

SN74LS240 SN74LS244

Octal Buffer/Line Driver with 3-State Outputs

The SN74LS240 and SN74LS244 are Octal Buffers and Line Drivers designed to be employed as memory address drivers, clock drivers and bus-oriented transmitters/receivers which provide improved PC board density.

- Hysteresis at Inputs to Improve Noise Margins
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Input Clamp Diodes Limit High-Speed Termination Effects

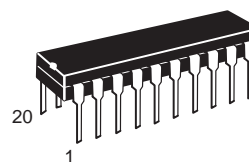
GUARANTEED OPERATING RANGES

Symbol	Parameter	Min	Typ	Max	Unit
V _{CC}	Supply Voltage	4.75	5.0	5.25	V
T _A	Operating Ambient Temperature Range	0	25	70	°C
I _{OH}	Output Current – High			–3.0	mA
				–15	mA
I _{OL}	Output Current – Low			24	mA

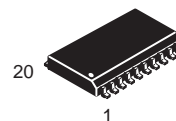


ON Semiconductor
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**LOW
POWER
SCHOTTKY**



**PLASTIC
N SUFFIX
CASE 738**



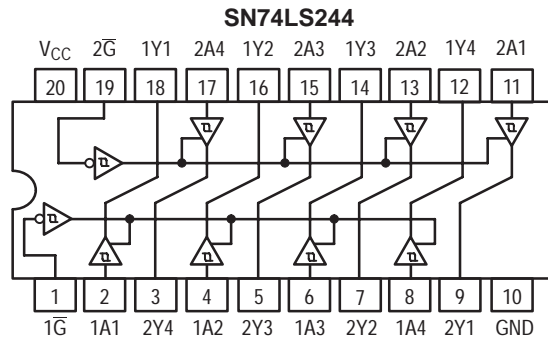
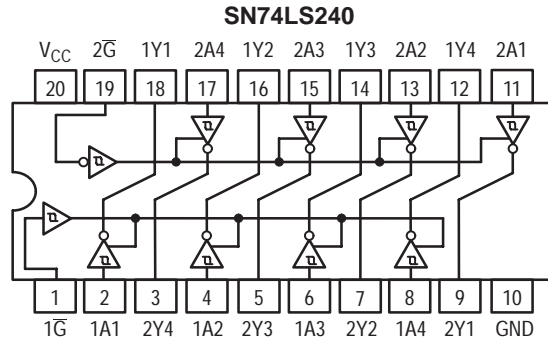
**SOIC
DW SUFFIX
CASE 751D**

ORDERING INFORMATION

Device	Package	Shipping
SN74LS240N	16 Pin DIP	1440 Units/Box
SN74LS240DW	16 Pin	2500/Tape & Reel
SN74LS244N	16 Pin DIP	1440 Units/Box
SN74LS244DW	16 Pin	2500/Tape & Reel

SN74LS240 SN74LS244

LOGIC AND CONNECTION DIAGRAMS DIP (TOP VIEW)



TRUTH TABLES

SN74LS240

INPUTS		OUTPUT
1G, 2G	D	
L	L	H
L	H	L
H	X	(Z)

SN74LS244

INPUTS		OUTPUT
1G, 2G	D	
L	L	L
L	H	H
H	X	(Z)

H = HIGH Voltage Level
 L = LOW Voltage Level
 X = Immaterial
 Z = HIGH Impedance

