



Final Product/Process Change Notification

Document #:FPCN25572X34

Issue Date:09 Aug 2024

Title of Change:	Update to FPCN25572X - To include the reliability data of MC74LCX244 & 74LCX244 Devices for the Qualification of Vanguard Fab and Assembly related changes for Logic part.
Proposed First Ship date:	16 Nov 2024 or earlier if approved by customer
Contact Information:	Contact your local onsemi Sales Office or logic.fpcn@onsemi.com
PCN Samples Contact:	Contact your local onsemi Sales Office. 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 onsemi 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. onsemi 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:	Custom source on label will show TW instead of US/JP to indicate new die source from Vanguard. Changed material may be identified by plant code or lot code too.
Change Category:	Test Change, Assembly Change, Wafer Fab Change
Change Sub-Category(s):	Manufacturing Site Transfer, Shipping/Packaging/Marking, Datasheet/Product Doc change, Material Change

Sites Affected:

onsemi Sites	External Foundry/Subcon Sites
onsemi Tarlac, Philippines	Vanguard International Semiconductor, Taiwan

Description and Purpose:

With reference to **FPCN25572X**, this FPCN presents the information solely for QFN20 and wQFN20 and the pertinent reliability data.

	From			To
Fab Site	Tower Semiconductor	Diodes Incorporated (Diodes)	TPSCO	Vanguard International Semiconductor (VIS)
Wafer Size	150 mm	200 mm	200 mm	200 mm

Assembly and test changes as shown in the table below:

wQFN20 4.5 x 2.5 (74LCX244BQX)

	From	To
Assembly Site	HANA	onsemi Tarlac
Test Site	HANA	onsemi Tarlac
Leadframe	PPF (HDS)	PPF (AAMI)
Die Attach	ABLETHERM 8600	CRM-1076WB
Bond Wire	Au	PCC
Mold Compound	CEL9220HF13H	EME-G770HM Type D

QFN20 2.5 x 3.5 (MC74LCX244MN2TWG)

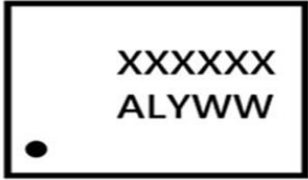
	From	To
Assembly Site	Stars	onsemi Tarlac
Test Site	Stars	onsemi Tarlac
Leadframe	PPF (EFTEC)	PPF (C194)
Die Attach	HR-5104	CRM-1076WB
Bond Wire	0.8 mil Au	1 mil PCC
Mold Compound	EME G700LTD	EME-G770HM Type D

QFN20 2.5 x 4.5 (MC74LCX244MNTWG)

	From	To
Assembly Site	Stars	onsemi Tarlac
Test Site	Stars	onsemi Tarlac
Leadframe	PPF (HDS)	PPF (AAMI)
Die Attach	HR-5104	CRM-1076WB
Bond Wire	0.8 mil Au	1 mil PCC
Mold Compound	EME G700LTD	EME-G770HM Type D

Below are the Marking Changes:

For 74LCX244BQX only

	From	To
Marking	 Z= ASSY Plant Code XY = Two Digit Date Code Format (Year & Week) KK = Two Digit Lot Run Traceability Code X = Device Code	 X = Device Code A = Assembly Site L = Wafer Lot Number Y = Year of Production, Last Number WW = Work Week Number

Reliability Data Summary:

QV DEVICE NAME : NLV68SZ126MN2TWG

RMS : S89442

PACKAGE : QFN20

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/231
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	0/231
Preconditioning	J-STD-020 JESD-A113	MSL1@260°C, Pre TC, uHAST, HAST for surface mount pkgs only	-	0/693
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/231
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/231
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/231
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/30

QV DEVICE NAME : 74LCX244BQX

RMS : S89448 / S96581

PACKAGE : WQFN20

Test	Specification	Condition	Interval	Results
High Temperature Operating Life	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/77
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hrs	0/77
Preconditioning	J-STD-020 JESD-A113	MSL1@260°C, Pre TC, uHAST, HAST for surface mount pkgs only	-	0/231
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/77
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/77
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/77
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec	-	0/10

