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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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HD74LS132

Quadruple 2-Input Positive NAND Schmitt-triggers

REJ03D0432-0300
 Rev.3.00
 Jul.13.2005

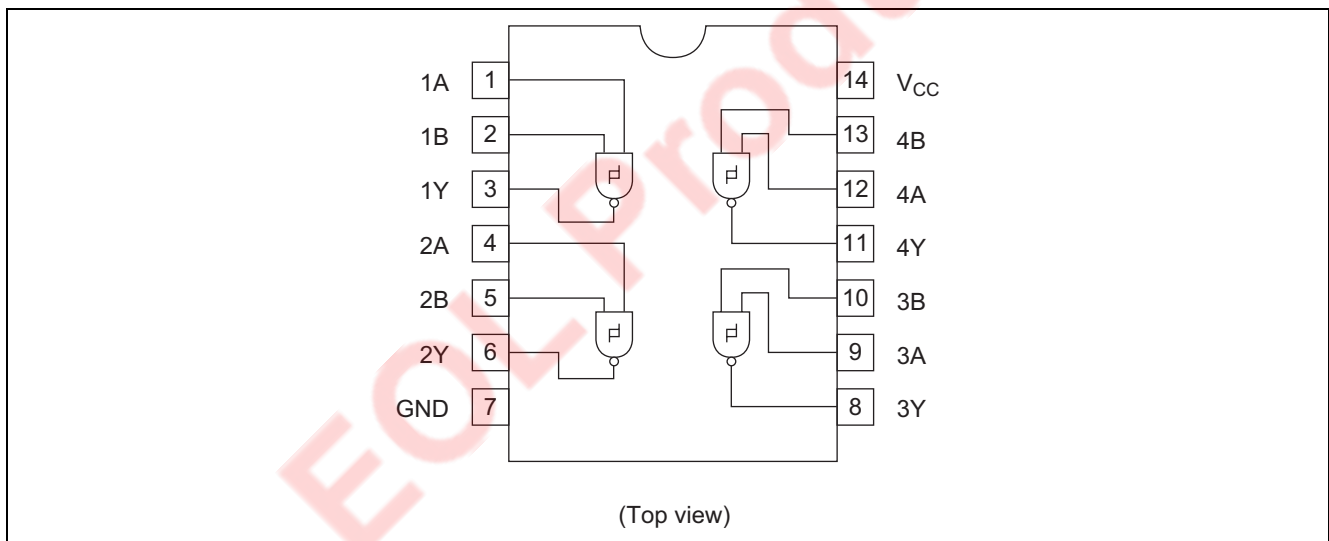
Features

- Ordering Information

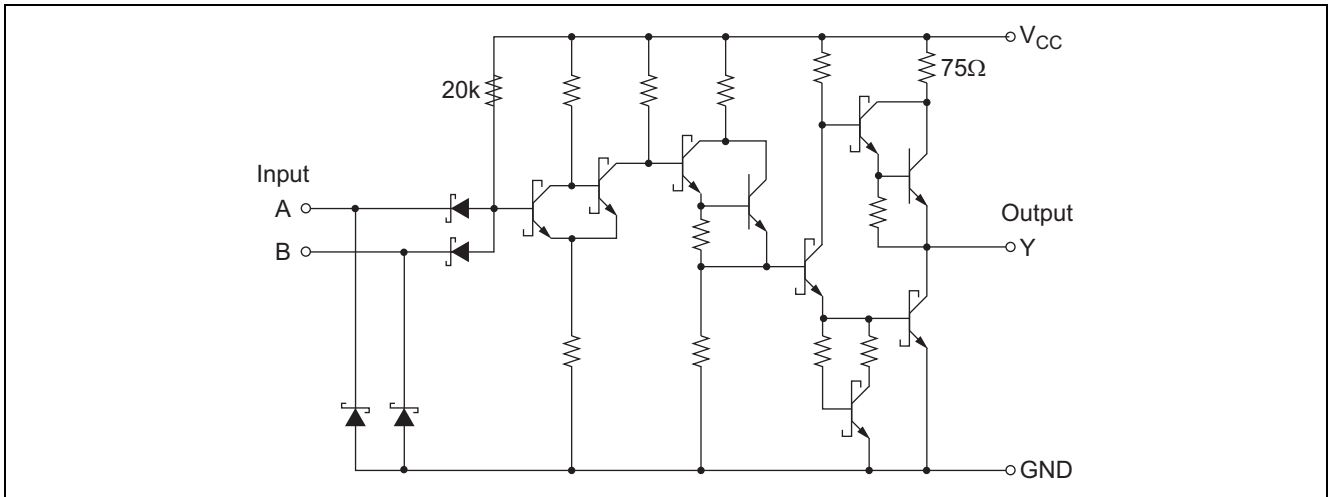
Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS132P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS132FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)
HD74LS132RPEL	SOP-14 pin (JEDEC)	PRSP0014DE-A (FP-14DNV)	RP	EL (2,500 pcs/reel)

Note: Please consult the sales office for the above package availability.

