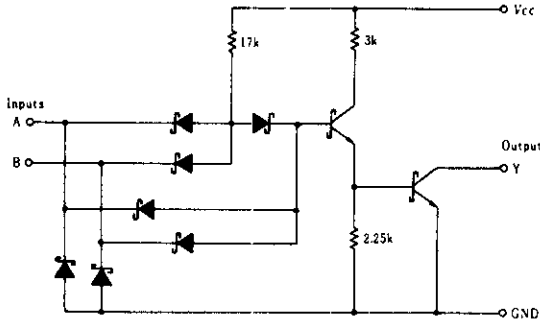
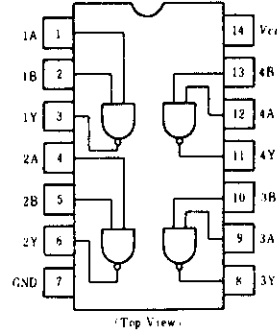


# HD74LS38 ● Quadruple 2-input Positive NAND Buffers (with Open Collector Outputs)

## ■ CIRCUIT SCHEMATIC (1/4)



## ■ PIN ARRANGEMENT



## ■ RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
High level output voltage	$V_{OH}$	—	—	5.5	V
Low level output current	$I_{OL}$	—	—	24	mA

## ■ ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	—	—	V	
	$V_{IL}$		—	—	0.8	V	
Output voltage	$V_{OL}$	$V_{CC} = 4.75\text{V}, V_I = 2\text{V}$	$I_{OL} = 24\text{mA}$	—	—	0.5	V
			$I_{OL} = 12\text{mA}$	—	—	0.4	
Output current	$I_{OH}$	$V_{CC} = 4.75\text{V}, V_I = 0.8\text{V}, V_{OH} = 5.5\text{V}$	—	—	250	$\mu\text{A}$	
Input current	$I_{IH}$	$V_{CC} = 5.25\text{V}, V_I = 2.7\text{V}$	—	—	20	$\mu\text{A}$	
	$I_{IL}$	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}$	—	—	-0.4	mA	
	$I_I$	$V_{CC} = 5.25\text{V}, V_I = 7\text{V}$	—	—	0.1	mA	
Supply current	$I_{CCH}$	$V_{CC} = 5.25\text{V}$	—	0.9	2.0	mA	
	$I_{CCL}$	$V_{CC} = 5.25\text{V}$	—	6	12	mA	
Input clamp voltage	$V_{IK}$	$V_{CC} = 4.75\text{V}, I_{IN} = -18\text{mA}$	—	—	-1.5	V	

\*  $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$

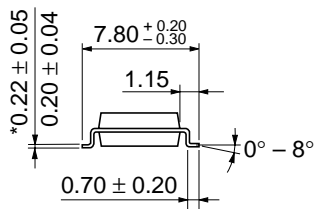
## ■ SWITCHING CHARACTERISTICS ( $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	$C_L = 45\text{pF}, R_L = 667\Omega$	—	20	32	ns
	$t_{PHL}$		—	18	28	ns

Note) Refer to Test Circuit and Waveform of the Common Item



Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

\*Dimension including the plating thickness  
Base material dimension



Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.13 g

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# HITACHI

## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1>(408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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