



Final Product/Process Change Notification

Document #:FPCN25572X37

Issue Date:31 Jul 2024

Title of Change:	Update FPCN25572X - To include the reliability data for onsemi Carmona TSSOP20 package parts for the Qualification of Vanguard Fab and Assembly related changes for Logic Parts (LCX244, LVX, VHC and VHCT devices only)
Proposed First Ship date:	07 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/IL 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 Addition, Shipping/Packaging/Marking, Datasheet/Product Doc change, Material Change

Sites Affected:

onsemi Sites	External Foundry/Subcon Sites
onsemi Carmona, Philippines	ATEC - Automated Technology, Philippines
	Vanguard International Semiconductor, Taiwan

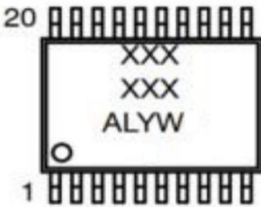
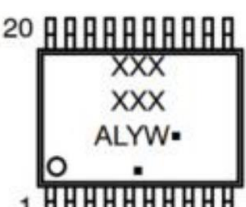
Description and Purpose:

With reference to **FPCN25572X**, this FPCN presents the information solely for TSSOP20 the pertinent reliability data.

	From	To
Fab Site	Tower Semiconductor, Diodes Maine	Vanguard International
Wafer Size	150 mm, 200 mm	200mm

	From	To	
Assembly Site	onsemi Carmona	onsemi Carmona	Atec
Test Site	onsemi Carmona	onsemi Carmona	Atec
Leadframe Flagsize (mm)	2.108X3.048 0.940 x 1.295	0.940 x 1.295	2.5 x 2.5
Bond Wire	0.8 mil Au	1 mil PCC	1 mil PCC

Marking Change for 74VHCT541AMTCX and 74VHC240MTCX only

	From	To
Marking Changes	 XXXXX = Specific Device Code A = Assembly Location L = Wafer Lot Y = Year of Production W = Work Week Number	 XXXXX = Specific Device Code A = Assembly Location L = Wafer Lot Y = Year of Production W = Work Week Number ■ or G = Pb-Free Indicator (Note: Microdot may be in either location)

Reliability Data Summary:

QV DEVICE NAME : NLV74HC244ADTR2G

RMS : O89401

PACKAGE : TSSOP20

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	MSL 1 @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 : NLV74HC244ADTR2G
RMS : O89395
PACKAGE : TSSOP20

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	MSL 1 @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:

MC74VHCxxx – Maximum Ratings

Existing

Symbol	Parameter	Value	Unit
V _{CC}	Positive DC Supply Voltage	-0.5 to +7.0	V
V _{IN}	Digital Input Voltage	-0.5 to +7.0	V
V _{OUT}	DC Output Voltage	-0.5 to V _{CC} +0.5	V
I _{IK}	Input Diode Current	-20	mA
I _{OK}	Output Diode Current	±20	mA
I _{OUT}	DC Output Current, per Pin	±25	mA
I _{CC}	DC Supply Current, V _{CC} and GND Pins	±75	mA
P _D	Power Dissipation in Still Air	SOIC 500 TSSOP 450	mW
T _{STG}	Storage Temperature Range	-65 to +150	°C
V _{ESD}	ESD Withstand Voltage	Human Body Model (Note 2) >2000 Machine Model (Note 3) >200 Charged Device Model (Note 4) >2000	V
t _{LATCHUP}	Latchup Performance	Above V _{CC} and Below GND at 125°C (Note 5) ±300	mA
θ _{JA}	Thermal Resistance, Junction-to-Ambient	SOIC 96 TSSOP 128	°C/W

New

Symbol	Parameter	Value	Unit
V _{CC}	DC Supply Voltage	-0.5 to +6.5	V
V _{IN}	DC Input Voltage	-0.5 to +6.5	V
V _{OUT}	DC Output Voltage (MC74VHC)	-0.5 to V _{CC} +0.5	V
	DC Output Voltage (MC74VHCT)	-0.5 to V _{CC} +0.5	
	Active Mode (High or Low State)	-0.5 to V _{CC} +0.5	
	Tristate Mode (Note 1)	-0.5 to +6.5	
	Power-Off Mode (V _{CC} = 0 V)	-0.5 to +6.5	
I _{IN}	DC Input Current, per Pin	±20	mA
I _{OUT}	DC Output Current, Per Pin	±25	mA
I _{CC}	DC Supply Current, V _{CC} and GND Pins	±75	mA
I _{IK}	Input Clamp Current	-20	mA
I _{OK}	Output Clamp Current	±20	mA
	MC74VHC244	±20	
	MC74VHCT244A	-20	
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 TSSOP-20 150	°C/W
P _D	Power Dissipation in Still Air at 25°C	SOIC-20W 1302 TSSOP-20 833	mW
MSL	Moisture Sensitivity	Level 1	-
F _R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.244 in
V _{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model 2000 Charged Device Model N/A	V
t _{LATCHUP}	Latchup Performance (Note 4)	±100	mA

