

NL74VCXH16240

Low-Voltage 1.8/2.5/3.3V 16-Bit Buffer

With 3.6V-Tolerant Inputs and Outputs (3-State, Inverting)

The NL74VCXH16240 is an advanced performance, inverting 16-bit buffer. It is designed for very high-speed, very low-power operation in 1.8V, 2.5V or 3.3V systems.

When operating at 2.5V (or 1.8V) the part is designed to tolerate voltages it may encounter on either inputs or outputs when interfacing to 3.3V busses. It is guaranteed to be over-voltage tolerant to 3.6V.

The NL74VCXH16240 is nibble controlled with each nibble functioning identically, but independently. The control pins may be tied together to obtain full 16-bit operation. The 3-state outputs are controlled by an Output Enable (\overline{OEn}) input for each nibble. When \overline{OEn} is LOW, the outputs are on. When \overline{OEn} is HIGH, the outputs are in the high impedance state. The data inputs include active bushold circuitry, eliminating the need for external pull-up resistors to hold unused or floating inputs at a valid logic state.

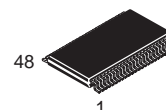
- Designed for Low Voltage Operation: $V_{CC} = 1.65\text{--}3.6\text{V}$
- 3.6V Tolerant Inputs and Outputs
- High Speed Operation: 2.5ns max for 3.0 to 3.6V
3.0ns max for 2.3 to 2.7V
6.0ns max for 1.65 to 1.95V
- Static Drive: $\pm 24\text{mA}$ Drive at 3.0V
 $\pm 18\text{mA}$ Drive at 2.3V
 $\pm 6\text{mA}$ Drive at 1.65V
- Supports Live Insertion and Withdrawal
- Includes Active Bushold to Hold Unused or Floating Inputs at a Valid Logic State
- I_{OFF} Specification Guarantees High Impedance When $V_{CC} = 0\text{V}$ †
- Near Zero Static Supply Current in All Three Logic States (20 μA)
Substantially Reduces System Power Requirements
- Latchup Performance Exceeds $\pm 300\text{mA}$ @ 125°C
- ESD Performance: Human Body Model >2000V; Machine Model >200V

†NOTE: To ensure the outputs activate in the 3-state condition, the output enable pins should be connected to V_{CC} through a pull-up resistor. The value of the resistor is determined by the current sinking capability of the output connected to the OE pin.



ON Semiconductor

<http://onsemi.com>



TSSOP-48
DT SUFFIX
CASE 1201

MARKING DIAGRAM



A = Assembly Location
WL = Wafer Lot
YY = Year
WW = Work Week

PIN NAMES

Pins	Function
\overline{OEn}	Output Enable Inputs
D0–D15	Inputs
O0–O15	Outputs

ORDERING INFORMATION

Device	Package	Shipping
NL74VCXH16240DT	TSSOP	39 / Rail
NL74VCXH16240DTR	TSSOP	2500 / Reel

NL74VCXH16240

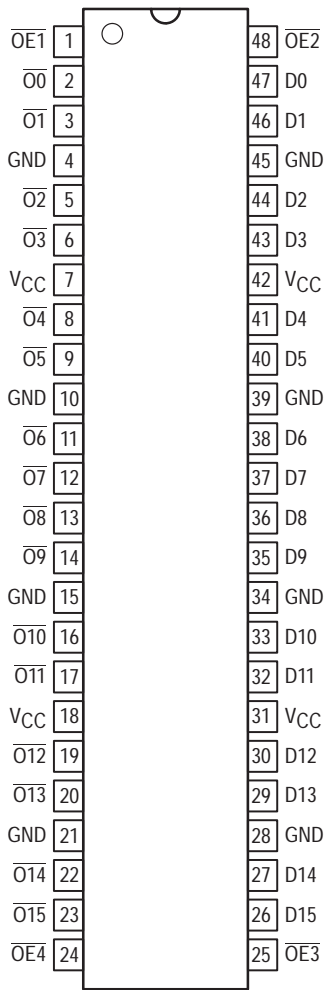


Figure 1. 48-Lead Pinout (Top View)

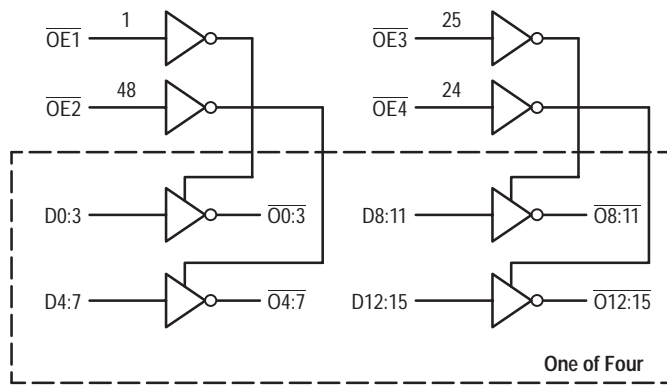
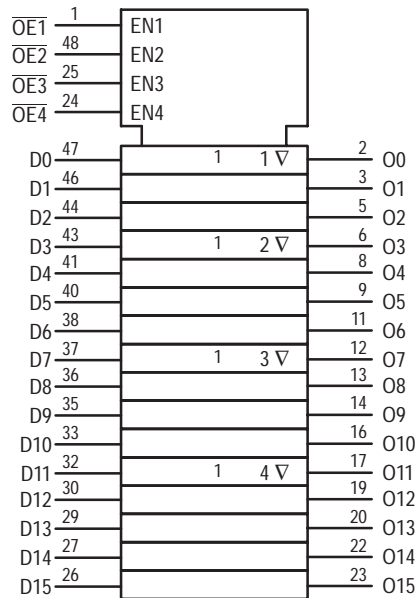