Electrical Characteristics Summary:

MC74LCX244MNTWG, MC74LCX244MN2TWG Electrical Changes

Maximum Ratings

Existing

MAXIMUM RATINGS				
Symbol	Parameter	Value	Condition	Units
V _{CC}	DC Supply Voltage	-0.5 to +7.0		V
V _I	DC Input Voltage	-0.5 ≤ V _I ≤ +7.0		V
V _O	DC Output Voltage	-0.5 ≤ V _O ≤ +7.0	Output in 3-State	V
		-0.5 ≤ V _O ≤ V _{CC} + 0.5	Output in HIGH or LOW State (Note 1)	V
I _{IK}	DC Input Diode Current	-50	V _I < GND	mA
I _{OK}	DC Output Diode Current	-50	V _O < GND	mA
		+50	V _O > V _{CC}	mA
I _O	DC Output Source/Sink Current	±50		mA
I _{CC}	DC Supply Current Per Supply Pin	±100		mA
I _{GND}	DC Ground Current Per Ground Pin	±100		mA
T _{STG}	Storage Temperature Range	-65 to +150		°C
T _L	Lead Temperature, 1 mm from Case for 10 Seconds	T _L = 260		°C
T _J	Junction Temperature Under Bias	T _J = 150		°C
R _{JA}	Thermal Resistance (Note 2)	R _{JA} = 140		°C/W
MSL	Moisture Sensitivity		Level 1	

New

MAXIMUM RATINGS				
Symbol	Parameter	Value	Unit	
V _{CC}	DC Supply Voltage	-0.5 to +6.5	V	
V _I	DC Input Voltage (Note 1)	-0.5 to +6.5	V	
V _O	DC Output Voltage (Note 1)	-0.5 to V _{CC} + 0.5	V	
	Active-Mode (High or Low State)	-0.5 to +6.5		
	Tri-State Mode	-0.5 to +6.5		
	Power-Down Mode (V _{CC} = 0 V)	-0.5 to +6.5		
I _{IK}	DC Input Diode Current	V _I < GND	-50	mA
I _{OK}	DC Output Diode Current	V _O < GND	-50	mA
I _O	DC Output Source/Sink Current		±50	mA
I _{CC} or I _{GND}	DC Supply Current per Supply Pin or Ground Pin		±100	mA
T _{STG}	Storage Temperature Range		-65 to +150	°C
T _L	Lead Temperature, 1 mm from Case for 10 secs		260	°C
T _J	Junction Temperature Under Bias		+150	°C
R _{JA}	Thermal Resistance (Note 2)	SOIC-20W	96	°C/W
		WQFN20	99	
		QFN20	111	
		TSSOP-20	150	
P _D	Power Dissipation in Still Air	SOIC-20W	1302	mW
		WQFN20	1256	
		QFN20	1127	
		TSSOP-20	833	
MSL	Moisture Sensitivity	SOIC-20W	Level 3	-
		All Other Packages	Level 1	
F ₀	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	-
V _{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model	> 2000	V
		Charged Device Model	N/A	

Recommended Operating Condition

Existing

RECOMMENDED OPERATING CONDITIONS					
Symbol	Parameter	Min	Typ	Max	Units
V _{CC}	Supply Voltage	2.0	3.3	3.6	V
	Operating	1.5	3.3	3.6	
	Data Retention Only				
V _I	Input Voltage	0		5.5	V
V _O	Output Voltage (HIGH or LOW State) (3-State)	0		V _{CC} 5.5	V
I _{OH}	HIGH Level Output Current, V _{CC} = 3.0 V - 3.6 V			-24	mA
I _{OL}	LOW Level Output Current, V _{CC} = 3.0 V - 3.6 V			24	mA
I _{OH}	HIGH Level Output Current, V _{CC} = 2.7 V - 3.0 V			-12	mA
I _{OL}	LOW Level Output Current, V _{CC} = 2.7 V - 3.0 V			12	mA
T _A	Operating Free-Air Temperature	-40		+85	°C
Δt/ΔV	Input Transition Rise or Fall Rate, V _{IH} from 0.8 V to 2.0 V, V _{CC} = 3.0 V	0		10	ns/V

