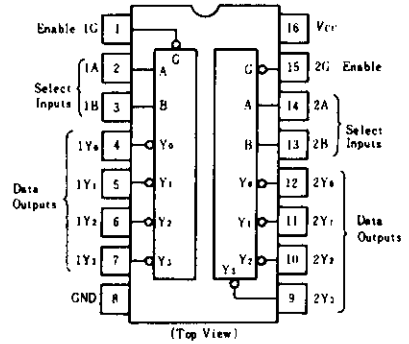
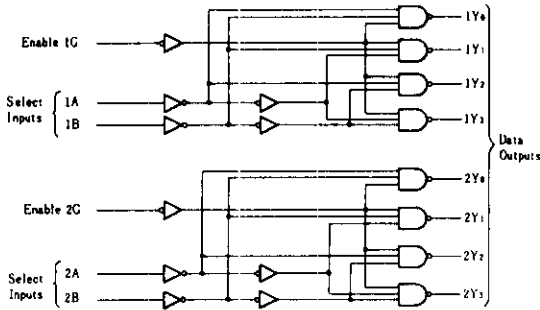


HD74LS139 ● Dual 2-line-to-4-line Decoders/Demultiplexers

The HD74LS139 comprises two individual two-line-to-four-line decoder in a single package. The active-low enable input can be used as a data line in demultiplexing applications.

■ PIN ARRANGEMENT

■ BLOCK DIAGRAM



■ FUNCTION TABLE

Inputs			Outputs			
Enable	Select		Y ₀	Y ₁	Y ₂	Y ₃
G	B	A	Y ₀	Y ₁	Y ₂	Y ₃
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	L	H	H	L	H	H
L	H	L	H	H	L	H
L	H	H	H	H	H	L

H; high level, L; low level, X; irrelevant

■ ELECTRICAL CHARACTERISTICS (Ta = -20 ~ +75°C)

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	V _{IH}		2.0	—	—	V	
	V _{IL}		—	—	0.8	V	
Output voltage	V _{OH}	V _{CC} =4.75V, V _{IH} =2V, V _{IL} =0.8V, I _{OH} =-400μA	2.7	—	—	V	
	V _{OL}	V _{CC} =4.75V, V _{IH} =2V, V _{IL} =0.8V	I _{OL} =4mA	—	—	0.4	V
			I _{OL} =8mA	—	—	0.5	
Input current	I _I	V _{CC} =5.25V, V _I =7V	—	—	0.1	mA	
	I _{IH}	V _{CC} =5.25V, V _I =2.7V	—	—	20	μA	
	I _{IL}	V _{CC} =5.25V, V _I =0.4V	—	—	-0.4	mA	
Short-circuit output current	I _{OS}	V _{CC} =5.25V	-5	—	-42	mA	
Supply current	I _{CC}	V _{CC} =5.25V, Outputs enabled and open	—	6.8	11	mA	
Input clamp voltage	V _{IK}	V _{CC} =4.75V, I _{IN} =-18mA	—	—	-1.5	V	

* V_{CC}=5V, Ta=25°C

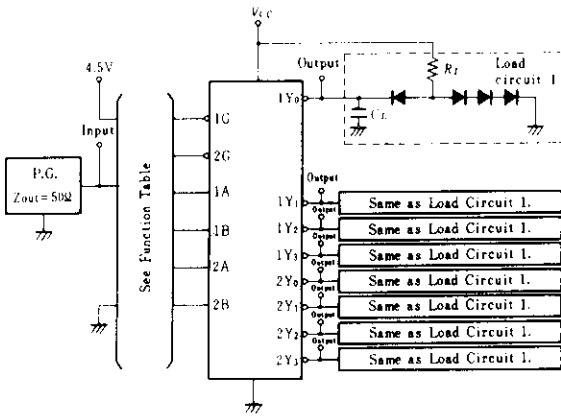
■ SWITCHING CHARACTERISTICS (V_{CC}=5V, Ta=25°C)

Item	Symbol	Inputs	Outputs	Levels of delay	Test Conditions	min	typ	max	Unit
Propagation delay time	t _{PLH}	Binary	1Y ₀ ~1Y ₃	2	C _L =15pF R _L =2kΩ	—	13	20	ns
	t _{PHL}	Select				—	22	33	ns
	t _{PLH}	1A, 1B	2Y ₀ ~2Y ₃	3		—	18	29	ns
	t _{PHL}	2A, 2B				—	25	38	ns
	t _{PLH}	Enable	1Y ₀ ~1Y ₃	2		—	16	24	ns
	t _{PHL}	1G, 2G	2Y ₀ ~2Y ₃			—	21	32	ns

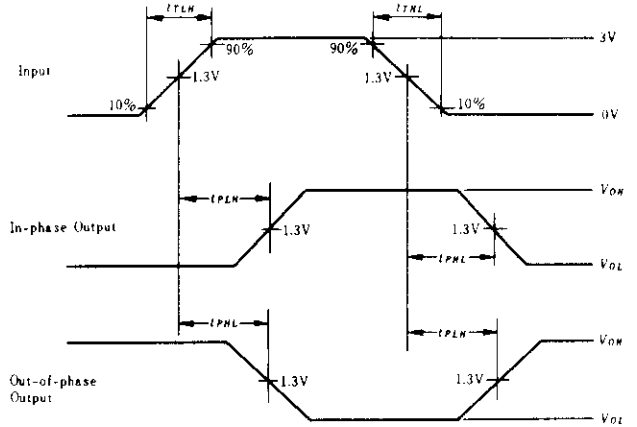
HD74LS139

TESTING METHOD

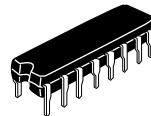
1) Test Circuit



Waveform



- Notes)
1. Input pulse; $t_{TLH} \leq 15\text{ns}$, $t_{THL} \leq 6\text{ns}$, $PRR = 1\text{MHz}$, duty cycle = 50%
 2. C_L includes probe and jig capacitance.
 3. All diodes are 1S2074 (H).



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



*Dimension including the plating thickness
Base material dimension

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



*Dimension including the plating thickness
Base material dimension

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

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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

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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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