Figure 2. Logic Diagram



OE1	D0:3	O0:3	OE2	D4:7	O4:7	OE3	D8:11	O8:11	OE4	D12:15	O12:15
L	L	H	L	L	H	L	L	H	L	L	H
L	H	L	L	H	L	L	H	L	L	H	L
H	X	Z	H	X	Z	H	X	Z	H	X	Z

H = High Voltage Level; L = Low Voltage Level; Z = High Impedance State; X = High or Low Voltage Level and Transitions Are Acceptable, for I_{CC} reasons, DO NOT FLOAT Inputs

NL74VCXH16240

ABSOLUTE MAXIMUM RATINGS*

Symbol	Parameter	Value	Condition	Unit
V_{CC}	DC Supply Voltage	-0.5 to +4.6		V
V_I	DC Input Voltage	$-0.5 \leq V_I \leq +4.6$		V
V_O	DC Output Voltage	$-0.5 \leq V_O \leq +4.6$	Output in 3-State	V
		$-0.5 \leq V_O \leq V_{CC} + 0.5$	Note 1.; Outputs Active	V
I_{IK}	DC Input Diode Current	-50	$V_I < \text{GND}$	mA
I_{OK}	DC Output Diode Current	-50	$V_O < \text{GND}$	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
TSTG	Storage Temperature Range	-65 to +150		°C

* Absolute maximum continuous ratings are those values beyond which damage to the device may occur. Exposure to these conditions or conditions beyond those indicated may adversely affect device reliability. Functional operation under absolute-maximum-rated conditions is not implied.

1. I_O absolute maximum rating must be observed.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Typ	Max	Unit	
V_{CC}	Supply Voltage	Operating	1.65	3.3	3.6	V
		Data Retention Only	1.2	3.3	3.6	
V_I	Input Voltage	-0.3		3.6	V	
V_O	Output Voltage	(Active State)	0		V_{CC}	V
		(3-State)	0		3.6	
I_{OH}	HIGH Level Output Current, $V_{CC} = 3.0V - 3.6V$			-24	mA	
I_{OL}	LOW Level Output Current, $V_{CC} = 3.0V - 3.6V$			24	mA	
I_{OH}	HIGH Level Output Current, $V_{CC} = 2.3V - 2.7V$			-18	mA	
I_{OL}	LOW Level Output Current, $V_{CC} = 2.3V - 2.7V$			18	mA	
I_{OH}	HIGH Level Output Current, $V_{CC} = 1.65 - 1.95V$			-6	mA	
I_{OL}	LOW Level Output Current, $V_{CC} = 1.65 - 1.95V$			6	mA	
T_A	Operating Free-Air Temperature	-40		+85	°C	
$\Delta t/\Delta V$	Input Transition Rise or Fall Rate, V_{IN} from 0.8V to 2.0V, $V_{CC} = 3.0V$	0		10	ns/V	