Pin Arrangement



Circuit Schematic (1/4)



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage	V_{CC}	7	V
Input voltage	V_{IN}	7	V
Power dissipation	P_T	400	mW
Storage temperature	T_{stg}	-65 to +150	°C

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output current	I_{OH}	—	—	-400	μA
	I_{OL}	—	—	8	mA
Operating temperature	T_{opr}	-20	25	75	°C

Electrical Characteristics

(Ta = -20 to +75 °C)

Item	Symbol	min.	typ.*	max.	Unit	Condition
Input threshold voltage	V_{T^+}	1.4	1.6	1.9	V	$V_{CC} = 5\text{ V}$
	V_{T^-}	0.5	0.7	1.0	V	$V_{CC} = 5\text{ V}$
Hysteresis	$V_{T^+} - V_{T^-}$	0.4	0.9	—	V	$V_{CC} = 5\text{ V}$
Output voltage	V_{OH}	2.7	—	—	V	$V_{CC} = 4.75\text{ V}, V_I = 0.5\text{ V}, I_{OH} = -400\text{ }\mu\text{A}$
	V_{OL}	—	—	0.5	V	$V_{CC} = 4.75\text{ V}, V_I = 1.9\text{ V}$
		—	—	0.4		
Input threshold current	I_{T^+}	—	-0.14	—	mA	$V_{CC} = 5\text{ V}, V_I = V_{T^+}$
	I_{T^-}	—	-0.18	—	mA	$V_{CC} = 5\text{ V}, V_I = V_{T^-}$
Input current	I_{IH}	—	—	20	μA	$V_{CC} = 5.25\text{ V}, V_I = 2.7\text{ V}$
	I_{IL}	—	—	-0.4	mA	$V_{CC} = 5.25\text{ V}, V_I = 0.4\text{ V}$
	I_i	—	—	0.1	mA	$V_{CC} = 5.25\text{ V}, V_I = 7\text{ V}$
Short-circuit output current	I_{OS}	-20	—	-100	mA	$V_{CC} = 5.25\text{ V}$
Supply current	I_{CCH}	—	5.9	11	mA	$V_{CC} = 5.25\text{ V}$
	I_{CCL}	—	8.2	14	mA	$V_{CC} = 5.25\text{ V}$
Input clamp voltage	V_{IK}	—	—	-1.5	V	$V_{CC} = 4.75\text{ V}, I_{IN} = -18\text{ mA}$

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

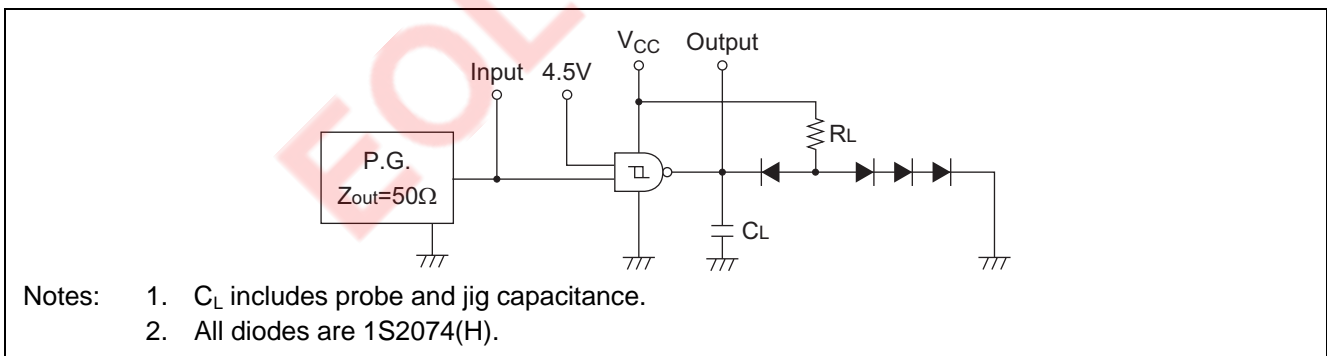
Switching Characteristics

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

Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	—	15	22	ns	$C_L = 15\text{ pF}, R_L = 2\text{ k}\Omega$
	t_{PHL}	—	15	22	ns	