74VHCxxx – Maximum Ratings

Existing

Absolute Maximum Ratings (Note 1)

Supply Voltage (V_{CC})	-0.5V to +7.0V
DC Input Voltage (V_{IN})	-0.5V to +7.0V
DC Output Voltage (V_{OUT})	-0.5V to $V_{CC} + 0.5V$
Input Diode Current (I_{IK})	-20 mA
Output Diode Current (I_{OK})	±20 mA
DC Output Current (I_{OUT})	±25 mA
DC V_{CC} /GND Current (I_{CC})	±75 mA
Storage Temperature (T_{STG})	-65°C to +150°C
Lead Temperature (T_L)	260°C
(Soldering, 10 seconds)	

New

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V
V_{IN}	DC Input Voltage	-0.5 to +6.5	V
V_{OUT}	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V
I_{IN}	DC Input Current, per Pin	±20	mA
I_{OUT}	DC Output Current, per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
I_{IK}	Input Clamp Current	-20	mA
I_{OK}	Output Clamp Current	±20	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	°C
T_J	Junction Temperature under Bias	+150	°C
θ_{JA}	Thermal Resistance (Note 2)	150	°C/W
P_D	Power Dissipation in Still Air at 25°C	833	mW
MSL	Moisture Sensitivity	Level 1	
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.574 in
V_{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model	2000
		Charged Device Model	N/A

MC74VHCTxxx – Maximum Ratings

Existing

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +7.0	V
V_{IN}	DC Input Voltage	-0.5 to +7.0	V
V_{OUT}	DC Output Voltage	-0.5 to +7.0	V
	Output in 3-State High or Low State	-0.5 to $V_{CC} + 0.5$	V
I_{IK}	Input Diode Current	-20	mA
I_{OK}	Output Diode Current ($V_{OUT} < GND$; $V_{OUT} > V_{CC}$)	±20	mA
I_{OUT}	DC Output Current, per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
P_D	Power Dissipation in Still Air, SOIC Packages† TSSOP Package†	500 450	mW
T_{STG}	Storage Temperature	-65 to +150	°C

New

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V
V_{IN}	DC Input Voltage	-0.5 to +6.5	V
V_{OUT}	DC Output Voltage (MC74VHC)	-0.5 to $V_{CC} + 0.5$	V
	DC Output Voltage (MC74VHCT)	Active Mode (High or Low State)	-0.5 to $V_{CC} + 0.5$
		Tristate Mode (Note 1)	-0.5 to +6.5
		Power-Off Mode ($V_{CC} = 0$ V)	-0.5 to +6.5
I_{IN}	DC Input Current, per Pin	±20	mA
I_{OUT}	DC Output Current, Per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
I_{IK}	Input Clamp Current	-20	mA
I_{OK}	Output Clamp Current	MC74VHC244 ±20 MC74VHCT244A -20	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 TSSOP-20 150	°C/W
P_D	Power Dissipation in Still Air at 25°C	SOIC-20W 1302 TSSOP-20 833	mW
MSL	Moisture Sensitivity	Level 1	-
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.244 in
V_{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model	2000
		Charged Device Model	N/A
LATCHUP	Latchup Performance (Note 4)		±100

74VHCTxxx – 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_{IN}	DC Input Voltage	-0.5V to +7.0V
V_{OUT}	DC Output Voltage	-0.5V to $V_{CC} + 0.5V$
	Note 2	-0.5V to +7.0V
	Note 3	-0.5V to +7.0V
I_{IK}	Input Diode Current	-20mA
I_{OK}	Output Diode Current ⁽⁴⁾	±20mA
I_{OUT}	DC Output Current	±25mA
I_{CC}	DC V_{CC} /GND Current	±75mA
T_{STG}	Storage Temperature	-65°C to +150°C
T_L	Lead Temperature (Soldering, 10 seconds)	260°C