New

RECOMMENDED OPERATING CONDITIONS					
Symbol	Parameter	Min	Typ	Max	Unit
V _{CC}	Supply Voltage	1.65	3.3	5.5	V
	Operating	1.5	3.3	5.5	
	Data Retention Only				
V _I	Digital Input Voltage	0	-	5.5	V
V _O	Output Voltage	0	-	V _{CC}	V
	Active Mode (High or Low State)	0	-	5.5	
	Tri-State Mode	0	-	5.5	
	Power Down Mode (V _{CC} = 0 V)	0	-	5.5	
T _A	Operating Free-Air Temperature	-55	-	+125	°C
t _r , t _f	Input Rise or Fall Rate	V _{CC} = 1.65 V to 1.95 V	0	20	ns/V
		V _{CC} = 2.3 V to 2.7 V	0	20	
		V _{IH} from 0.8 V to 2.0 V, V _{CC} = 3.0 V	0	10	
		V _{CC} = 4.5 V to 5.5 V	0	5	

DC Electrical Characteristic

Existing

DC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic	Condition	T _A = -40°C to +85°C		Units
			Min	Max	
V _{IH}	HIGH Level Input Voltage (Note 2)	2.7 V ≤ V _{CC} ≤ 3.6 V	2.0		V
V _{IL}	LOW Level Input Voltage (Note 2)	2.7 V ≤ V _{CC} ≤ 3.6 V		0.8	V
V _{OH}	HIGH Level Output Voltage	2.7 V ≤ V _{CC} ≤ 3.6 V, I _{OZH} = -100 μA	V _{CC} - 0.2		V
		V _{CC} = 2.7 V, I _{OZH} = -12 mA	2.2		
		V _{CC} = 3.0 V, I _{OZH} = -18 mA	2.4		
		V _{CC} = 3.0 V, I _{OZH} = -24 mA	2.2		
V _{OL}	LOW Level Output Voltage	2.7 V ≤ V _{CC} ≤ 3.6 V, I _{OZL} = 100 μA		0.2	V
		V _{CC} = 2.7 V, I _{OZL} = 12 mA		0.4	
		V _{CC} = 3.0 V, I _{OZL} = 16 mA		0.4	
		V _{CC} = 3.0 V, I _{OZL} = 24 mA		0.55	
I _{OZ}	3-State Output Current	V _{CC} = 3.6 V, V _{IH} = V _{IH} or V _{IL} , V _{OZH} = 0 to 5.5 V		±5	μA
I _{OFF}	Power Off Leakage Current	V _{CC} = 0, V _{IH} = 5.5 V or V _{OZH} = 5.5 V		10	μA
I _{IN}	Input Leakage Current	V _{CC} = 3.6 V, V _{IH} = 5.5 V or GND		±5	μA
I _{CC}	Quiescent Supply Current	V _{CC} = 3.6 V, V _{IH} = 5.5 V or GND		10	μA
ΔI _{CC}	Increase in I _{CC} per Input	2.3 ≤ V _{CC} ≤ 3.6 V, V _{IH} = V _{CC} - 0.6 V		500	μA

