National Semiconductor

June 1989

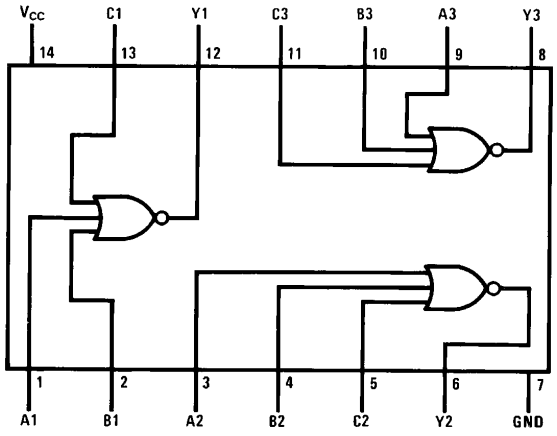
DM7427 Triple 3-Input NOR Gates

General Description

This device contains three independent gates each of which performs the logic NOR function.

Connection Diagram

Dual-In-Line Package



TL/F/6509–1

Order Number DM7427N
See NS Package Number N14A

Function Table

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

Inputs			Output
A	B	C	Y
L	L	L	H
X	X	H	L
X	H	X	L
H	X	X	L

H = High Logic Level
L = Low Logic Level
X = Either High or Low Logic Level

RRD-B30M105/Printed in U. S. A.

Absolute Maximum Ratings (Note)

Supply Voltage	7V
Input Voltage	5.5V
Operating Free Air Temperature Range	
DM74	0°C to +70°C
Storage Temperature Range	−65°C to +150°C

Note: *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.*

Recommended Operating Conditions

Symbol	Parameter	DM7427			Units
		Min	Nom	Max	
V_{CC}	Supply Voltage	4.75	5	5.25	V
V_{IH}	High Level Input Voltage	2			V
V_{IL}	Low Level Input Voltage			0.8	V
I_{OH}	High Level Output Current			−0.8	mA
I_{OL}	Low Level Output Current			16	mA
T_A	Free Air Operating Temperature	0		70	°C

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

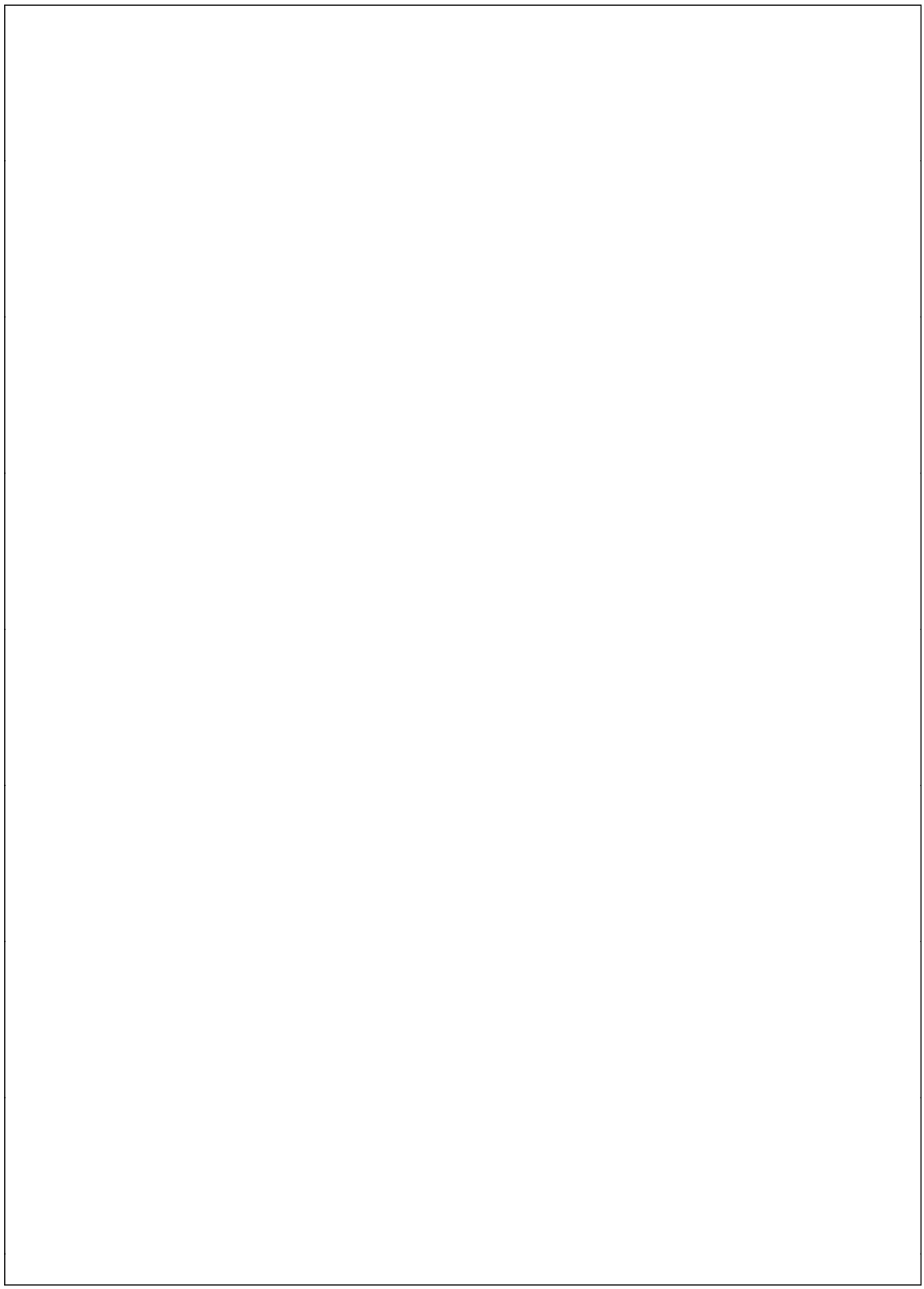
Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V_I	Input Clamp Voltage	V_{CC} = Min, I_I = −12 mA			−1.5	V
V_{OH}	High Level Output Voltage	V_{CC} = Min, I_{OH} = Max, V_{IL} = Max	2.4	3.4		V
V_{OL}	Low Level Output Voltage	V_{CC} = Min, I_{OL} = Max, V_{IH} = Min		0.2	0.4	V
I_I	Input Current @ Max Input Voltage	V_{CC} = Max, V_I = 5.5V			1	mA
I_{IH}	High Level Input Current	V_{CC} = Max, V_I = 2.4V			40	μA
I_{IL}	Low Level Input Current	V_{CC} = Max, V_I = 0.4V			−1.6	mA
I_{OS}	Short Circuit Output Current	V_{CC} = Max (Note 2)	−18		−57	mA
I_{CCH}	Supply Current with Outputs High	V_{CC} = Max		10	16	mA
I_{CCL}	Supply Current with Outputs Low	V_{CC} = Max		16	26	mA

