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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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HD74AC368/HD74ACT368

Hex Inverter Buffer with 3-State Output

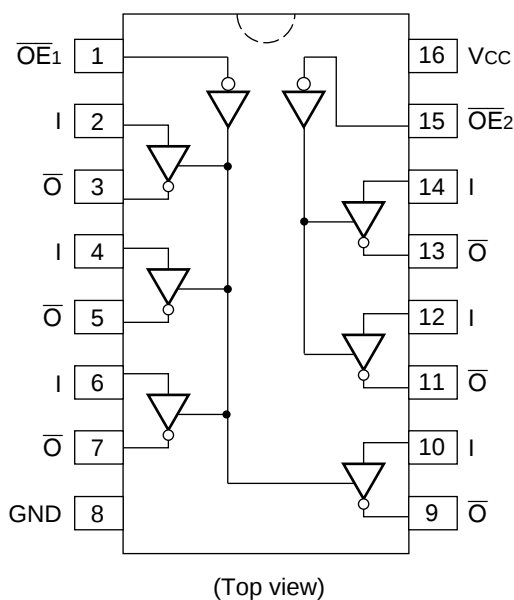


ADE-205-393 (Z)
1st. Edition
Sep. 2000

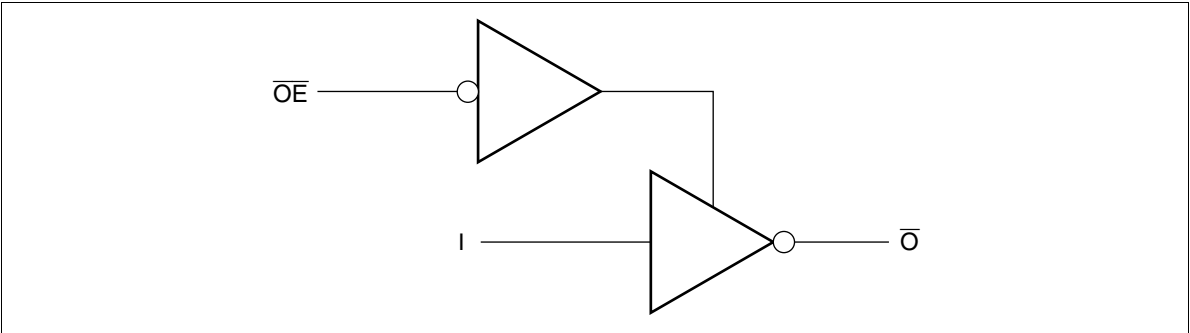
Features

- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Outputs Source/Sink 24 mA
- HD74ACT368 has TTL-Compatible Inputs

Pin Arrangement



Logic Symbol



Pin Names

$\overline{OE}_1, \overline{OE}_2$	3-State Output: Enable Input (Active Low)
I	Inputs
$\overline{O}$	Outputs

Truth Table

Inputs		Output
$\overline{OE}$	I	$\overline{O}$
L	L	H
L	H	L
H	X	Z

- H : High Voltage Level
L : Low Voltage Level
X : Immaterial
Z : High Impedance

DC Characteristics (unless otherwise specified)

Item	Symbol	Max	Unit	Condition
Maximum quiescent supply current	I_{CC}	80	μA	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5 V$, $T_a = \text{Worst case}$
Maximum quiescent supply current	I_{CC}	8.0	μA	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5 V$, $T_a = 25^\circ C$
Maximum I_{CC}/input (HD74ACT368)	I_{CCT}	1.5	mA	$V_{IN} = V_{CC} - 2.1 V$, $V_{CC} = 5.5 V$, $T_a = \text{Worst case}$

AC Characteristics: HD74AC368

Item	Symbol	V_{CC} (V)*1	Ta = +25°C C _L = 50 pF			Ta = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation delay	t_{PLH}	3.3	1.0	7.0	9.0	1.0	10.0	ns
		5.0	1.0	5.0	7.0	1.0	7.5	
Propagation delay	t_{PHL}	3.3	1.0	7.0	9.0	1.0	10.0	ns
		5.0	1.0	4.5	7.0	1.0	7.5	
Enable time	t_{ZH}	3.3	1.0	9.0	13.0	1.0	13.5	ns
		5.0	1.0	7.0	9.5	1.0	10.0	
Enable time	t_{ZL}	3.3	1.0	10.0	12.5	1.0	13.5	ns
		5.0	1.0	7.5	10.0	1.0	10.5	
Disable time	t_{HZ}	3.3	1.0	9.5	12.0	1.0	12.5	ns
		5.0	1.0	7.5	10.0	1.0	10.5	
Disable time	t_{LZ}	3.3	1.0	9.0	12.5	1.0	13.5	ns
		5.0	1.0	7.0	10.0	1.0	10.5	

Note: 1. Voltage Range 3.3 is 3.3 V $\pm$ 0.3 V
Voltage Range 5.0 is 5.0 V $\pm$ 0.5 V

AC Characteristics: HD74ACT368

Item	Symbol	V_{CC} (V)*1	Ta = +25°C C _L = 50 pF			Ta = -40°C to +85°C C _L = 50 pF		Unit
			Min	Typ	Max	Min	Max	
Propagation delay	t_{PLH}	5.0	1.0	6.5	9.0	1.0	10.0	ns
Propagation delay	t_{PHL}	5.0	1.0	6.0	9.0	1.0	10.0	ns
Enable time	t_{ZH}	5.0	1.0	8.0	10.0	1.0	11.0	ns
Enable time	t_{ZL}	5.0	1.0	8.0	12.0	1.0	13.0	ns
Disable time	t_{HZ}	5.0	1.0	9.0	12.0	1.0	13.0	ns
Disable time	t_{LZ}	5.0	1.0	8.5	11.0	1.0	12.0	ns