New

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = -40°C to +85°C		T _A = -55°C to +125°C		Unit
				Min	Max	Min	Max	
V _{IH}	High-Level Input Voltage		1.65 to 1.95	0.65 x V _{CC}		0.65 x V _{CC}		V
			2.3 to 2.7	1.7		1.7		
			2.7 to 3.6	2.0		2.0		
			4.5 to 5.5	0.7 x V _{CC}		0.7 x V _{CC}		
V _{IL}	Low-Level Input Voltage		1.65 to 1.95		0.35 x V _{CC}		0.35 x V _{CC}	V
			2.3 to 2.7		0.7		0.7	
			2.7 to 3.6		0.8		0.8	
			4.5 to 5.5		0.3 x V _{CC}		0.3 x V _{CC}	
V _{OH}	High-Level Output Voltage	V _I = V _{IH} or V _{IL} I _{OZH} = -100 μA I _{OZH} = -4 mA I _{OZH} = -8 mA I _{OZH} = -12 mA I _{OZH} = -16 mA I _{OZH} = -24 mA I _{OZH} = -32 mA	1.65 to 5.5	V _{CC} - 0.1	-	V _{CC} - 0.1	-	V
			1.65	1.2	-	1.2	-	
			2.3	1.8	-	1.8	-	
			2.7	2.2	-	2.2	-	
			3.0	2.4	-	2.4	-	
			3.0	2.2	-	2.2	-	
			4.5	3.8	-	3.8	-	
V _{OL}	Low-Level Output Voltage	V _I = V _{IH} or V _{IL} I _{OZL} = 100 μA I _{OZL} = 4 mA I _{OZL} = 8 mA I _{OZL} = 12 mA I _{OZL} = 16 mA I _{OZL} = 24 mA I _{OZL} = 32 mA	1.65 to 5.5	-	0.1	-	0.1	V
			1.65	-	0.45	-	0.45	
			2.3	-	0.6	-	0.6	
			2.7	-	0.4	-	0.4	
			3.0	-	0.4	-	0.4	
			3.0	-	0.55	-	0.55	
			4.5	-	0.6	-	0.6	
I _I	Input Leakage Current	V _I = 0 to 5.5 V	3.6	-	±5.0	-	±5.0	μA
I _{OZ}	3-State Output Leakage Current	V _I = V _{IH} or V _{IL} , V _O = 0 V to 5.5 V	3.6	-	±5.0	-	±5.0	μA
I _{OFF}	Power Off Leakage Current	V _I = 5.5 V or V _O = 5.5 V	0	-	10	-	10	μA
I _{CC}	Quiescent Supply Current	V _I = 5.5 V or GND	3.6	-	10	-	10	μA
ΔI _{CC}	Increase in I _{CC} per Input	V _{IH} = V _{CC} - 0.6 V	2.3 to 3.6	-	500	-	500	μA

AC Electrical Characteristic

Existing

AC CHARACTERISTICS (t_{RI} = t_{RF} = 2.5 ns, R_L = 500 Ω)

Symbol			Parameter	Waveform	Limits									Units
					T _A = -55°C to +125°C									
					V _{CC} = 3.0 V to 3.6 V			V _{CC} = 2.7 V			V _{CC} = 2.5 V ± 0.2			
					C _L = 50 pF			C _L = 50 pF			C _L = 30 pF			
t _{PLH}			Propagation Delay Input to Output	1	1.5	6.5	1.5	7.5	1.5	7.8	ns			
t _{PLH}					1.5	6.5	1.5	7.5	1.5	7.8				
t _{2H}			Output Enable Time to High and Low Level	2	1.5	8.0	1.5	9.0	1.5	10	ns			
t _{2L}					1.5	8.0	1.5	9.0	1.5	10				
t _{4H}			Output Disable Time From High and Low Level	2	1.5	7.0	1.5	8.0	1.5	8.4	ns			
t _{4L}					1.5	7.0	1.5	8.0	1.5	8.4				
t _{OSHL}			Output-to-Output Skew (Note 4)			1.0					ns			
t _{OSHL}						1.0								