NL74VCXH16240

DC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic	Condition	T _A = -40°C to +85°C		Unit
			Min	Max	
V _{IH}	HIGH Level Input Voltage (Note 2.)	1.65V ≤ V _{CC} < 2.3V	0.65 x V _{CC}		V
		2.3V ≤ V _{CC} ≤ 2.7V	1.6		
		2.7V < V _{CC} ≤ 3.6V	2.0		
V _{IL}	LOW Level Input Voltage (Note 2.)	1.65V ≤ V _{CC} < 2.3V		0.35 x V _{CC}	V
		2.3V ≤ V _{CC} ≤ 2.7V		0.7	
		2.7V < V _{CC} ≤ 3.6V		0.8	
V _{OH}	HIGH Level Output Voltage	1.65V ≤ V _{CC} ≤ 3.6V; I _{OH} = -100μA	V _{CC} - 0.2		V
		V _{CC} = 1.65V; I _{OH} = -6mA	1.25		
		V _{CC} = 2.3V; I _{OH} = -6mA	2.0		
		V _{CC} = 2.3V; I _{OH} = -12mA	1.8		
		V _{CC} = 2.3V; I _{OH} = -18mA	1.7		
		V _{CC} = 2.7V; I _{OH} = -12mA	2.2		
		V _{CC} = 3.0V; I _{OH} = -18mA	2.4		
V _{OL}	LOW Level Output Voltage	1.65V ≤ V _{CC} ≤ 3.6V; I _{OL} = 100μA		0.2	V
		V _{CC} = 1.65V; I _{OL} = 6mA		0.3	
		V _{CC} = 2.3V; I _{OL} = 12mA		0.4	
		V _{CC} = 2.3V; I _{OL} = 18mA		0.6	
		V _{CC} = 2.7V; I _{OL} = 12mA		0.4	
		V _{CC} = 3.0V; I _{OL} = 18mA		0.4	
		V _{CC} = 3.0V; I _{OL} = 24mA		0.55	
I _I	Input Leakage Current	1.65V ≤ V _{CC} ≤ 3.6V; 0V ≤ V _I ≤ 3.6V		±5.0	μA
I _I (HOLD)	Minimum Bushold Input Current	V _{CC} = 3.0V, V _{IN} = 0.8V	75		μA
		V _{CC} = 3.0V, V _{IN} = 2.0V	-75		
		V _{CC} = 2.3V, V _{IN} = 0.7V	45		
		V _{CC} = 2.3V, V _{IN} = 1.6V	-45		
		V _{CC} = 1.65V, V _{IN} = 0.57V	25		
		V _{CC} = 1.65V, V _{IN} = 1.07V	-25		
I _I (OD)	Minimum Bushold Over-Drive Current Needed to Change State	V _{CC} = 3.6V, (Note 3.)	450		μA
		V _{CC} = 3.6V, (Note 4.)	-450		
		V _{CC} = 2.7V, (Note 3.)	300		
		V _{CC} = 2.7V, (Note 4.)	-300		
		V _{CC} = 1.95V, (Note 3.)	200		
		V _{CC} = 1.95V, (Note 4.)	-200		
I _{OZ}	3-State Output Current	1.65V ≤ V _{CC} ≤ 3.6V; 0V ≤ V _O ≤ 3.6V; V _I = V _{IH} or V _{IL}		±10	μA
I _{OFF}	Power-Off Leakage Current	V _{CC} = 0V; V _I or V _O = 3.6V		10	μA
I _{CC}	Quiescent Supply Current (Note 5.)	1.65V ≤ V _{CC} ≤ 3.6V; V _I = GND or V _{CC}		20	μA
		1.65V ≤ V _{CC} ≤ 3.6V; 3.6V ≤ V _I , V _O ≤ 3.6V		±20	μA
ΔI _{CC}	Increase in I _{CC} per Input	2.7V < V _{CC} ≤ 3.6V; V _{IH} = V _{CC} - 0.6V		750	μA

2. These values of V_I are used to test DC electrical characteristics only.

3. An external driver must source at least the specified current to switch from LOW-to-HIGH

4. An external driver must source at least the specified current to switch from HIGH-to-LOW

5. Outputs disabled or 3-state only.

NL74VCXH16240

AC CHARACTERISTICS (Note 6.; $t_R = t_F = 2.0\text{ns}$; $C_L = 30\text{pF}$; $R_L = 500\Omega$)

Symbol	Parameter	Waveform	Limits						Unit
			$T_A = -40^\circ\text{C to } +85^\circ\text{C}$						
			$V_{CC} = 3.0\text{V to } 3.6\text{V}$		$V_{CC} = 2.3\text{V to } 2.7\text{V}$		$V_{CC} = 1.65 \text{ to } 1.95\text{V}$		
			Min	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay Input to Output	1	0.8 0.8	2.5 2.5	1.0 1.0	3.0 3.0	1.5 1.5	6.0 6.0	ns
t_{PZH} t_{PZL}	Output Enable Time to High and Low Level	2	0.8 0.8	3.5 3.5	1.0 1.0	4.1 4.1	1.5 1.5	8.2 8.2	ns
t_{PHZ} t_{PLZ}	Output Disable Time From High and Low Level	2	0.8 0.8	3.5 3.5	1.0 1.0	3.8 3.8	1.5 1.5	7.8 7.8	ns
t_{OSHL} t_{OSLH}	Output-to-Output Skew (Note 7.)			0.5 0.5		0.5 0.5		0.75 0.75	ns

6. For $C_L = 50\text{pF}$, add approximately 300ps to the AC maximum specification.

7. Skew is defined as the absolute value of the difference between the actual propagation delay for any two separate outputs of the same device. The specification applies to any outputs switching in the same direction, either HIGH-to-LOW (t_{OSHL}) or LOW-to-HIGH (t_{OSLH}); parameter guaranteed by design.

DYNAMIC SWITCHING CHARACTERISTICS

Symbol	Characteristic	Condition	$T_A = +25^\circ\text{C}$	Unit
			Typ	
V_{OLP}	Dynamic LOW Peak Voltage (Note 8.)	$V_{CC} = 1.8\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	0.25	V
		$V_{CC} = 2.5\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	0.6	
		$V_{CC} = 3.3\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	0.8	
V_{OLV}	Dynamic LOW Valley Voltage (Note 8.)	$V_{CC} = 1.8\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	-0.25	V
		$V_{CC} = 2.5\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	-0.6	
		$V_{CC} = 3.3\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	-0.8	
V_{OHV}	Dynamic HIGH Valley Voltage (Note 9.)	$V_{CC} = 1.8\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	1.5	V
		$V_{CC} = 2.5\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	1.9	
		$V_{CC} = 3.3\text{V}, C_L = 30\text{pF}, V_{IH} = V_{CC}, V_{IL} = 0\text{V}$	2.2	

8. Number of outputs defined as "n". Measured with "n-1" outputs switching from HIGH-to-LOW or LOW-to-HIGH. The remaining output is measured in the LOW state.

