

March 1989 Revised March 2000

DM74LS28 Quad 2-Input NOR Buffer

General Description

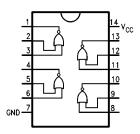
The DM74LS28 contains four independent gates each of which perform the logic NOR function.

Ordering Code:

Order Number	Package Number	Package Description	
DM74LS28M	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow	

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Connection Diagram



Truth Table

$$Y=\overline{A}{+}\overline{B}$$

Inp	Output	
Α	В	Υ
L	L	Н
L	Н	L
Н	L	L
Н	Н	L

H = HIGH logic level L = LOW logic level

Absolute Maximum Ratings(Note 1)

Supply Voltage 7V Input Voltage 7V Operating Free Air Temperature Range 0° C to +70 $^{\circ}$ C Storage Temperature Range -65° C to +150 $^{\circ}$ 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 tables are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

Recommended Operating Conditions

Symbol	Parameter	Min	Nom	Max	Units
V _{CC}	Supply Voltage	4.75	5	5.25	V
V _{IH}	HIGH Level Input Voltage	2			V
V _{IL}	LOW Level Input Voltage			0.7	V
I _{OH}	HIGH Level Output Current			-1.2	mA
I _{OL}	LOW Level Output Current			24	mA
T _A	Free Air Operating Temperature	0		70	°C

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min	Typ (Note 2)	Max	Units
VI	Input Clamp Voltage	$V_{CC} = Min, I_I = -18 \text{ mA}$			-1.5	V
V _{OH}	HIGH Level Output Voltage	$V_{CC} = Min, I_{OH} = Max, V_{IL} = Max$	2.7			V
V _{OL}	LOW Level Output Voltage	$V_{CC} = Min, I_{OL} = Max, V_{IH} = Min$			0.5	V
		I _{OL} = 12 mA, V _{CC} = Min			0.4	V
I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 7V			0.1	mA
I _{IH}	HIGH Level Input Current	$V_{CC} = Max, V_I = 2.7V$			20	μΑ
I _{IL}	LOW Level Input Current	$V_{CC} = Max, V_I = 0.4V$			-0.4	mA
los	Short Circuit Output Current	V _{CC} = Max (Note 3)	-30		-130	mA
Іссн	Supply Current with Outputs HIGH	V _{CC} = Max			3.6	mA
I _{CCL}	Supply Current with Outputs LOW	V _{CC} = Max			13.8	mA

Note 2: All typicals are at $V_{CC} = 5V$, $T_A = 25$ °C.

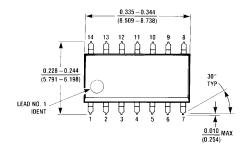
Note 3: Not more than one output should be shorted at a time, and the duration should not exceed one second.

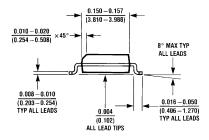
Switching Characteristics

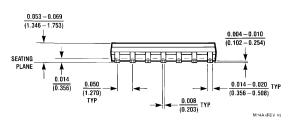
 $V_{CC} = +5.0V, T_A = +25^{\circ}C$

Symbol	Parameter	R _L = C _L = 1	Units		
		Min	Max		
t _{PLH}	Propagation Delay Time		20	ns	
	LOW-to-HIGH Level Output		20		
t _{PHL}	Propagation Delay Time		20	ns	
	HIGH-to-LOW Level Output		20		

Physical Dimensions inches (millimeters) unless otherwise noted







14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150 Narrow Package Number M14A

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