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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

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

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RENESAS

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HD74HC132

Quad. 2-input NAND Schmitt Triggers

REJ03D0567-0200
 (Previous ADE-205-441)
 Rev.2.00
 Oct 11, 2005

Features

- High Speed Operation: $t_{pd} = 9.5$ ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2$ to 6 V
- Low Input Current: 1 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 1 μ A max ($T_a = 25^\circ\text{C}$)
- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74HC132P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74HC132FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)
HD74HC132RPEL	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.

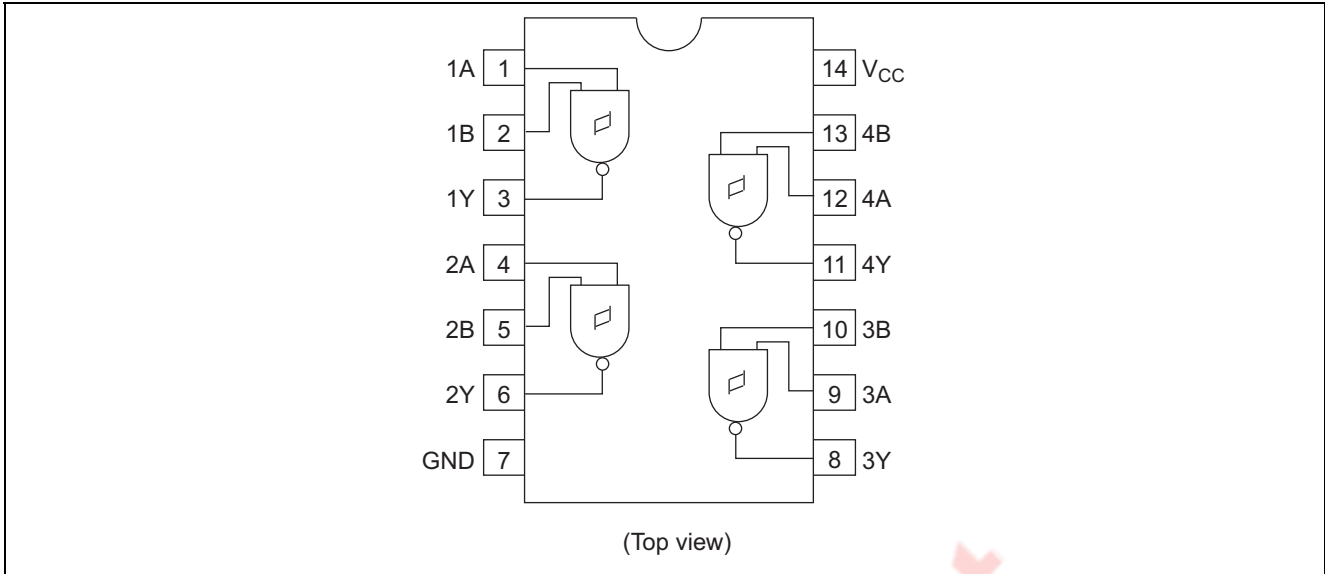
Function Table

Inputs		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

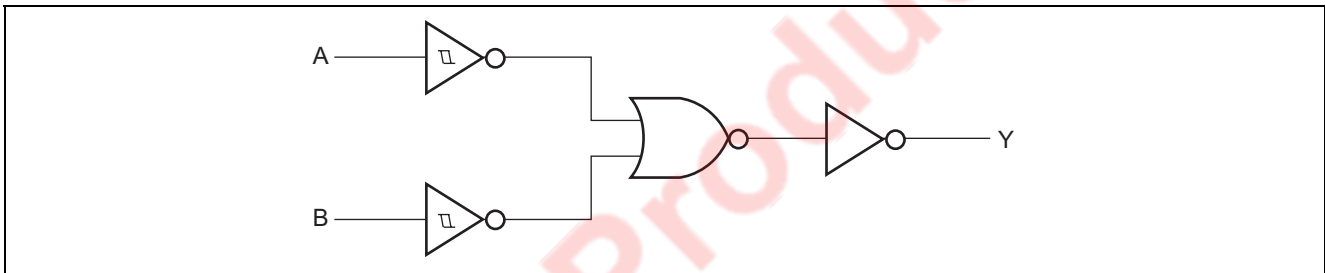
H : High level

L : Low level

Pin Arrangement



Logic Diagram (1/4)



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage range	V_{CC}	-0.5 to 7.0	V
Input / Output voltage	V_{in}, V_{out}	-0.5 to $V_{CC} + 0.5$	V
Input / Output diode current	I_{IK}, I_{OK}	± 20	mA
Output current	I_o	± 25	mA
V_{CC}, GND current	I_{CC} or I_{GND}	± 50	mA
Power dissipation	P_T	500	mW
Storage temperature	T_{stg}	-65 to +150	$^{\circ}C$

Note: The absolute maximum ratings are values, which must not individually be exceeded, and furthermore, no two of which may be realized at the same time.