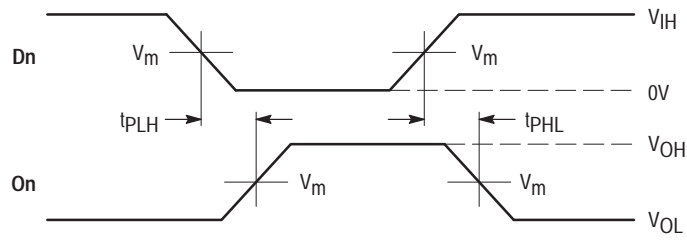
9. Number of outputs defined as "n". Measured with "n-1" outputs switching from HIGH-to-LOW or LOW-to-HIGH. The remaining output is measured in the HIGH state.

CAPACITIVE CHARACTERISTICS

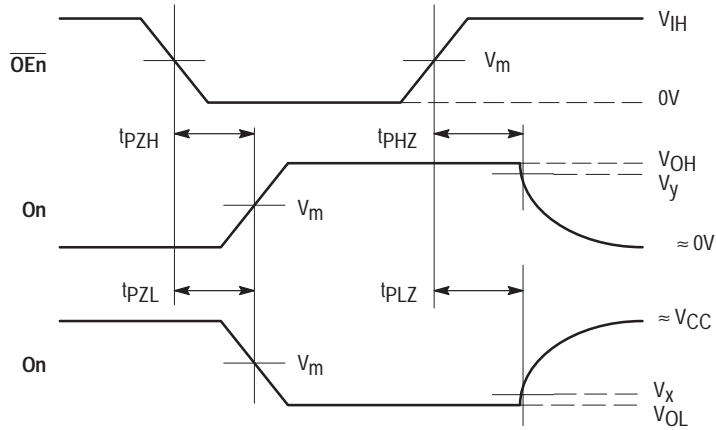
Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	Note 10.	6	pF
C_{OUT}	Output Capacitance	Note 10.	7	pF
C_{PD}	Power Dissipation Capacitance	Note 10., 10MHz	20	pF

10. $V_{CC} = 1.8, 2.5 \text{ or } 3.3\text{V}$; $V_I = 0\text{V}$ or V_{CC} .

NL74VCXH16240



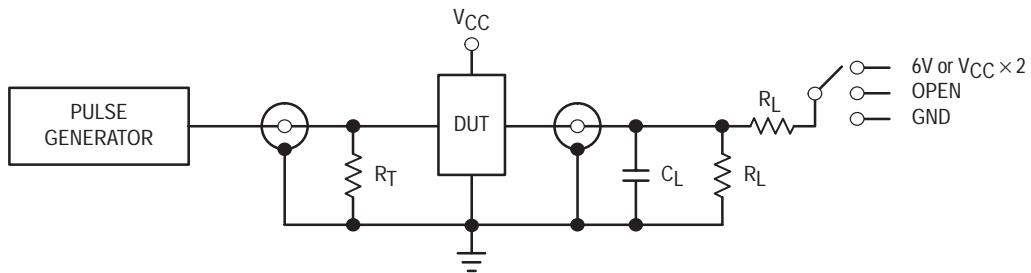
WAVEFORM 1 - PROPAGATION DELAYS
 $t_R = t_F = 2.0\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$



WAVEFORM 2 - OUTPUT ENABLE AND DISABLE TIMES
 $t_R = t_F = 2.0\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$

Figure 3. AC Waveforms

Symbol	VCC		
	3.3V ±0.3V	2.5V ±0.2V	1.8V ±0.15V
VIH	2.7V	VCC	VCC
Vm	1.5V	VCC/2	VCC/2
Vx	VOL + 0.3V	VOL + 0.15V	VOL + 0.15V
Vy	VOH - 0.3V	VOH - 0.15V	VOH - 0.15V

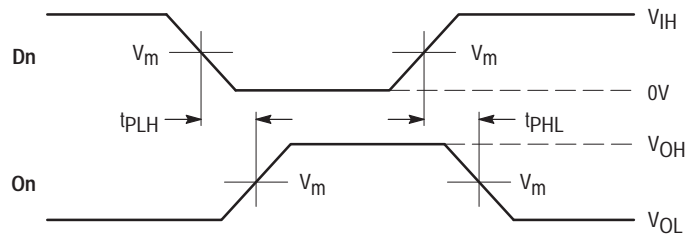


TEST	SWITCH
tPLH, tPHL	Open
tPZL, tPLZ	6V at VCC = 3.3 ±0.3V; VCC × 2 at VCC = 2.5 ±0.2V; 1.8 ±0.15V
tPZH, tPHZ	GND