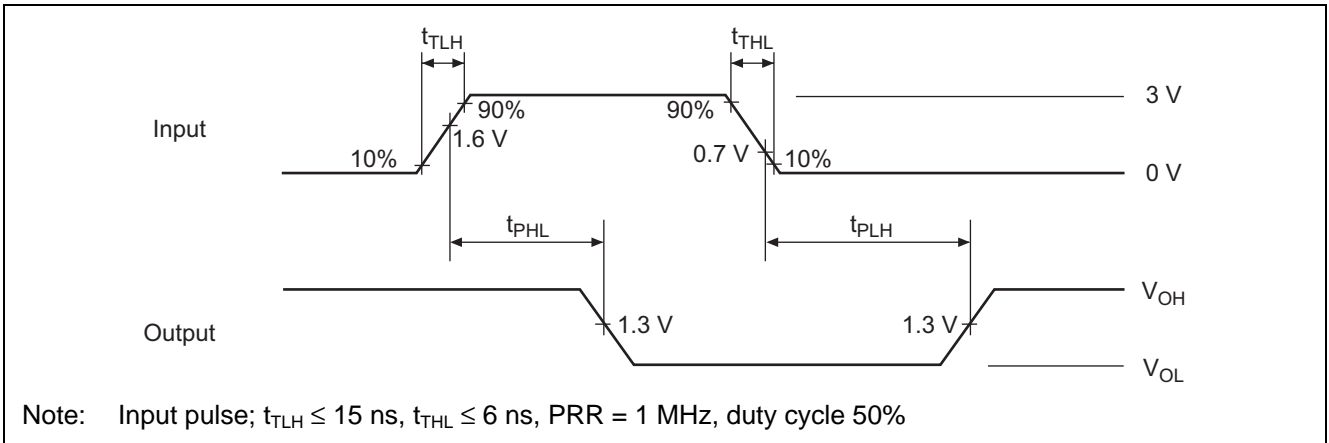
Testing Method

Test Circuit



- Notes:
1. C_L includes probe and jig capacitance.
 2. All diodes are 1S2074(H).

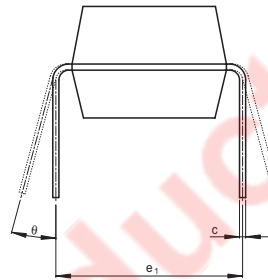
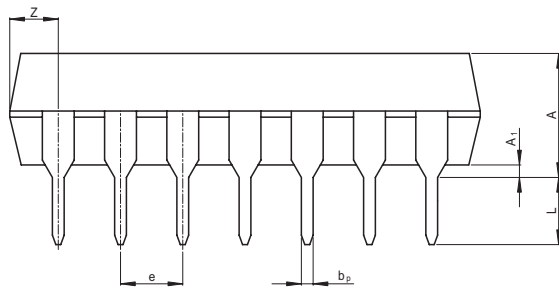
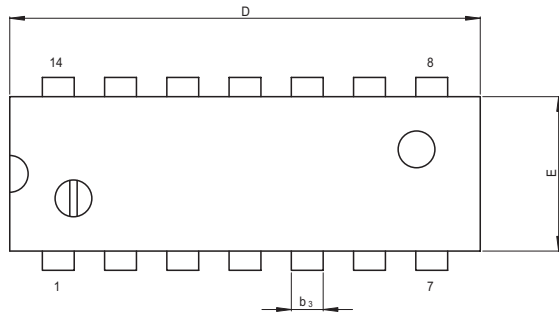
Waveform



EOL Product

Package Dimensions

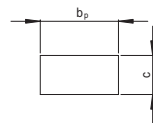
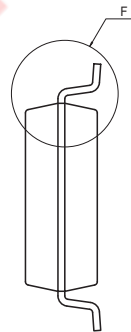
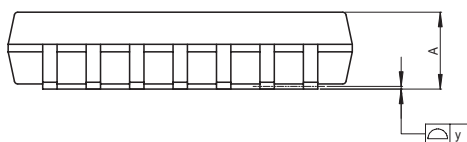
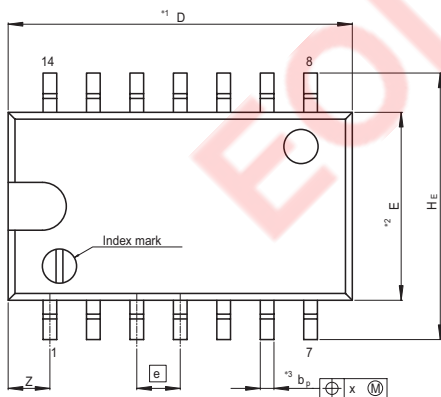
JEITA Package Code P-DIP14-6.3x19.2-2.54	RENESAS Code PRDP0014AB-B	Previous Code DP-14AV	MASS[Typ.] 0.97g
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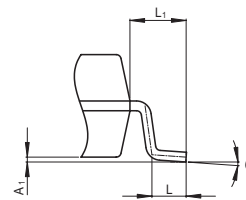
(Ni/Pd/Au plating)

