

## DM7414

### Hex Inverter with Schmitt Trigger Input

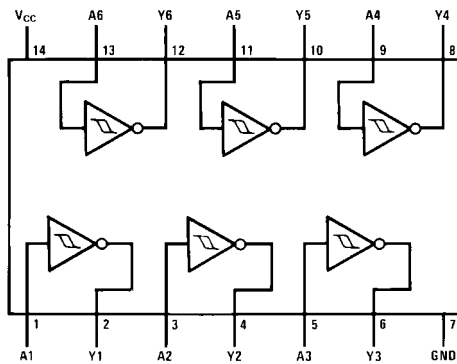
#### General Description

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

$$Y = \bar{A}$$

Input	Output
A	Y
L	H
H	L

H = HIGH Logic Level  
L = LOW Logic Level

DM7414 Hex Inverter with Schmitt Trigger Input

**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	$V_{CC} = \text{Min}, I_I = -12 \text{ mA}$			–1.5	V
$V_{OH}$	HIGH Level Output Voltage	$V_{CC} = \text{Min}, I_{OH} = \text{Max}$ $V_I = V_{T-}\text{Min}$	2.4	3.4		V
$V_{OL}$	LOW Level Output Voltage	$V_{CC} = \text{Min}, I_{OL} = \text{Max}$ $V_I = V_{T+}\text{Max}$		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	$V_{CC} = \text{Max}, V_I = 5.5V$			1	mA
$I_{IH}$	HIGH Level Input Current	$V_{CC} = \text{Max}, V_I = 2.4V$			40	μA
$I_{IL}$	LOW Level Input Current	$V_{CC} = \text{Max}, V_I = 0.4V$			–1.2	mA
$I_{OS}$	Short Circuit Output Current	$V_{CC} = \text{Max}$ (Note 4)	–18		–55	mA
$I_{CCH}$	Supply Current with Outputs HIGH	$V_{CC} = \text{Max}$		22	36	mA
$I_{CCL}$	Supply Current with Outputs LOW	$V_{CC} = \text{Max}$		39	60	mA

**Note 3:** All typicals are at  $V_{CC} = 5V, T_A = 25^\circ\text{C}$ .

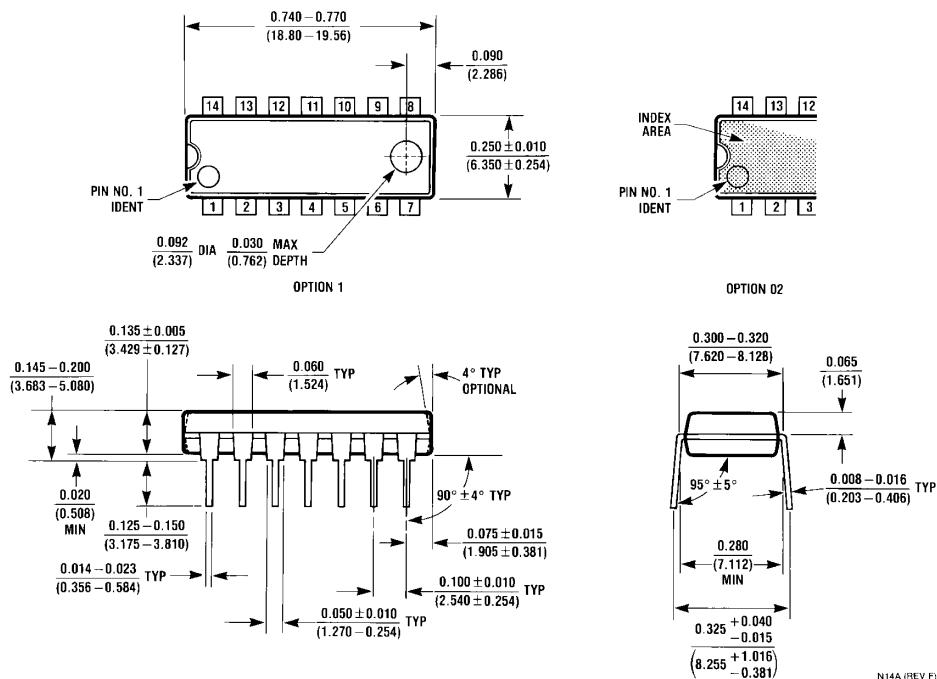
**Note 4:** Not more than one output should be shorted at a time.

**Switching Characteristics**

at  $V_{CC} = 5V$  and  $T_A = 25^\circ\text{C}$

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

# Physical Dimensions inches (millimeters) unless otherwise noted



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

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