Recommended Operating Conditions

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	V _{CC}	2 to 6	V	
Input / Output voltage	V _{IN} , V _{OUT}	0 to V _{CC}	V	
Operating temperature	T _a	-40 to 85	°C	
Input rise / fall time ^{*1}	t _r , t _f	0 to unlimited	ns	V _{CC} = 2.0 V
		0 to unlimited		V _{CC} = 4.5 V
		0 to unlimited		V _{CC} = 6.0 V

Note: 1. This item guarantees maximum limit when one input switches.

Waveform: Refer to test circuit of switching characteristics.

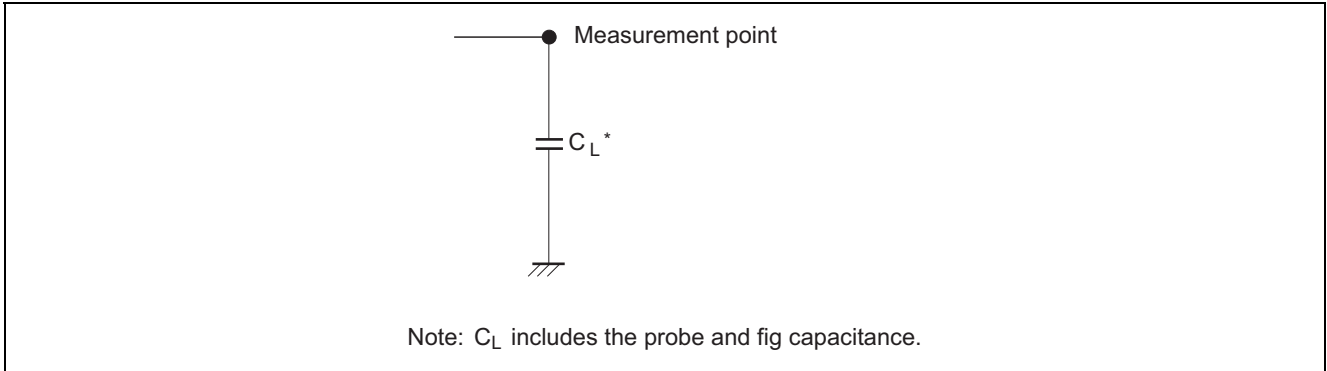
Electrical Characteristics

Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Threshold voltage	V _{T+}	2.0	0.8	—	1.5	0.8	1.5	V		
		4.5	2.25	—	3.15	2.25	3.15			
		6.0	3.0	—	4.2	3.0	4.2			
	V _{T-}	2.0	0.2	—	1.0	0.2	1.0	V		
		4.5	0.9	—	2.25	0.9	2.25			
		6.0	1.2	—	3.0	1.2	3.0			
Hysteresis voltage	V _H	2.0	0.2	—	1.2	0.2	1.2	V		
		4.5	0.4	—	2.25	0.4	2.25			
		6.0	0.6	—	3.0	0.6	3.0			
Output voltage	V _{OH}	2.0	1.9	2.0	—	1.9	—	V	V _{in} = V _{IH} or V _{IL}	I _{OH} = -20 μA
		4.5	4.4	4.5	—	4.4	—			I _{OH} = -4 mA
		6.0	5.9	6.0	—	5.9	—			I _{OH} = -5.2 mA
		4.5	4.18	—	—	4.13	—			
		6.0	5.68	—	—	5.63	—			
		6.0	—	—	—	—	—			
	V _{OL}	2.0	—	0.0	0.1	—	0.1	V	V _{in} = V _{IH} or V _{IL}	I _{OL} = 20 μA
		4.5	—	0.0	0.1	—	0.1			I _{OL} = 4 mA
		6.0	—	0.0	0.1	—	0.1			I _{OL} = 5.2 mA
		4.5	—	—	0.26	—	0.33			
		6.0	—	—	0.26	—	0.33			
		6.0	—	—	—	—	—			
Input current	I _{in}	6.0	—	—	±0.1	—	±1.0	μA	V _{in} = V _{CC} or GND	
Quiescent supply current	I _{CC}	6.0	—	—	1.0	—	10	μA	V _{in} = V _{CC} or GND, I _{out} = 0 μA	