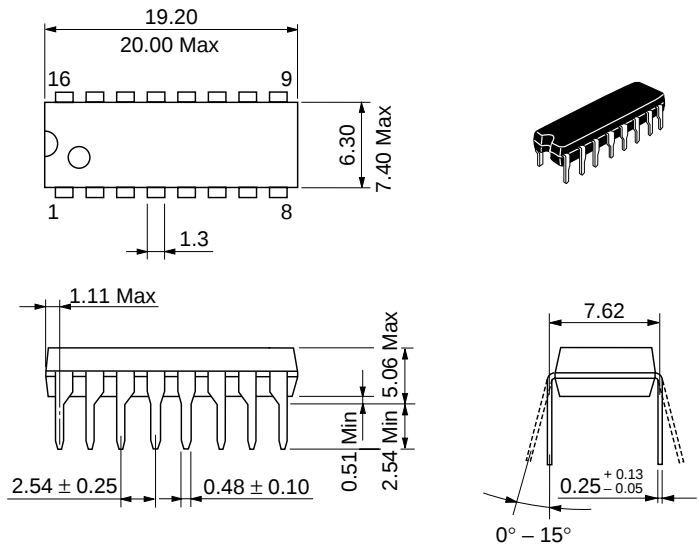
Note: 1. Voltage Range 5.0 is 5.0 V $\pm$ 0.5 V

Capacitance

Item	Symbol	Typ	Unit	Condition
Input capacitance	C _{IN}	4.5	pF	V _{CC} = 5.5 V
Power dissipation capacitance	C _{PD}	40.0	pF	V _{CC} = 5.0 V

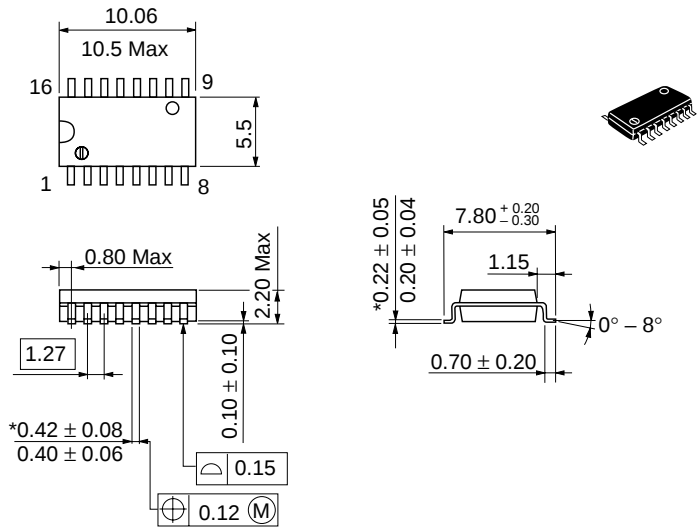
Package Dimensions

Unit: mm



Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	1.07 g

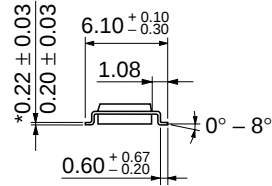
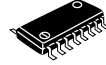
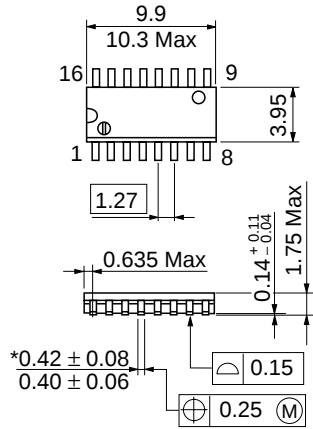
Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-16DA
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.24 g

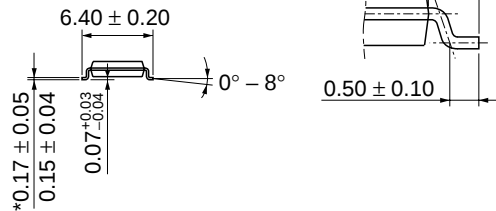
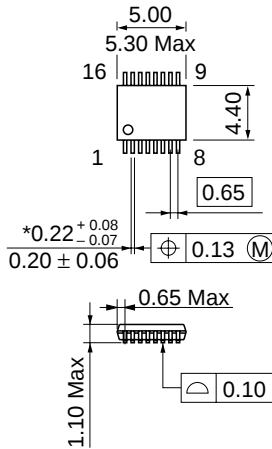
Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-16DN
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.15 g

Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	TTP-16DA
JEDEC	—
EIAJ	—
Mass (reference value)	0.05 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	NorthAmerica	:	http://semiconductor.hitachi.com/
	Europe	:	http://www.hitachi-eu.com/hel/ecg
	Asia	:	http://sicapac.hitachi-asia.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 GroupDornacher 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) 585160

Hitachi Asia Ltd.

Hitachi Tower

16 Collyer Quay #20-00,

Singapore 049318

Tel: <65>-538-6533/538-8577

Fax: <65>-538-6933/538-3877

URL: <http://www.hitachi.com.sg>

Hitachi Asia Ltd.

(Taipei Branch Office)

4/F, No. 167, Tun Hwa North Road,

Hung-Kuo Building,

Taipei (105), Taiwan

Tel: <886>-(2)-2718-3666

Fax: <886>-(2)-2718-8180

Telex: 23222 HAS-TP

URL: <http://www.hitachi.com.tw>

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

URL: <http://www.hitachi.com.hk>