New

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V
V_{IN}	DC Input Voltage	-0.5 to +6.5	V
V_{OUT}	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V
	Active Mode (High or Low State)	-0.5 to +6.5	
	Tri-state Mode (Note 2)	-0.5 to +6.5	
	Power-Off Mode ($V_{CC} = 0V$)	-0.5 to +6.5	
I_{IN}	DC Input Current, per Pin	±20	mA
I_{OUT}	DC Output Current, per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
I_{IK}	Input Clamp Current	-20	mA
I_{OK}	Output Clamp Current	-20	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	°C
T_J	Junction Temperature under Bias	+150	°C
θ_{JA}	Thermal Resistance (Note 3)	150	°C/W
P_D	Power Dissipation in Still Air at 25°C	833	mW
MSL	Moisture Sensitivity	Level 1	
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.574 in
V_{ESD}	ESD Withstand Voltage (Note 4)	Human Body Model	2000
		Charged Device Model	N/A

MC74LVXxxx – Maximum Ratings

Existing

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +7.0	V
V_{IN}	DC Input Voltage	-0.5 to +7.0	V
V_{OUT}	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V
I_{IK}	Input Diode Current	-20	mA
I_{OK}	Output Diode Current	±20	mA
I_{OUT}	DC Output Current, per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
P_D	Power Dissipation	180	mW
T_{STG}	Storage Temperature	-65 to +150	°C

New

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +6.5	V
V_{IN}	DC Input Voltage	-0.5 to +6.5	V
V_{OUT}	DC Output Voltage (MC74VHC)	-0.5 to $V_{CC} + 0.5$	V
	Active Mode (High or Low State)	-0.5 to $V_{CC} + 0.5$	
	Tri-state Mode (Note 1)	-0.5 to +6.5	
	Power-Off Mode ($V_{CC} = 0V$)	-0.5 to +6.5	
I_{IN}	DC Input Current, per Pin	±20	mA
I_{OUT}	DC Output Current, Per Pin	±25	mA
I_{CC}	DC Supply Current, V_{CC} and GND Pins	±75	mA
I_{IK}	Input Clamp Current	-20	mA
I_{OK}	Output Clamp Current	±20	mA
	MC74VHC244	±20	
	MC74VHCT244A	±20	
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
		TSSOP-20	150
P_D	Power Dissipation in Still Air at 25°C	SOIC-20W	1302
		TSSOP-20	833
MSL	Moisture Sensitivity	Level 1	-
F_R	Flammability Rating	Oxygen Index: 28 to 34	UL 94 V-0 @ 0.244 in
V_{ESD}	ESD Withstand Voltage (Note 3)	Human Body Model	2000
		Charged Device Model	N/A
I_{LATCH}	Latchup Performance (Note 4)		±100

MC74LCX244 – Maximum Ratings

Existing

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
θ_{JA}	Thermal Resistance (Note 2)	$\theta_{JA} = 140$		°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 ($V_{CC} = 0V$)	-0.5 to +6.5	
I_{IK}	DC Input Diode Current	$V_{IN} < GND$	mA
I_{OK}	DC Output Diode Current	$V_{OUT} < GND$	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	> 2000
		Charged Device Model	N/A

MC74LCX244 – Recommended Operating Condition

Existing

RECOMMENDED OPERATING CONDITIONS					
Symbol	Parameter	Min	Typ	Max	Units
V _{CC}	Supply Voltage Operating Data Retention Only	2.0 1.5	3.3 3.3	3.6 3.6	V
V _I	Input Voltage	0		5.5	V
V _O	Output Voltage (HIGH or LOW State) (3-State)	0 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 _{IN} from 0.8 V to 2.0 V, V _{CC} = 3.0 V			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	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	µS/V
		V _{CC} = 2.3 V to 2.7 V	0	-	20	
		V _{IN} 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	