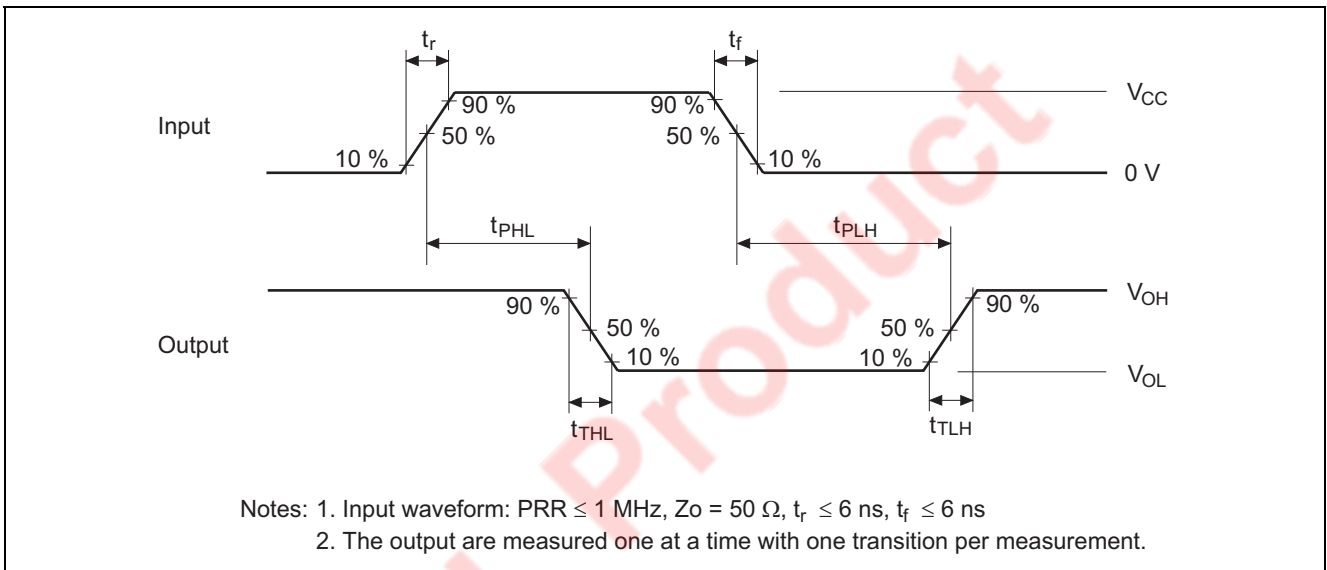
Switching Characteristics (C_L = 50 pF, Input t_r = t_f = 6 ns)

Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Propagation delay time	t _{PLH}	2.0	—	—	100	—	125	ns		
		4.5	—	8	20	—	25			
		6.0	—	—	17	—	21			
	t _{PHL}	2.0	—	—	100	—	125	ns		
		4.5	—	11	20	—	25			
		6.0	—	—	17	—	21			
Output rise/fall time	t _{TLH} , t _{THL}	2.0	—	—	75	—	95	ns		
		4.5	—	5	15	—	19			
		6.0	—	—	13	—	16			
Input capacitance	C _{in}	—	—	5	10	—	10	pF		