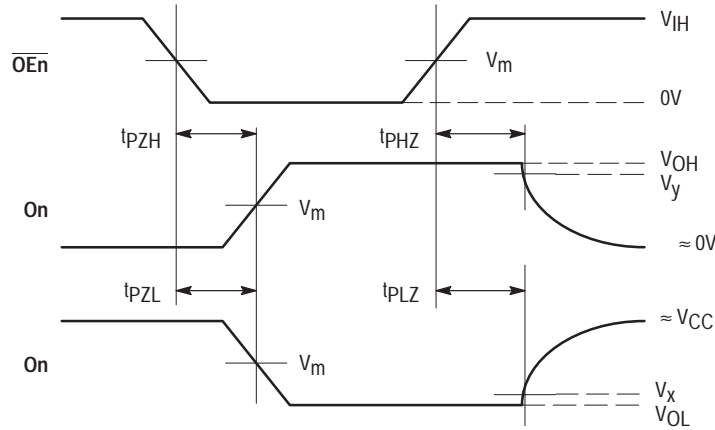
$C_L = 30\text{pF}$ or equivalent (Includes jig and probe capacitance)
 $R_L = 500\Omega$ or equivalent
 $R_T = Z_{OUT}$ of pulse generator (typically 50Ω)

Figure 4. Test Circuit

NL74VCXH16240



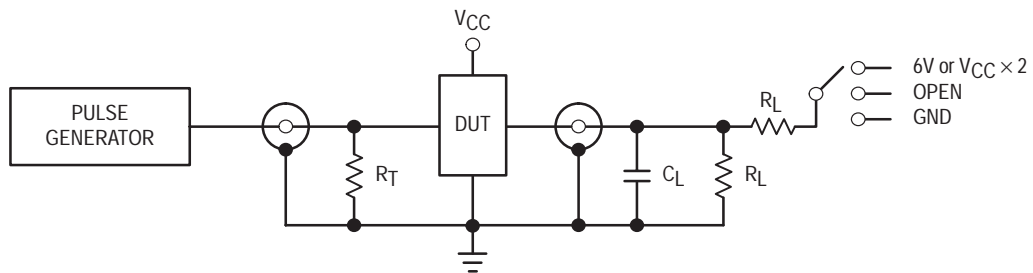
WAVEFORM 3 - PROPAGATION DELAYS
 $t_R = t_F = 2.0\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$



WAVEFORM 4 - OUTPUT ENABLE AND DISABLE TIMES
 $t_R = t_F = 2.0\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$

Figure 5. AC Waveforms

Symbol	V _{CC}	
	3.3V ±0.3V	2.7V
V _{IH}	2.7V	2.7V
V _m	1.5V	1.5V
V _x	V _{OL} + 0.3V	V _{OL} + 0.3V
V _y	V _{OH} - 0.3V	V _{OH} - 0.3V



TEST	SWITCH
t _{PLH} , t _{PHL}	Open
t _{PZL} , t _{PLZ}	6V at V _{CC} = 3.3 ±0.3V; V _{CC} × 2 at V _{CC} = 2.5 ±0.2V; 1.8 ±0.15V
t _{PZH} , t _{PHZ}	GND

C_L = 50pF or equivalent (Includes jig and probe capacitance)
R_L = 500Ω or equivalent
R_T = Z_{OUT} of pulse generator (typically 50Ω)

Figure 6. Test Circuit

NL74VCXH16240

AC CHARACTERISTICS ($t_R = t_F = 2.0\text{ns}$; $C_L = 50\text{pF}$; $R_L = 500\Omega$)

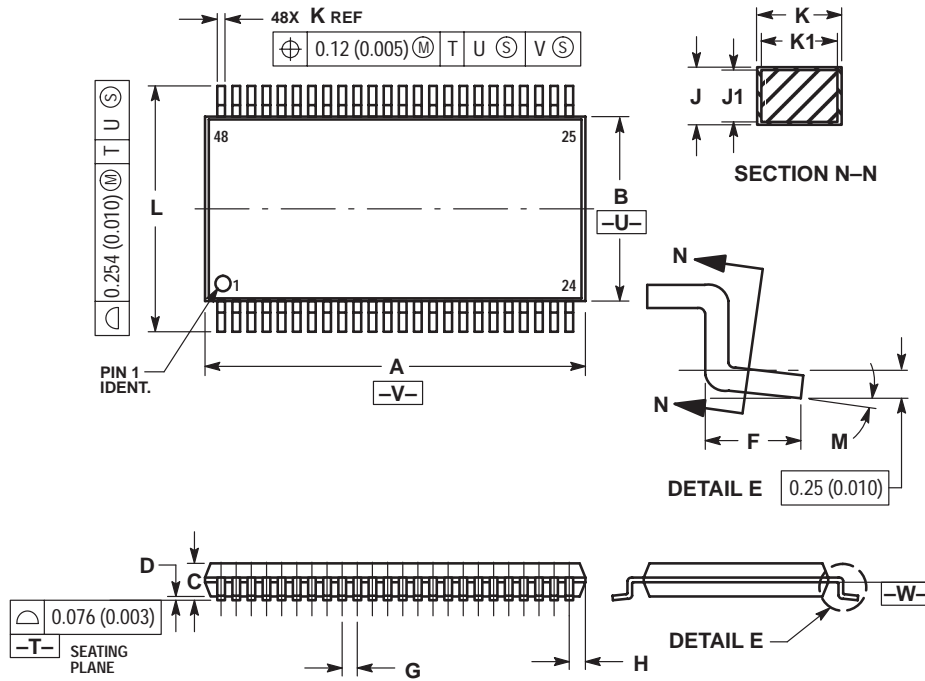
Symbol	Parameter	Waveform	Limits				Unit
			$T_A = -40^\circ\text{C to } +85^\circ\text{C}$				
			$V_{CC} = 3.0\text{V to } 3.6\text{V}$		$V_{CC} = 2.7\text{V}$		
			Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay Input to Output	3	1.0 1.0	3.9 3.9		5.3 5.3	ns
t_{PZH} t_{PZL}	Output Enable Time to High and Low Level	4	1.0 1.0	5.0 5.0		6.1 6.1	ns
t_{PHZ} t_{PLZ}	Output Disable Time From High and Low Level	4	1.0 1.0	4.4 4.4		4.8 4.8	ns
t_{OSHL} t_{OSLH}	Output-to-Output Skew (Note 11.)			0.5 0.5		0.5 0.5	ns

