

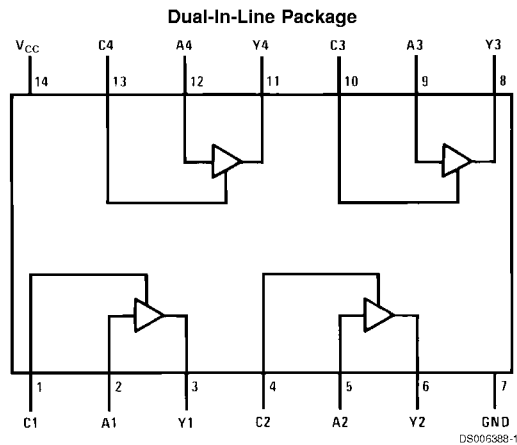
## DM74LS126A Quad 3-STATE Buffer

### General Description

This device contains four independent gates each of which performs a non-inverting buffer function. The outputs have the 3-STATE feature. When enabled, the outputs exhibit the low impedance characteristics of a standard LS output with additional drive capability to permit the driving of bus lines without external resistors. When disabled, both the output

transistors are turned off presenting a high-impedance state to the bus line. Thus the output will act neither as a significant load nor as a driver. To minimize the possibility that two outputs will attempt to take a common bus to opposite logic levels, the disable time is shorter than the enable time of the outputs.

### Connection Diagram



Order Number DM74LS126AM or DM74LS126AN  
See Package Number M14A or N14A

### Function Table

**Y = A**

Inputs		Output
A	C	Y
L	H	L
H	H	H
X	L	Hi-Z

H = High Logic Level  
L = Low Logic Level  
X = Either Low or High Logic Level  
Hi-Z = 3-STATE (Outputs are disabled)

## Absolute Maximum Ratings (Note 1)

Supply Voltage  
Input Voltage

7V  
7V

Operating Free Air

Temperature Range

Storage Temperature Range

0°C to +70°C

-65°C to +150°C

## Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V <sub>CC</sub>	Supply Voltage	4.75	5	5.25	V
V <sub>IH</sub>	High Level Input Voltage				V
V <sub>IL</sub>	Low Level Input Voltage			0.8	V
I <sub>OH</sub>	High Level Output Current			-2.6	mA
I <sub>OL</sub>	Low Level Output Current			24	mA
T <sub>A</sub>	Free Air Operating Temperature	0		70	°C

**Note 1:** The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

## Electrical Characteristics

over recommended operating free air temperature range (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 2)	Max	Units
V <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = Min, I <sub>I</sub> = -18 mA			-1.5	V
V <sub>OH</sub>	High Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max V <sub>IH</sub> = Min	2.4			V
V <sub>OL</sub>	Low Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max V <sub>IL</sub> = Max, V <sub>IH</sub> = Min		0.35	0.5	V
		I <sub>OL</sub> = 12 mA, V <sub>CC</sub> = Min		0.25	0.4	
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 7V			0.1	mA
I <sub>IH</sub>	High Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.7V			20	μA
I <sub>IL</sub>	Low Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.4V			-0.4	mA
I <sub>OZH</sub>	Off-State Output Current with High Level Output Voltage Applied	V <sub>CC</sub> = Max, V <sub>O</sub> = 2.4V V <sub>IH</sub> = Min, V <sub>IL</sub> = Max			20	μA
I <sub>OZL</sub>	Off-State Output Current with Low Level Output Voltage Applied	V <sub>CC</sub> = Max, V <sub>O</sub> = 0.4V V <sub>IH</sub> = Min, V <sub>IL</sub> = Max			-20	μA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max (Note 3)	-20		-100	mA
I <sub>CC</sub>	Supply Current	V <sub>CC</sub> = Max		12	22	mA