MC74LCX244 – DC Electrical Characteristic

Existing

DC ELECTRICAL CHARACTERISTICS					
Symbol	Characteristic	Condition	$T_A = -40^{\circ}\text{C to } +85^{\circ}\text{C}$		Units
			Min	Max	
V_{IH}	HIGH Level Input Voltage (Note 2)	$2.7 \leq V_{CC} \leq 3.6\text{ V}$	2.0		V
V_{IL}	LOW Level Input Voltage (Note 2)	$2.7 \leq V_{CC} \leq 3.6\text{ V}$		0.8	V
V_{OH}	HIGH Level Output Voltage	$2.7 \leq V_{CC} \leq 3.6\text{ V}; I_{OH} = -100\text{ }\mu\text{A}$	$V_{CC} - 0.2$		V
		$V_{CC} = 2.7\text{ V}; I_{OH} = -12\text{ mA}$	2.2		V
		$V_{CC} = 3.0\text{ V}; I_{OH} = -18\text{ mA}$	2.4		V
		$V_{CC} = 3.0\text{ V}; I_{OH} = -24\text{ mA}$	2.2		V
V_{OL}	LOW Level Output Voltage	$2.7 \leq V_{CC} \leq 3.6\text{ V}; I_{OL} = 100\text{ }\mu\text{A}$		0.2	V
		$V_{CC} = 2.7\text{ V}; I_{OL} = 12\text{ mA}$		0.4	V
		$V_{CC} = 3.0\text{ V}; I_{OL} = 16\text{ mA}$		0.4	V
		$V_{CC} = 3.0\text{ V}; I_{OL} = 24\text{ mA}$		0.55	V
I_{OZ}	3-State Output Current	$V_{CC} = 3.6\text{ V}; V_{IH} = V_{IH}$ or V_{IL} $V_{OUT} = 0 \text{ to } 5.5\text{ V}$		± 5	μA
I_{OFF}	Power Off Leakage Current	$V_{CC} = 0, V_{IN} = 5.5\text{ V}$ or $V_{OUT} = 5.5\text{ V}$		± 10	μA
I_{IN}	Input Leakage Current	$V_{CC} = 3.6\text{ V}, V_{IN} = 5.5\text{ V}$ or GND		± 5	μA
I_{CC}	Quiescent Supply Current	$V_{CC} = 3.6\text{ V}, V_{IN} = 5.5\text{ V}$ or GND		± 10	μA
I_{IOZ}	Increase in I_{OZ} per Input	$2.3 \leq V_{CC} \leq 3.6\text{ V}; V_{IH} = V_{CC} - 0.6\text{ V}$		500	μA

New

DC ELECTRICAL CHARACTERISTICS							
Symbol	Parameter	Conditions	$T_{\text{A}} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$		$T_{\text{A}} = -55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$		Unit
			Min	Max	Min	Max	
V_{IH}	High-Level Input Voltage		1.65 to 1.95	$0.65 \times V_{\text{CC}}$	$0.65 \times V_{\text{CC}}$		V
			2.3 to 2.7	1.7	1.7		
			2.7 to 3.6	2.0	2.0		
			4.5 to 5.5	$0.7 \times V_{\text{CC}}$	$0.7 \times V_{\text{CC}}$		
V_{IL}	Low-Level Input Voltage		1.65 to 1.95	$0.35 \times V_{\text{CC}}$		$0.35 \times V_{\text{CC}}$	V
			2.3 to 2.7	0.7	0.7		
			2.7 to 3.6	0.8	0.8		
			4.5 to 5.5	$0.3 \times V_{\text{CC}}$	$0.3 \times V_{\text{CC}}$		
V_{OH}	High-Level Output Voltage	$V_{\text{I}} = V_{\text{OH}}$ or V_{I} $I_{\text{OH}} = -1000\ \mu\text{A}$	1.65 to 5.5	$V_{\text{CC}} - 0.1$	$V_{\text{CC}} - 0.1$		V
		$I_{\text{OH}} = -4\ \text{mA}$	1.65	1.2	1.2	-	
		$I_{\text{OH}} = -8\ \text{mA}$	2.3	1.8	1.8	-	
		$I_{\text{OH}} = -12\ \text{mA}$	2.7	2.2	2.2	-	
		$I_{\text{OH}} = -16\ \text{mA}$	3.0	2.4	2.4	-	
		$I_{\text{OH}} = -24\ \text{mA}$	3.0	2.2	2.2	-	
		$I_{\text{OH}} = -32\ \text{mA}$	4.5	3.8	3.8	-	
V_{OL}	Low-Level Output Voltage	$V_{\text{I}} = V_{\text{OH}}$ or V_{I} $I_{\text{OL}} = 1000\ \mu\text{A}$	1.65 to 5.5	0.1	-	0.1	V
		$I_{\text{OL}} = 4\ \text{mA}$	1.65	0.45	-	0.45	
		$I_{\text{OL}} = 8\ \text{mA}$	2.3	0.6	-	0.6	
		$I_{\text{OL}} = 12\ \text{mA}$	2.7	0.4	-	0.4	
		$I_{\text{OL}} = 16\ \text{mA}$	3.0	0.4	-	0.4	
		$I_{\text{OL}} = 24\ \text{mA}$	3.0	0.55	-	0.55	
		$I_{\text{OL}} = 32\ \text{mA}$	4.5	0.6	-	0.6	
I_{I}	Input Leakage Current	$V_{\text{I}} = 0$ to 5.5 V	3.6	-	± 5.0	-	μA
	3-State Output Leakage Current	$V_{\text{I}} = V_{\text{OH}}$ or V_{CC} $V_{\text{O}} = 0\ \text{V}$ to 5.5 V	3.6	-	± 5.0	-	μA
I_{OFF}	Power Off Leakage Current	$V_{\text{I}} = 5.5\ \text{V}$ or $V_{\text{O}} = 5.5\ \text{V}$	0	-	10	-	μA
I_{QC}	Quiescent Supply Current	$V_{\text{I}} = 5.5\ \text{V}$ or GND	3.6	-	10	-	μA
I_{CC}	Increase in I_{CC} from I_{QC} at $T_{\text{A}} = 125^{\circ}\text{C}$	$V_{\text{OH}} = V_{\text{CC}} - 0.6\ \text{V}$	2.3 to 3.6	-	500	-	500