11. Skew is defined as the absolute value of the difference between the actual propagation delay for any two separate outputs of the same device. The specification applies to any outputs switching in the same direction, either HIGH-to-LOW (t_{OSHL}) or LOW-to-HIGH (t_{OSLH}); parameter guaranteed by design.

NL74VCXH16240

PACKAGE DIMENSIONS

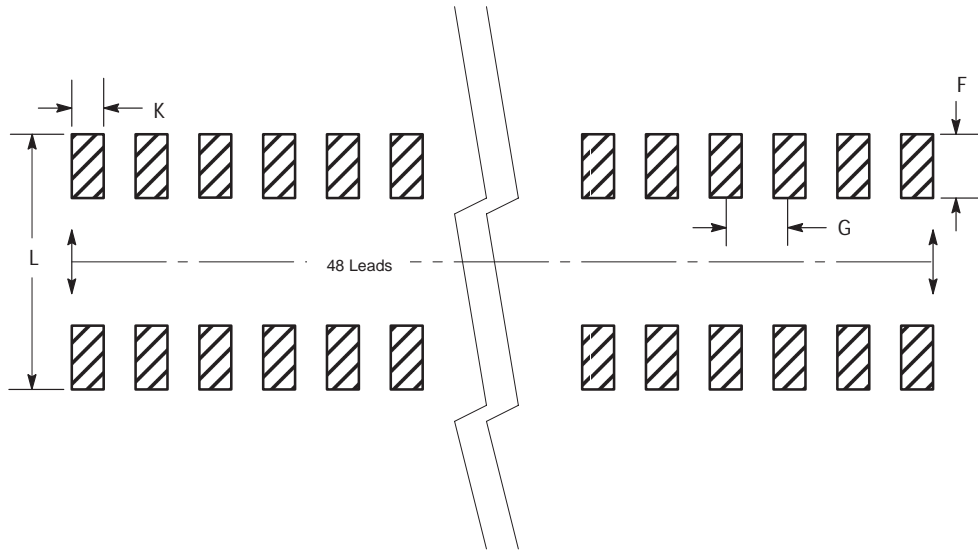
TSSOP
DT SUFFIX
CASE 1201-01
ISSUE A



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
5. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
6. DIMENSIONS A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.40	12.60	0.488	0.496
B	6.00	6.20	0.236	0.244
C	---	1.10	---	0.043
D	0.05	0.15	0.002	0.006
F	0.50	0.75	0.020	0.030
G	0.50 BSC		0.0197 BSC	
H	0.37	---	0.015	---
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.17	0.27	0.007	0.011
K1	0.17	0.23	0.007	0.009
L	7.95	8.25	0.313	0.325
M	0°	8°	0°	8°