**Note 2:** All typicals are at V<sub>CC</sub> = 5V, T<sub>A</sub> = 25°C.

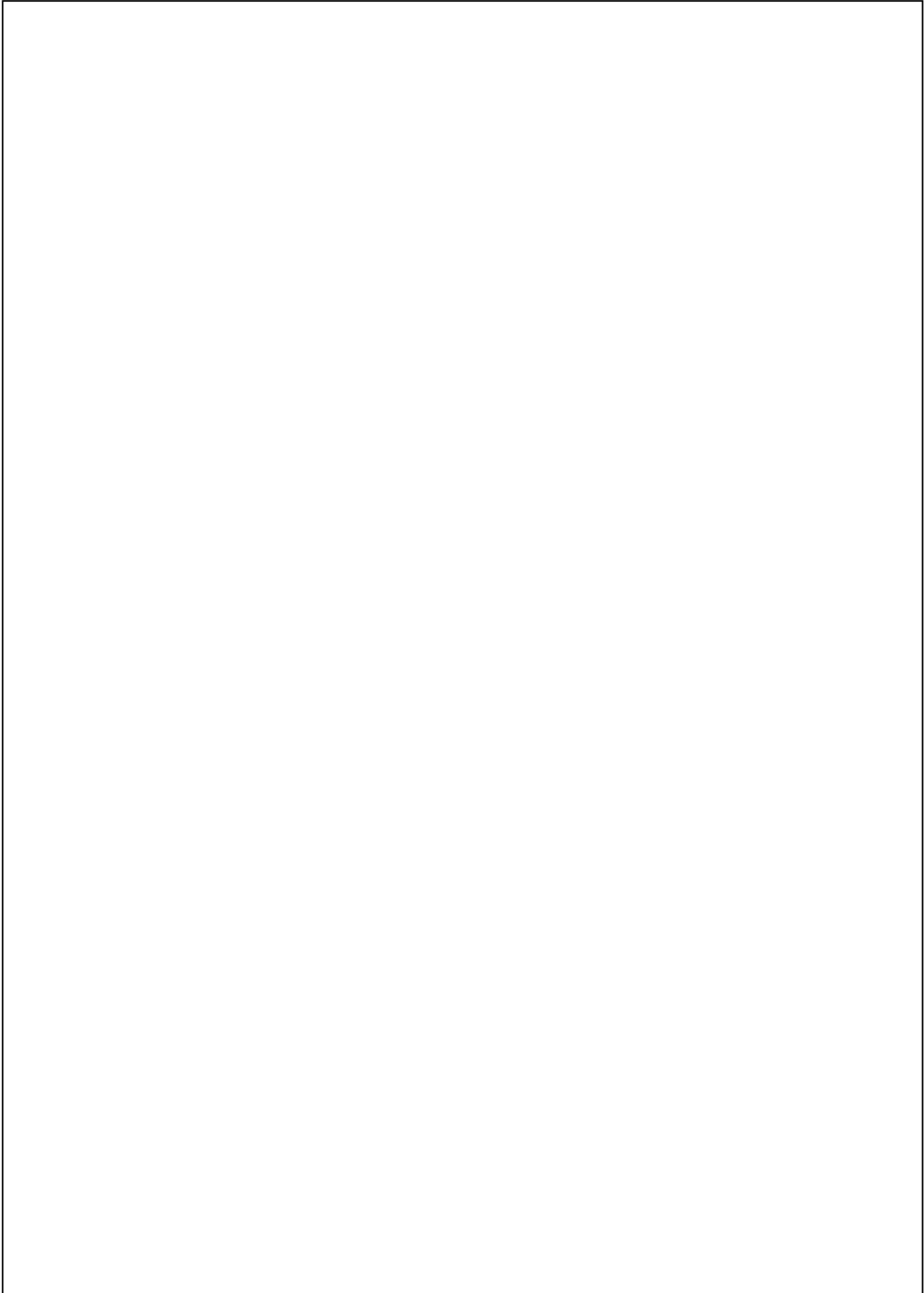
**Note 3:** Not more than one output should be shorted at a time, and the duration should not exceed one second.