MC74LCX244 – AC Electrical Characteristic

Existing

AC CHARACTERISTICS (t _{RI} = t _{PI} = 2.5 ns, P _L = 500 μ W)									
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 $\pm$ 0.2		
			C _L = 50 pF		C _L = 50 pF		C _L = 30 pF		
			Min	Max	Min	Max	Min	Max	
t _{PLH} t _{PHL}	Propagation Delay Input to Output	1	1.5	6.5	1.5	7.5	1.5	7.8	
t _{DEL} t _{DEL}	Output Enable Time to High and Low Level	2	1.5	8.0	1.5	9.0	1.5	10	ns
t _{ENL} t _{OLZ}	Output Disable Time From High and Low Level	2	1.5	7.0	1.5	8.0	1.5	8.4	ns
t _{OSL} t _{OSL}	Output-to-Output Skew (Note 4)			1.0		1.0			ns

New

AC ELECTRICAL CHARACTERISTICS								
Symbol	Parameter	Test Condition	V _{CC} (V)	I _A = -40 °C to +85°C		I _A = -55°C to +125°C		Unit
				Min	Max	Min	Max	
<u>t_{PLH}</u> <u>t_{PLH}</u>	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	
<u>t_{OL}</u> <u>t_{OL}</u>	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	
<u>t_{OSL}</u> <u>t_{OSL}</u>	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	
<u>t_{OSW}</u> <u>t_{OSW}</u>	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
MC74VHC541DTR2G	NLV74HC244ADTR2G
MC74LCX244ADTR2G	NLV74HC244ADTR2G
MC74LCX244DTR2G	NLV74HC244ADTR2G
MC74VHC540DTR2G	NLV74HC244ADTR2G
MC74VHCT245ADTRG	NLV74HC244ADTR2G
MC74VHCT541ADTRG	NLV74HC244ADTR2G
74VHCT541AMTCX	NLV74HC244ADTR2G
MC74VHCT244ADTRG	NLV74HC244ADTR2G
MC74VHC573DTR2G	NLV74HC244ADTR2G
MC74VHC574DTR2G	NLV74HC244ADTR2G
MC74VHCT240ADTRG	NLV74HC244ADTR2G
MC74LVX244DTR2G	NLV74HC244ADTR2G
MC74VHC245DTR2G	NLV74HC244ADTR2G
MC74LVX373DTR2G	NLV74HC244ADTR2G
MC74VHC244DTR2G	NLV74HC244ADTR2G
MC74VHCT573ADTRG	NLV74HC244ADTR2G
MC74VHCT573ADTG	NLV74HC244ADTR2G
MC74VHCT374ADTRG	NLV74HC244ADTR2G
MC74LVX574DTR2G	NLV74HC244ADTR2G
MC74LVX374DTR2G	NLV74HC244ADTR2G
MC74VHC244DTG	NLV74HC244ADTR2G
MC74VHC374DTR2G	NLV74HC244ADTR2G
MC74VHCT373ADTRG	NLV74HC244ADTR2G
MC74LVX245DTR2G	NLV74HC244ADTR2G
MC74LVX244DTG	NLV74HC244ADTR2G
MC74LVX573DTG	NLV74HC244ADTR2G
MC74VHC574DTG	NLV74HC244ADTR2G
MC74LVX240DTR2G	NLV74HC244ADTR2G
MC74VHCT244ADTG	NLV74HC244ADTR2G



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MC74VHC541DTG	NLV74HC244ADTR2G
MC74LVX541DTR2G	NLV74HC244ADTR2G
MC74VHCT245ADTG	NLV74HC244ADTR2G
74VHC240MTCX	NLV74HC244ADTR2G
MC74VHCT574ADTRG	NLV74HC244ADTR2G
MC74VHC373DTR2G	NLV74HC244ADTR2G
MC74LCX244DTG	NLV74HC244ADTR2G
MC74VHC240DTR2G	NLV74HC244ADTR2G
MC74VHCT541ADTG	NLV74HC244ADTR2G
MC74LVX573DTR2G	NLV74HC244ADTR2G