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August 1986
Revised February 2000
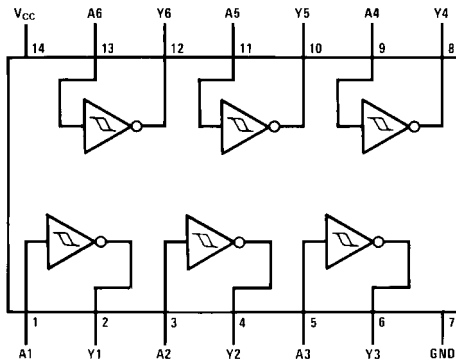
DM7414
Hex Inverter with Schmitt Trigger Input

General Description

This device contains six independent gates each of which performs the logic INVERT function. Each input has hysteresis which increases the noise immunity and transforms a slowly changing input signal to a fast changing, jitter free output.

Ordering Code:

Order Number	Package Number	Package Description
DM7414N	N14A	14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

Connection Diagram

Function Table

$$Y = \overline{A}$$

Input	Output
A	**Y**
L	H
H	L

H = HIGH Logic Level
L = LOW Logic Level

Absolute Maximum Ratings(Note 1)

Supply Voltage	7V
Input Voltage	5.5V
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	−65°C to +150°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_{T+}	Positive-Going Input Threshold Voltage (Note 2)	1.5	1.7	2	V
V_{T-}	Negative-Going Input Threshold Voltage (Note 2)	0.6	0.9	1.1	V
HYS	Input Hysteresis (Note 2)	0.4	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

Note 2: $V_{CC} = 5V$

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min	Typ (Note 3)	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 $V_I = V_T$_Min	2.4	3.4		V
V_{OL}	LOW Level Output Voltage	V_{CC} = Min, I_{OL} = Max $V_I = V_{T+}$Max		0.2	0.4	V
I_{T+}	Input Current at Positive-Going Threshold	V_{CC} = 5V, $V_I = V_{T+}$		−0.43		mA
I_{T-}	Input Current at Negative-Going Threshold	V_{CC} = 5V, $V_I = V_{T-}$		−0.56		mA
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			−1.2	mA
I_{OS}	Short Circuit Output Current	V_{CC} = Max (Note 4)	−18		−55	mA
I_{CCH}	Supply Current with Outputs HIGH	V_{CC} = Max		22	36	mA
I_{CCL}	Supply Current with Outputs LOW	V_{CC} = Max		39	60	mA

Note 3: All typicals are at $V_{CC} = 5V$, $T_A = 25°C$.

Note 4: Not more than one output should be shorted at a time.

Switching Characteristics

at $V_{CC} = 5V$ and $T_A = 25°C$

Symbol	Parameter	Conditions	Min	Max	Units
t_{PLH}	Propagation Delay Time LOW-to-HIGH Level Output	C_L = 15 pF R_L = 400Ω		22	ns
t_{PHL}	Propagation Delay Time HIGH-to-LOW Level Output			22	ns

Physical Dimensions inches (millimeters) unless otherwise noted

OPTION 1

OPTION 02

N14A (REV F)

14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide
Package Number N14A

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