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e ₁	—	7.62	—
D	—	19.2	20.32
E	—	6.3	7.4
A	—	—	5.06
A ₁	0.51	—	—
b _p	0.40	0.48	0.56
b ₃	—	1.30	—
c	0.19	0.25	0.31
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	2.39
L	2.54	—	—

JEITA Package Code P-SOP14-5.5x10.06-1.27	RENESAS Code PRSP0014DF-B	Previous Code FP-14DAV	MASS[Typ.] 0.23g
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Terminal cross section
(Ni/Pd/Au plating)



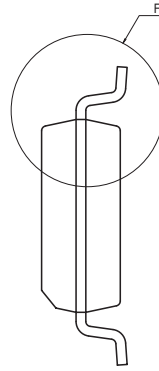
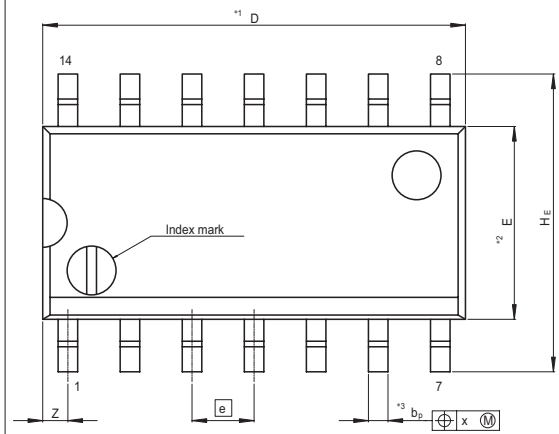
Detail F

NOTE)
1. DIMENSIONS*1 (Nom)*AND*2*
DO NOT INCLUDE MOLD FLASH.
2. DIMENSION*3*DOES NOT
INCLUDE TRIM OFFSET.

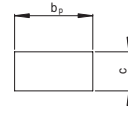
Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	10.06	10.5
E	—	5.50	—
A ₂	—	—	—
A ₁	0.00	0.10	0.20
A	—	—	2.20
b _p	0.34	0.40	0.46
b ₁	—	—	—
c	0.15	0.20	0.25
c ₁	—	—	—
θ	0°	—	8°
H _E	7.50	7.80	8.00
e	—	1.27	—
x	—	—	0.12
y	—	—	0.15
Z	—	—	1.42
L	0.50	0.70	0.90
L ₁	—	1.15	—

HD74LS132

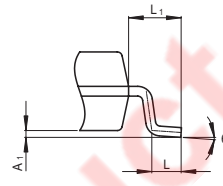
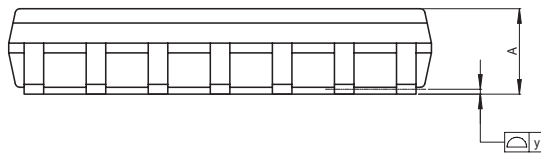
JEITA Package Code P-SOP14-3.95x8.65-1.27	RENESAS Code PRSP0014DE-A	Previous Code FP-14DNV	MASS[Typ.] 0.13g
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NOTE)
1. DIMENSIONS*1 (Nom)*AND*2*
DO NOT INCLUDE MOLD FLASH.
2. DIMENSION*3*DOES NOT
INCLUDE TRIM OFFSET.



Terminal cross section
(Ni/Pd/Au plating)



Detail F

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	8.65	9.05
E	—	3.95	—
A ₂	—	—	—
A ₁	0.10	0.14	0.25
A	—	—	1.75
b _p	0.34	0.40	0.46
b ₁	—	—	—
c	0.15	0.20	0.25
c ₁	—	—	—
θ	0°	—	8°
H _E	5.80	6.10	6.20
e	—	1.27	—
x	—	—	0.25
y	—	—	0.15
Z	—	—	0.635
L	0.40	0.60	1.27
L ₁	—	1.08	—

EOL Product

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Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A.
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510