

## Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

## Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
  - Class Q Military
  - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
  - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

# DM74S40

## Dual 4-Input NAND Buffer

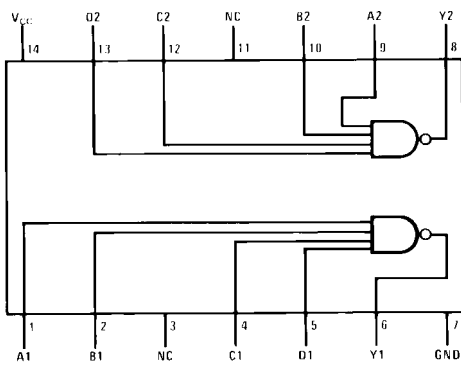
### General Description

This device contains two independent gates each of which performs the logic NAND function.

### Ordering Code:

Order Number	Package Number	Package Description
DM74S40N	N14A	14-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide

### Connection Diagram



### Function Table

$$Y = \overline{ABCD}$$

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

H = HIGH Logic Level  
L = LOW Logic Level  
X = Either LOW or HIGH 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 <sub>CC</sub>	Supply Voltage	4.75	5	5.25	V
V <sub>IH</sub>	HIGH Level Input Voltage	2			V
V <sub>IL</sub>	LOW Level Input Voltage			0.8	V
I <sub>OH</sub>	HIGH Level Output Current			-3	mA
I <sub>OL</sub>	LOW Level Output Current			60	mA
T <sub>A</sub>	Free Air Operating Temperature	0		70	°C

**Electrical Characteristics**

over recommended operating free air temperature (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			-1.2	V
V <sub>OH</sub>	HIGH Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OH</sub> = Max V <sub>IL</sub> = Max	2.7	3.4		V
V <sub>OL</sub>	LOW Level Output Voltage	V <sub>CC</sub> = Min, I <sub>OL</sub> = Max V <sub>IH</sub> = Min			0.5	V
I <sub>I</sub>	Input Current @ Max Input Voltage	V <sub>CC</sub> = Max, V <sub>I</sub> = 5.5V			1	mA
I <sub>IH</sub>	HIGH Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 2.7V			100	μA
I <sub>IL</sub>	LOW Level Input Current	V <sub>CC</sub> = Max, V <sub>I</sub> = 0.5V			-4	mA
I <sub>OS</sub>	Short Circuit Output Current	V <sub>CC</sub> = Max (Note 3)	-50		-225	mA
I <sub>CCH</sub>	Supply Current with Outputs HIGH	V <sub>CC</sub> = Max		10	18	mA
I <sub>CCL</sub>	Supply Current with Outputs LOW	V <sub>CC</sub> = Max		25	44	mA

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

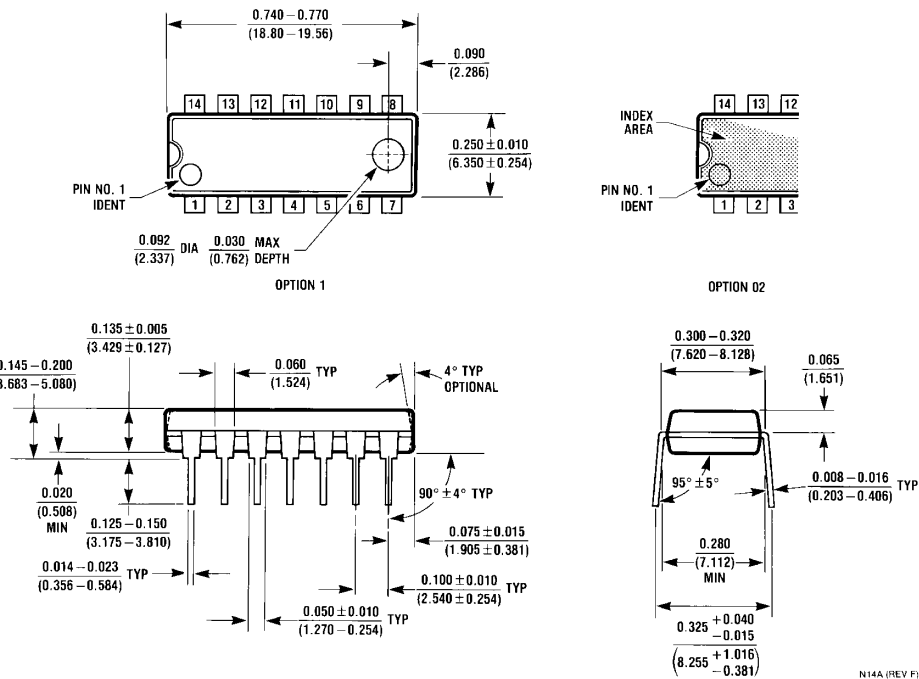
**Note 3:** Not more than one output should be shorted at a time, and the duration should not exceed one second.

**Switching Characteristics**

at V<sub>CC</sub> = 5V and T<sub>A</sub> = 25°C

Symbol	Parameter	R <sub>L</sub> = 93Ω				Units
		C <sub>L</sub> = 50 pF		C <sub>L</sub> = 150 pF		
		Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay Time LOW-to-HIGH Level Output	2	6.5	3	9	ns
t <sub>PHL</sub>	Propagation Delay Time HIGH-to-LOW Level Output	2	6.5	3	9	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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