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V _{CC} (V)	T _A = -40°C to +85°C		T _A = -55°C to +125°C		Unit
				Min	Max	Min	Max	
t _{PLH}	Propagation Delay, D to O	See Figures 3 and 4	1.65 to 1.95	-	10.3	-	10.3	ns
			2.3 to 2.7	-	7.8	-	7.8	
			2.7	-	7.5	-	7.5	
			3.0 to 3.6	-	6.5	-	6.5	
t _{PLH}	Output Enable Time, OE to O	See Figures 3 and 4	1.65 to 1.95	-	13.0	-	13.0	ns
			2.3 to 2.7	-	10.0	-	10.0	
			2.7	-	9.0	-	9.0	
			3.0 to 3.6	-	8.0	-	8.0	
t _{PLZ}	Output Disable Time, OE to O	See Figures 3 and 4	1.65 to 1.95	-	11.0	-	11.0	ns
			2.3 to 2.7	-	8.4	-	8.4	
			2.7	-	8.0	-	8.0	
			3.0 to 3.6	-	7.0	-	7.0	
t _{OSLH}	Output to Output Skew (Note 5)		1.65 to 1.95	-	6.0	-	6.0	ns
			2.3 to 2.7	-	-	-	-	
			2.7	-	-	-	-	
			3.0 to 3.6	-	1.0	-	1.0	

74LCX244BQX Electrical Changes Maximum Ratings

Existing

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Rating
V_{CC}	Supply Voltage	-0.5V to +7.0V
V_I	DC Input Voltage	-0.5V to +7.0V
V_O	DC Output Voltage	-0.5V to +7.0V
	Output in 3-STATE Output in HIGH or LOW State ⁽³⁾	-0.5V to $V_{CC} + 0.5V$
I_{IK}	DC Input Diode Current, $V_I < GND$	-50mA
I_{OK}	DC Output Diode Current	-50mA
	$V_O < GND$ $V_O > V_{CC}$	+50mA
I_O	DC Output Source/Sink Current	±50mA
I_{CC}	DC Supply Current per Supply Pin	±100mA
I_{GND}	DC Ground Current per Ground Pin	±100mA
T_{STG}	Storage Temperature	-65°C to +150°C

New

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V
V_I	DC Input Voltage (Note 1)	-0.5 to +6.5	V
V_O	DC Output Voltage (Note 1)	-0.5 to $V_{CC} + 0.5$	V
	Active-Mode (High or Low State)	-0.5 to +6.5	
	Tri-State Mode Power-Down Mode ($V_{CC} = 0V$)	-0.5 to +6.5	
I_{IK}	DC Input Diode Current $V_I < GND$	-50	mA
I_{OK}	DC Output Diode Current $V_{OUT} < GND$	-50	mA
I_O	DC Output Source/Sink Current	±50	mA
I_{CC} or I_{GND}	DC Supply Current per Supply Pin or Ground Pin	±100	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 secs	260	°C
T_J	Junction Temperature Under Bias	+150	°C
θ_{JA}	Thermal Resistance (Note 2)	SOIC-20W	96
		WQFN20	99
		QFN20	111
		TSSOP-20	150
P_D	Power Dissipation in Still Air	SOIC-20W	1302
		WQFN20	1256
		QFN20	1127
		TSSOP-20	833
MSL	Moisture Sensitivity	SOIC-20W	Level 3
		All Other Packages	Level 1
F_R	Flammability Rating	Oxygen Index: 28 to 34 UL 94 V-0 @ 0.125 in	-
V_{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model Charged Device Model	> 2000 N/A

Recommended Operating Condition

Existing

Recommended Operating Conditions⁽⁴⁾

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to absolute maximum ratings.

Symbol	Parameter	Min.	Max.	Units
V_{CC}	Supply Voltage			
	Operating	2.0	3.6	V
	Data Retention	1.5	3.6	
V_I	Input Voltage	0	5.5	V
V_O	Output Voltage			
	3-STATE	0	5.5	V
	HIGH or LOW State	0	V_{CC}	
I_{OH}/I_{OL}	Output Current			
		$V_{CC} = 3.0V-3.6V$	±24	mA
		$V_{CC} = 2.7V-3.0V$	±12	
		$V_{CC} = 2.3V-2.7V$	±8	
T_A	Free-Air Operating Temperature	-40	85	°C
$\Delta t/\Delta V$	Input Edge Rate, $V_{IN} = 0.8V-2.0V$, $V_{CC} = 3.0V$	0	10	ns/V