SN74LS240 SN74LS244

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
V _{IH}	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage for All Inputs
V _{IL}	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage for All Inputs
V _{T+} -V _{T-}	Hysteresis	0.2	0.4		V	V _{CC} = MIN
V _{IK}	Input Clamp Diode Voltage		-0.65	-1.5	V	V _{CC} = MIN, I _{IN} = -18 mA
V _{OH}	Output HIGH Voltage	2.4	3.4		V	V _{CC} = MIN, I _{OH} = -3.0 mA
		2.0			V	V _{CC} = MIN, I _{OH} = MAX
V _{OL}	Output LOW Voltage		0.25	0.4	V	I _{OL} = 12 mA
			0.35	0.5	V	I _{OL} = 24 mA
I _{OZH}	Output Off Current HIGH			20	μA	V _{CC} = MAX, V _{OUT} = 2.7 V
I _{OZL}	Output Off Current LOW			-20	μA	V _{CC} = MAX, V _{OUT} = 0.4 V
I _{IH}	Input HIGH Current			20	μA	V _{CC} = MAX, V _{IN} = 2.7 V
				0.1	mA	V _{CC} = MAX, V _{IN} = 7.0 V
I _{IL}	Input LOW Current			-0.2	mA	V _{CC} = MAX, V _{IN} = 0.4 V
I _{OS}	Output Short Circuit Current (Note 1)	-40		-225	mA	V _{CC} = MAX
I _{CC}	Power Supply Current Total, Output HIGH			27	mA	V _{CC} = MAX
	Total, Output LOW	LS240		44		
		LS244		46		
	Total at HIGH Z	LS240		50		
LS244			54			

Note 1: Not more than one output should be shorted at a time, nor for more than 1 second.

AC CHARACTERISTICS (T_A = 25°C, V_{CC} = 5.0 V)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
t _{PLH} t _{PHL}	Propagation Delay, Data to Output LS240		9.0 12	14 18	ns	C _L = 45 pF, R _L = 667 Ω
t _{PLH} t _{PHL}	Propagation Delay, Data to Output LS244		12 12	18 18	ns	
t _{PZH}	Output Enable Time to HIGH Level		15	23	ns	
t _{PZL}	Output Enable Time to LOW Level		20	30	ns	
t _{PLZ}	Output Disable Time from LOW Level		15	25	ns	C _L = 5.0 pF, R _L = 667 Ω
t _{PHZ}	Output Disable Time from HIGH Level		10	18	ns	

AC WAVEFORMS

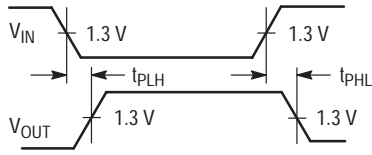


Figure 1.

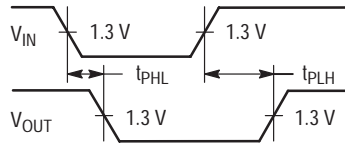


Figure 2.

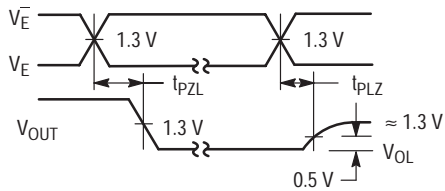


Figure 3.

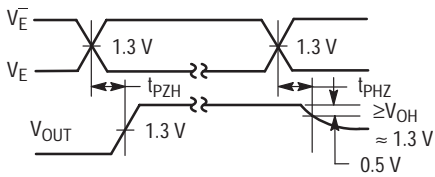
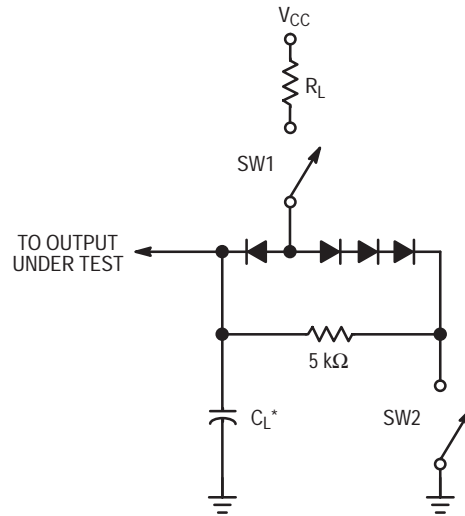


Figure 4.



SWITCH POSITIONS

SYMBOL	SW1	SW2
t_{PZH}	Open	Closed
t_{PZL}	Closed	Open
t_{PLZ}	Closed	Closed
t_{PHZ}	Closed	Closed

Figure 5.