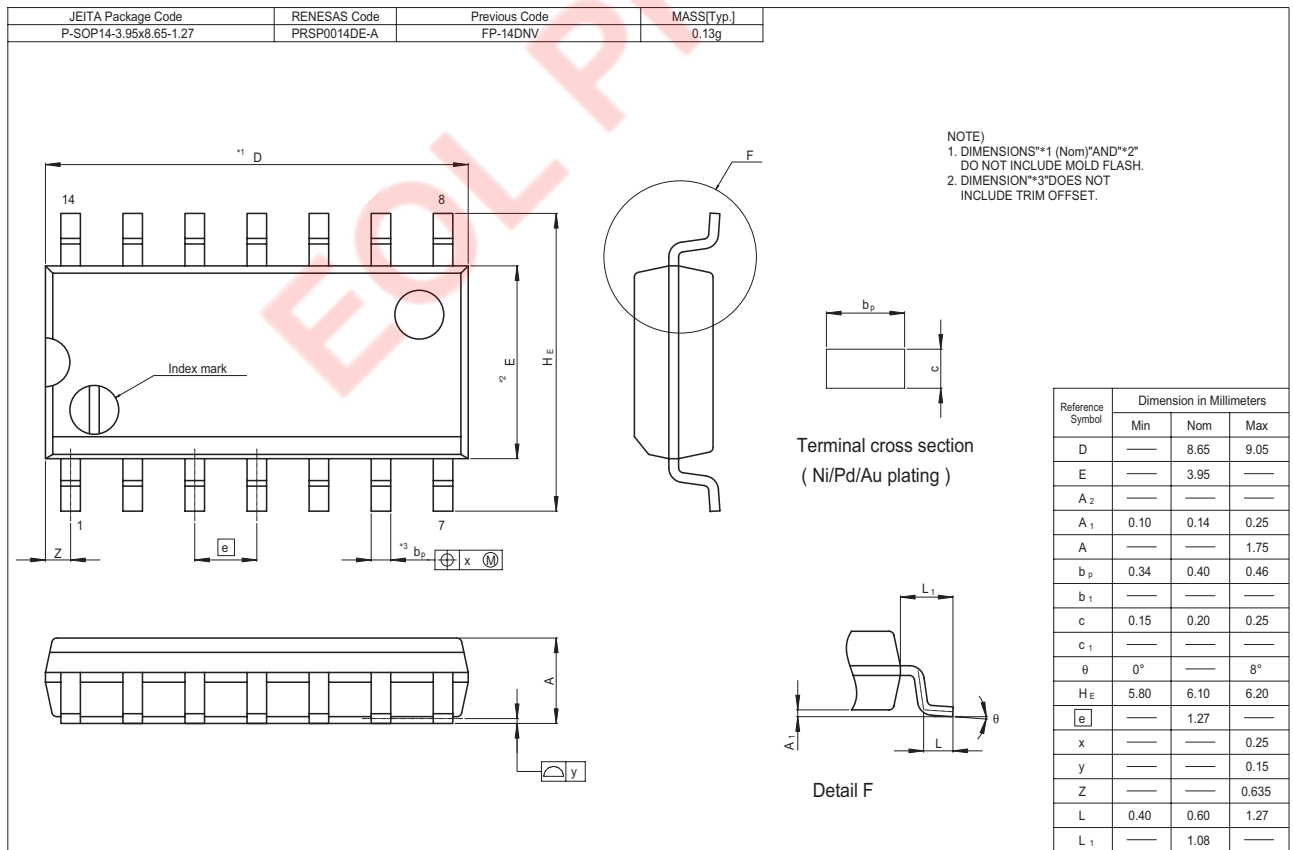
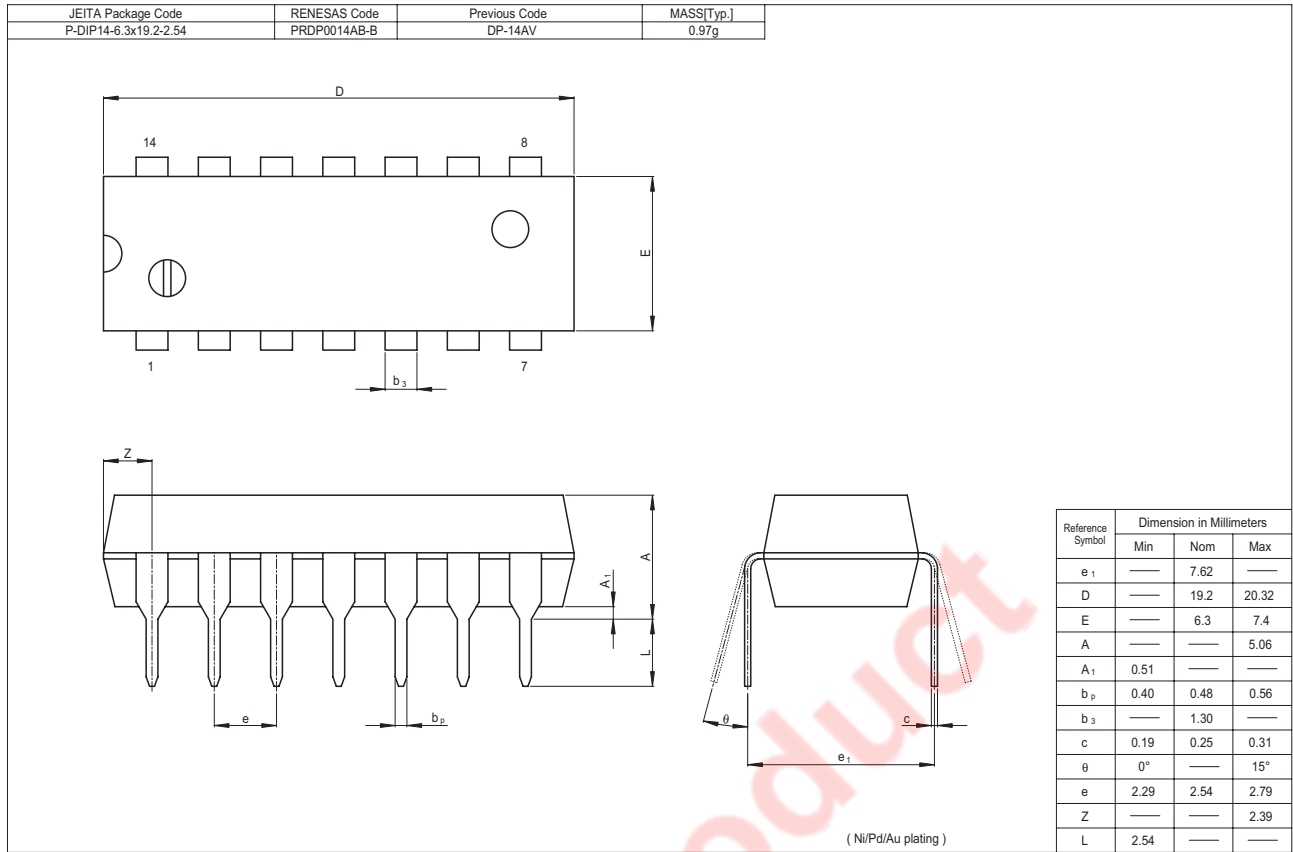
Test Circuit