New

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Typ	Max	Unit
V_{CC}	Supply Voltage				
	Operating	1.65	3.3	5.5	V
	Data Retention Only	1.5	3.3	5.5	
V_I	Digital Input Voltage	0	-	5.5	V
V_O	Output Voltage				
	Active Mode (High or Low State)	0	-	V_{CC}	V
	Tri-State Mode Power Down Mode ($V_{CC} = 0V$)	0	-	5.5	
T_A	Operating Free-Air Temperature	-55	-	+125	°C
t_r, t_f	Input Rise or Fall Rate	$V_{CC} = 1.65V$ to $1.95V$	0	20	ns/V
		$V_{CC} = 2.3V$ to $2.7V$	0	20	
		V_{IN} from $0.8V$ to $2.0V$, $V_{CC} = 3.0V$	0	10	
		$V_{CC} = 4.5V$ to $5.5V$	0	5	

DC Electrical Characteristic

Existing

DC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	Conditions	T _A = -40°C to +85°C		Units
				Min.	Max.	
V _{IH}	HIGH Level Input Voltage	2.3-2.7		1.7		V
		2.7-3.6		2.0		
V _{IL}	LOW Level Input Voltage	2.3-2.7			0.7	V
		2.7-3.6			0.8	
V _{OH}	HIGH Level Output Voltage	2.3-3.6	I _{OH} = -100μA	V _{CC} - 0.2		V
		2.3	I _{OH} = -8mA	1.8		
		2.7	I _{OH} = -12mA	2.2		
		3.0	I _{OH} = -18mA	2.4		
			I _{OH} = -24mA	2.2		
V _{OL}	LOW Level Output Voltage	2.3-3.6	I _{OL} = 100μA		0.2	V
		2.3	I _{OL} = 8mA		0.6	
		2.7	I _{OL} = 12mA		0.4	
		3.0	I _{OL} = 16mA		0.4	
			I _{OL} = 24mA		0.55	
I _I	Input Leakage Current	2.3-3.6	0 ≤ V _I ≤ 5.5V		±5.0	μA
I _{OZ}	3-STATE Output Leakage	2.3-3.6	0 ≤ V _O ≤ 5.5V, V _I = V _{OH} or V _{IL}		±5.0	μA
I _{OFF}	Power-Off Leakage Current	0	V _I or V _O = 5.5V		10	μA
I _{CC}	Quiescent Supply Current	2.3-3.6	V _I = V _{CC} or GND 3.6V ≤ V _I , V _O ≤ 5.5V ⁽⁵⁾		±10	μA
ΔI _{CC}	Increase in I _{CC} per Input	2.3-3.6	V _{OH} = V _{CC} - 0.6V		500	μA

New

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = -40 °C to +85°C		T _A = -55°C to +125°C		Unit
				Min	Max	Min	Max	
V _{IH}	High-Level Input Voltage		1.65 to 1.95	0.65 x V _{CC}		0.65 x V _{CC}		V
			2.3 to 2.7	1.7		1.7		
			2.7 to 3.6	2.0		2.0		
			4.5 to 5.5	0.7 x V _{CC}		0.7 x V _{CC}		
V _{IL}	Low-Level Input Voltage		1.65 to 1.95		0.35 x V _{CC}		0.35 x V _{CC}	V
			2.3 to 2.7		0.7		0.7	
			2.7 to 3.6		0.8		0.8	
			4.5 to 5.5		0.3 x V _{CC}		0.3 x V _{CC}	
V _{OH}	High-Level Output Voltage	V _I = V _{OH} or V _{IL} I _{OH} = -100 μA	1.65 to 5.5	V _{CC} - 0.1		V _{CC} - 0.1		V
		I _{OH} = -4 mA	1.65	1.2		1.2		
		I _{OH} = -8 mA	2.3	1.8		1.8		
		I _{OH} = -12 mA	2.7	2.2		2.2		
		I _{OH} = -16 mA	3.0	2.4		2.4		
		I _{OH} = -24 mA	3.0	2.2		2.2		
		I _{OH} = -32 mA	4.5	3.8		3.8		
V _{OL}	Low-Level Output Voltage	V _I = V _{OH} or V _{IL} I _{OL} = 100 μA	1.65 to 5.5		0.1		0.1	V
		I _{OL} = 4 mA	1.65		0.45		0.45	
		I _{OL} = 8 mA	2.3		0.6		0.6	
		I _{OL} = 12 mA	2.7		0.4		0.4	
		I _{OL} = 16 mA	3.0		0.4		0.4	
		I _{OL} = 24 mA	3.0		0.55		0.55	
		I _{OL} = 32 mA	4.5		0.6		0.6	
I _I	Input Leakage Current	V _I = 0 to 5.5 V	3.6		±5.0		±5.0	μA
I _{OZ}	3-State Output Leakage Current	V _I = V _{OH} or V _{IL} , V _O = 0 V to 5.5 V	3.6		±5.0		±5.0	μA
I _{OFF}	Power-Off Leakage Current	V _I = 5.5 V or V _O = 5.5 V	0		10		10	μA
I _{CC}	Quiescent Supply Current	V _I = 5.5 V or GND	3.6		10		10	μA
ΔI _{CC}	Increase in I _{CC} per Input	V _{OH} = V _{CC} - 0.6 V	2.3 to 3.6		500		500	μA

