: **NC7SP125P5X**RMS: **51765**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

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
NC7SP05L6X	NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP05P5X	NC7SP125P5X
NC7SP126FHX	NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP126L6X	NC7SPU04L6X, NC7SZ374L6X, NC7SV57FHX, NC7SZ18FHX
NC7SP126P5X	NC7SP125P5X