Switching Characteristics at V_{CC} = 5V and T_A = 25°C (See Section 1 for Test Waveforms and Output Load)

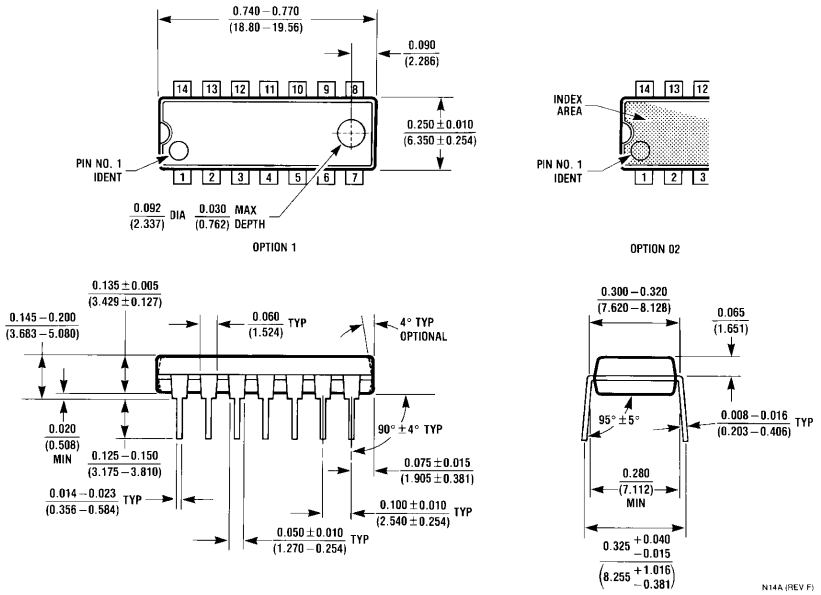
Symbol	Parameter	Conditions	Min	Max	Units
t_{PLH}	Propagation Delay Time Low to High Level Output	C_L = 15 pF, R_L = 400Ω		11	ns
t_{PHL}	Propagation Delay Time High to Low Level Output			15	ns

Note 1: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 2: Not more than one output should be shorted at a time.



Physical Dimensions inches (millimeters)



14-Lead Molded Dual-In-Line Package (N)
Order Number DM7427N
NS Package Number N14A

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