AC Electrical Characteristic

Existing

AC Electrical Characteristics

Symbol	Parameter	T _A = -40°C to +85°C, R _L = 500Ω						Units
		V _{CC} = 3.3V ± 0.3V, C _L = 50pF		V _{CC} = 2.7V, C _L = 60pF		V _{CC} = 2.5V ± 0.2V, C _L = 30pF		
		Min.	Max.	Min.	Max.	Min.	Max.	
t _{PHL} , t _{PLH}	Propagation Delay, Data to Output	1.5	6.5	1.5	7.5	1.5	7.8	ns
t _{PZL} , t _{PZH}	Output Enable Time	1.5	8.0	1.5	9.0	1.5	10.0	ns
t _{PLZ} , t _{PHZ}	Output Disable Time	1.5	7.0	1.5	8.0	1.5	8.4	ns
t _{OSHL} , t _{OSLH}	Output to Output Skew ⁽⁵⁾		1.0					ns

New

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Condition	V _{CC} (V)	T _A = -40 °C to +85°C		T _A = -55°C to +125°C		Unit
				Min	Max	Min	Max	
t _{PHL} , t _{PLH}	Propagation Delay, D to O	See Figures 3 and 4	1.65 to 1.95	-	10.3	-	10.3	ns
			2.3 to 2.7	-	7.8	-	7.8	
			2.7	-	7.5	-	7.5	
			3.0 to 3.6	-	6.5	-	6.5	
			4.5 to 5.5	-	5.9	-	5.9	
t _{PZL} , t _{PZH}	Output Enable Time, OE to O	See Figures 3 and 4	1.65 to 1.95	-	13.0	-	13.0	ns
			2.3 to 2.7	-	10.0	-	10.0	
			2.7	-	9.0	-	9.0	
			3.0 to 3.6	-	8.0	-	8.0	
			4.5 to 5.5	-	7.3	-	7.3	
t _{PLZ} , t _{PHZ}	Output Disable Time, OE to O	See Figures 3 and 4	1.65 to 1.95	-	11.0	-	11.0	ns
			2.3 to 2.7	-	8.4	-	8.4	
			2.7	-	8.0	-	8.0	
			3.0 to 3.6	-	7.0	-	7.0	
			4.5 to 5.5	-	6.0	-	6.0	
t _{OSHL} , t _{OSLH}	Output to Output Skew (Note 5)		1.65 to 1.95	-	-	-	-	ns
			2.3 to 2.7	-	-	-	-	
			2.7	-	-	-	-	
			3.0 to 3.6	-	1.0	-	1.0	



Final Product/Process Change Notification

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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
74LCX244BQX	74LCX244BQX
MC74LCX244MN2TWG	NLV68SZ126MN2TWG
MC74LCX244MNTWG	NLV68SZ126MN2TWG