Package Footprint

NL74VCXH16240

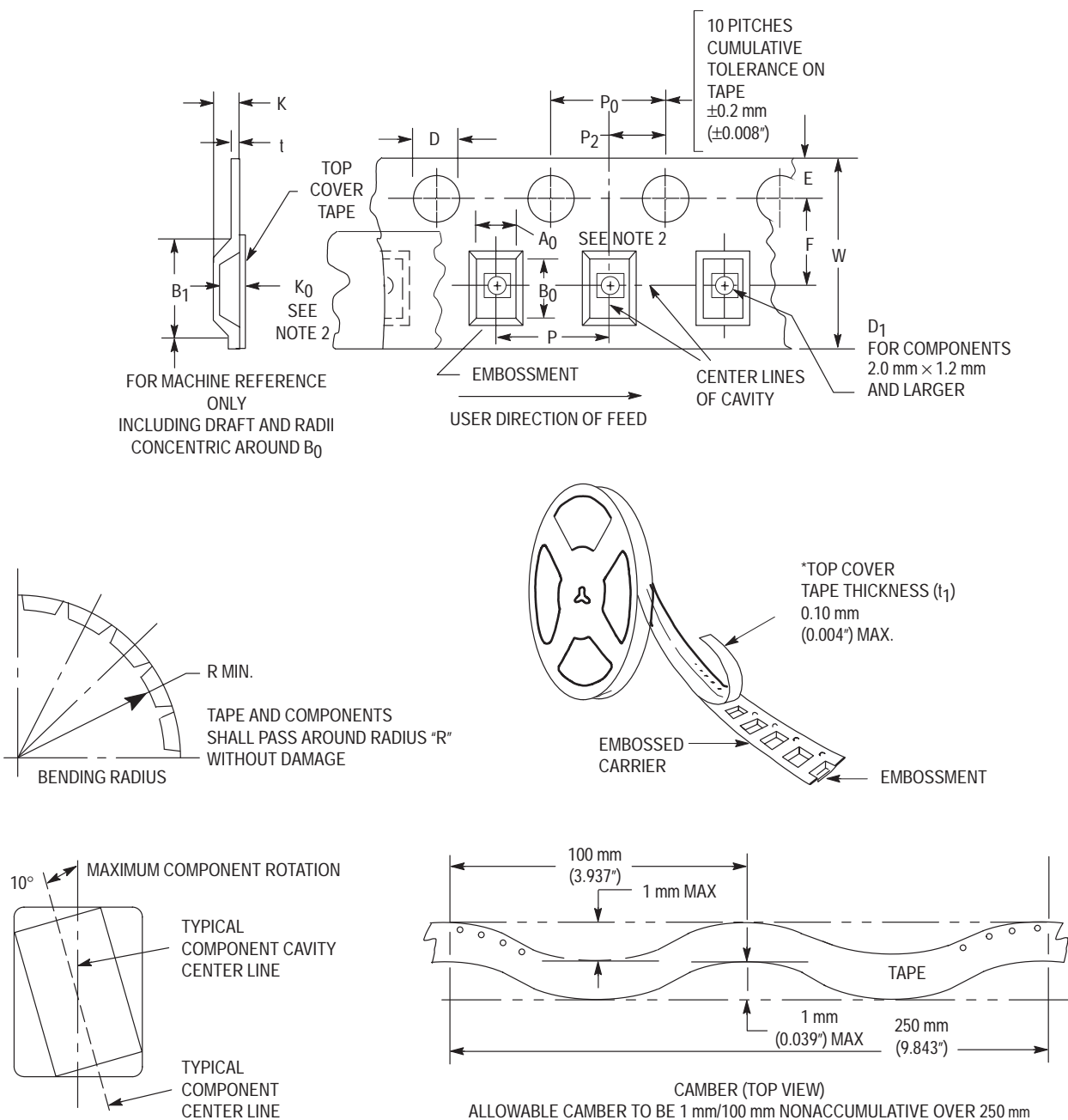


Figure 7. Carrier Tape Specifications

EMBOSSED CARRIER DIMENSIONS (See Notes 1 and 2)

Tape Size	B ₁ Max	D	D ₁	E	F	K	P	P ₀	P ₂	R	T	W
24mm	20.1mm (0.791")	1.5 + 0.1mm -0.0 (0.059 +0.004" -0.0)	1.5mm Min (0.060")	1.75 ±0.1 mm (0.069 ±0.004")	11.5 ±0.10 mm (0.453 ±0.004")	11.9 mm Max (0.468")	16.0 ±0.1 mm (0.63 ±0.004")	4.0 ±0.1 mm (0.157 ±0.004")	2.0 ±0.1 mm (0.079 ±0.004")	30 mm (1.18")	0.6 mm (0.024")	24.3 mm (0.957")

1. Metric Dimensions Govern—English are in parentheses for reference only.
2. A₀, B₀, and K₀ are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min to 0.50 mm max. The component cannot rotate more than 10° within the determined cavity

NL74VCXH16240

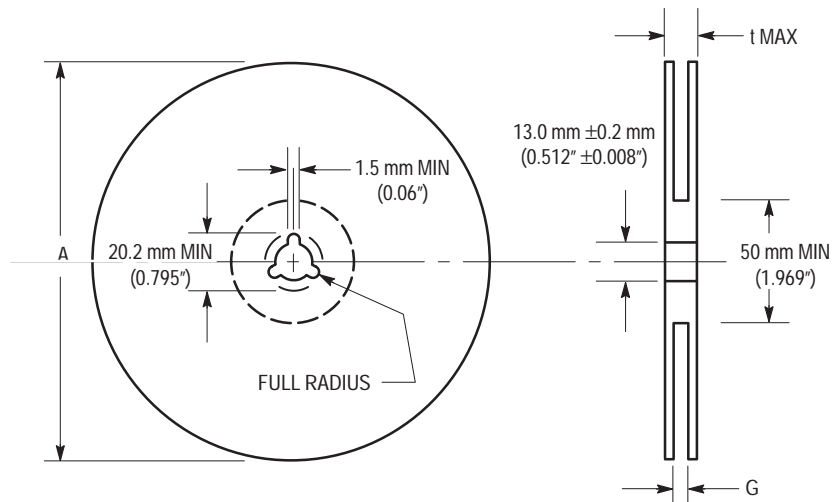


Figure 8. Reel Dimensions

REEL DIMENSIONS

Tape Size	A Max	G	t Max
24 mm	360 mm (14.173")	24.4 mm + 2.0 mm, -0.0 (0.961" + 0.078", -0.00)	30.4 mm (1.197")