### Switching Characteristics:

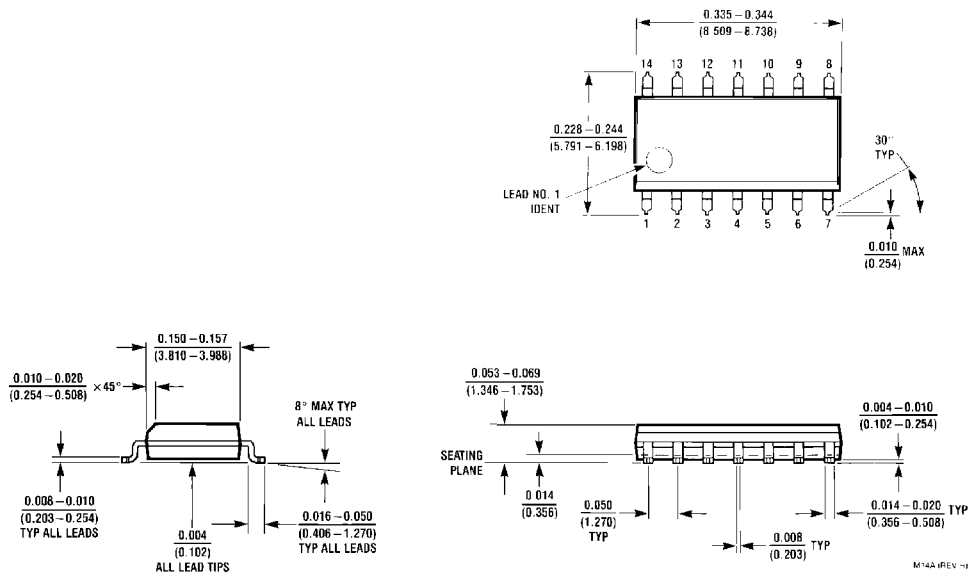
for test waveforms and output load.  $V_{CC} = 5V$ ,  $T_A = 25^\circ C$

Symbol	Parameter	DM74LS				Units
		$R_L = 667\Omega$				
		$C_L = 50\text{ pF}$		$C_L = 150\text{ pF}$		
		Min	Max	Min	Max	
$t_{PLH}$	Propagation Delay Time Low to High Level Output		15		21	ns
$t_{PHL}$	Propagation Delay Time High to Low Level Output		18		22	ns
$t_{PZH}$	Output Enable Time to High Level Output		30		36	ns
$t_{PZL}$	Output Enable Time to Low Level Output		30		42	ns
$t_{PHZ}$	Output Disable Time from High Level Output (Note 4)		25			ns
$t_{PLZ}$	Output Disable Time from Low Level Output (Note 4)		25			ns

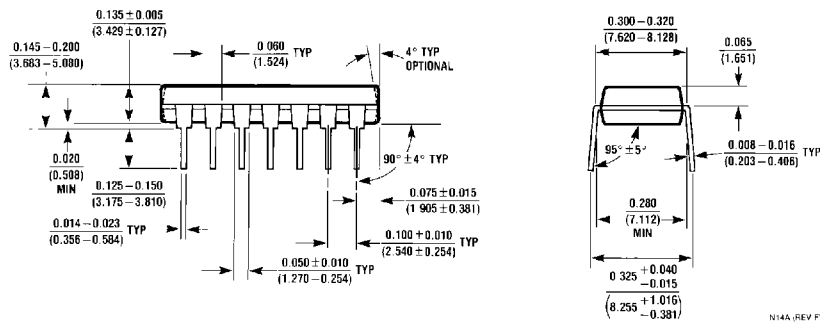
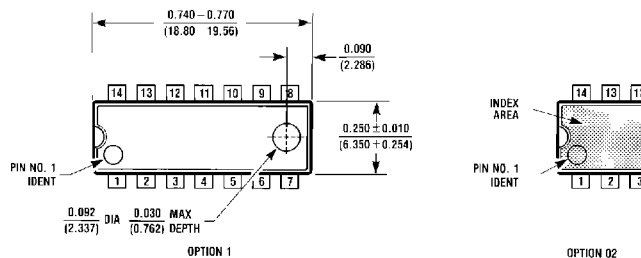
Note 4:  $C_L = 5\text{ pF}$ .



**Physical Dimensions** inches (millimeters) unless otherwise noted



**14-Lead Small Outline Molded Package (M)**  
 Order Number DM74LS126AM  
 Package Number M14A



**14-Lead Molded Dual-In-Line Package (N)**  
 Order Number DM74LS126AN  
 Package Number N14A

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