Waveforms

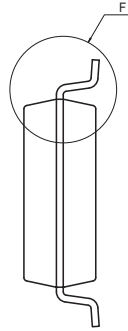
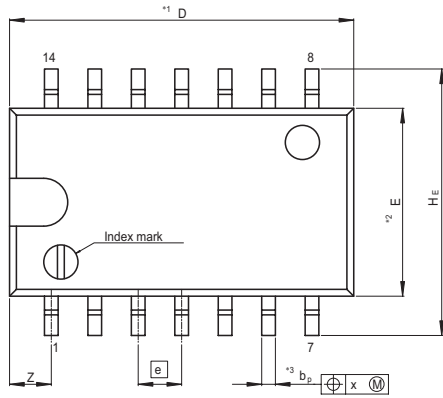


Package Dimensions

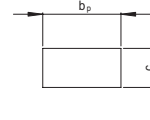


HD74HC132

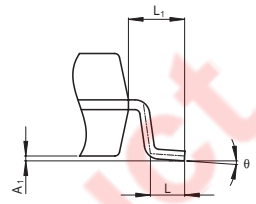
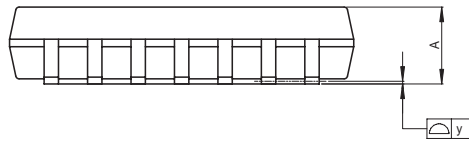
JEITA Package Code P-SOP14-5.5x10.06-1.27	RENESAS Code PRSP0014DF-B	Previous Code FP-14DAV	MASS[Typ.] 0.23g
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NOTE
1. DIMENSIONS*1 (Nom)*AND*2*
DO NOT INCLUDE MOLD FLASH.
2. DIMENSION*3*DOES NOT
INCLUDE TRIM OFFSET.



Terminal cross section
(Ni/Pd/Au plating)



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	—

EOL Product

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