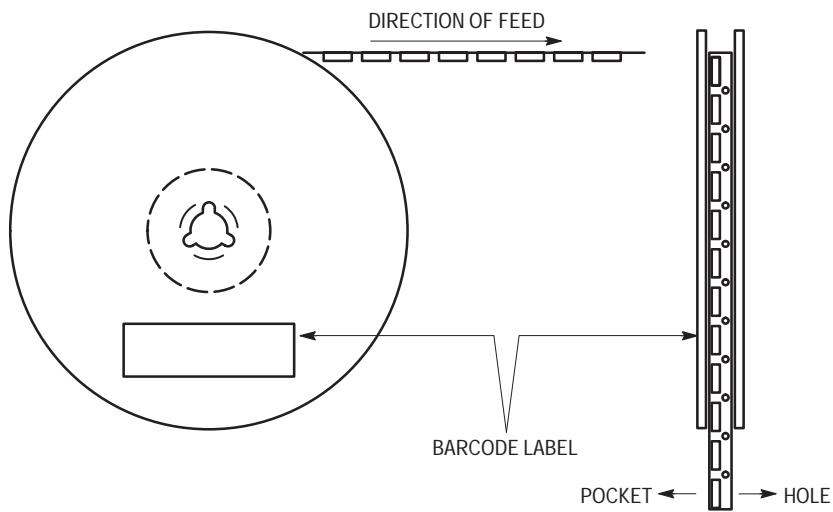


Figure 9. Reel Winding Direction

NL74VCXH16240

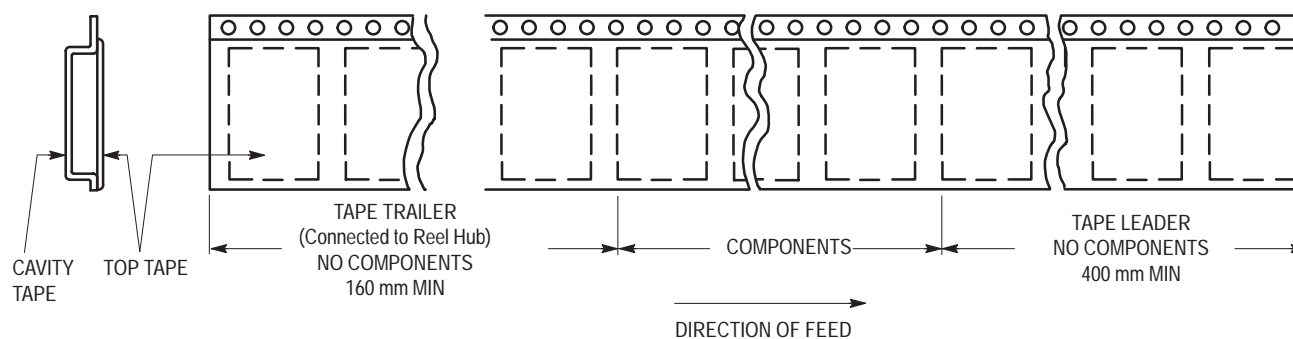


Figure 10. Tape Ends for Finished Goods

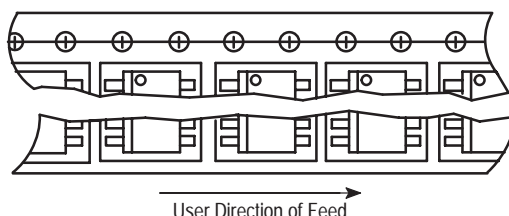



Figure 11. Reel Configuration

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

NORTH AMERICA Literature Fulfillment:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: ONlit@hibbertco.com
Fax Response Line: 303-675-2167 or 800-344-3810 Toll Free USA/Canada

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

EUROPE: LDC for ON Semiconductor – European Support

German Phone: (+1) 303-308-7140 (M-F 1:00pm to 5:00pm Munich Time)
Email: ONlit-german@hibbertco.com
French Phone: (+1) 303-308-7141 (M-F 1:00pm to 5:00pm Toulouse Time)
Email: ONlit-french@hibbertco.com
English Phone: (+1) 303-308-7142 (M-F 12:00pm to 5:00pm UK Time)
Email: ONlit@hibbertco.com

EUROPEAN TOLL-FREE ACCESS*: 00-800-4422-3781

*Available from Germany, France, Italy, England, Ireland

CENTRAL/SOUTH AMERICA:

Spanish Phone: 303-308-7143 (Mon-Fri 8:00am to 5:00pm MST)
Email: ONlit-spanish@hibbertco.com

ASIA/PACIFIC: LDC for ON Semiconductor – Asia Support

Phone: 303-675-2121 (Tue-Fri 9:00am to 1:00pm, Hong Kong Time)
Toll Free from Hong Kong & Singapore:
001-800-4422-3781
Email: ONlit-asia@hibbertco.com

JAPAN: ON Semiconductor, Japan Customer Focus Center

4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-8549
Phone: 81-3-5740-2745
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local Sales Representative.