

HD74LS02

Quadruple 2-Input Positive NOR Gates

REJ03D0389-0200
Rev.2.00
Feb.18.2005

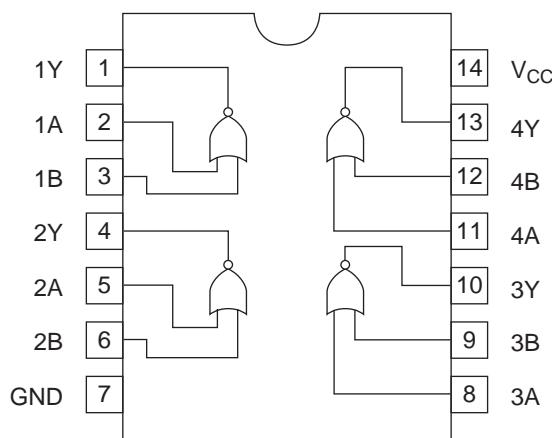
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS02P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS02FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)
HD74LS02RPEL	SOP-14 pin (JEDEC)	PRSP0014DE-A (FP-14DNV)	RP	EL (2,500 pcs/reel)

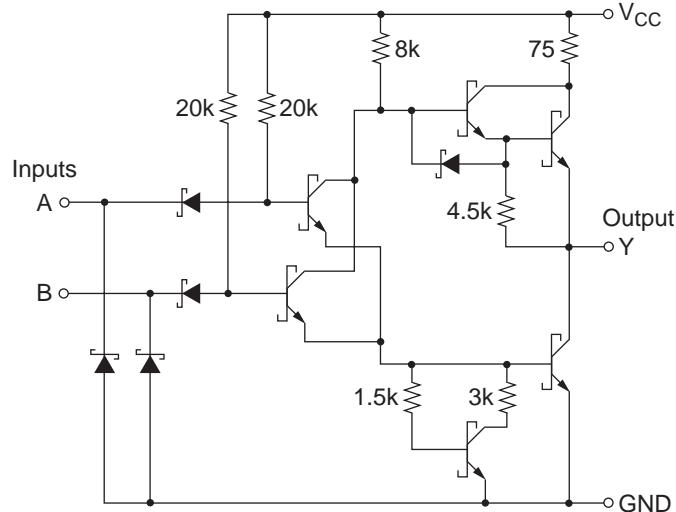
Note: Please consult the sales office for the above package availability.

Pin Arrangement



(Top view)

Circuit Schematic (1/4)



Absolute Maximum Ratings

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

Note: Voltage value, unless otherwise noted, are with respect to network ground terminal.

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	μ A
	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 voltage	V _{IH}	2.0	—	—	V		
	V _{IL}	—	—	0.8	V		
Output voltage	V _{OH}	2.7	—	—	V	V _{CC} = 4.75 V, V _{IL} = 0.8 V, I _{OH} = -400 µA	
	V _{OL}	—	—	0.5	V	I _{OL} = 8 mA	V _{CC} = 4.75 V, V _{IH} = 2 V
		—	—	0.4		I _{OL} = 4 mA	
Input current	I _{IH}	—	—	20	µA	V _{CC} = 5.25 V, V _I = 2.7 V	
	I _{IL}	—	—	-0.4	mA	V _{CC} = 5.25 V, V _I = 0.4 V	
	I _I	—	—	0.1	mA	V _{CC} = 5.25 V, V _I = 7 V	
Short-circuit output current	I _{OS}	-20	—	-100	mA	V _{CC} = 5.25 V	
Supply current	I _{CCH}	—	1.6	3.2	mA	V _{CC} = 5.25 V	
	I _{CCL}	—	2.8	5.4	mA	V _{CC} = 5.25 V	
Input clamp voltage	V _{IK}	—	—	-1.5	V	V _{CC} = 4.75 V, I _{IN} = -18 mA	

Note: * V_{CC} = 5 V, Ta = 25°C

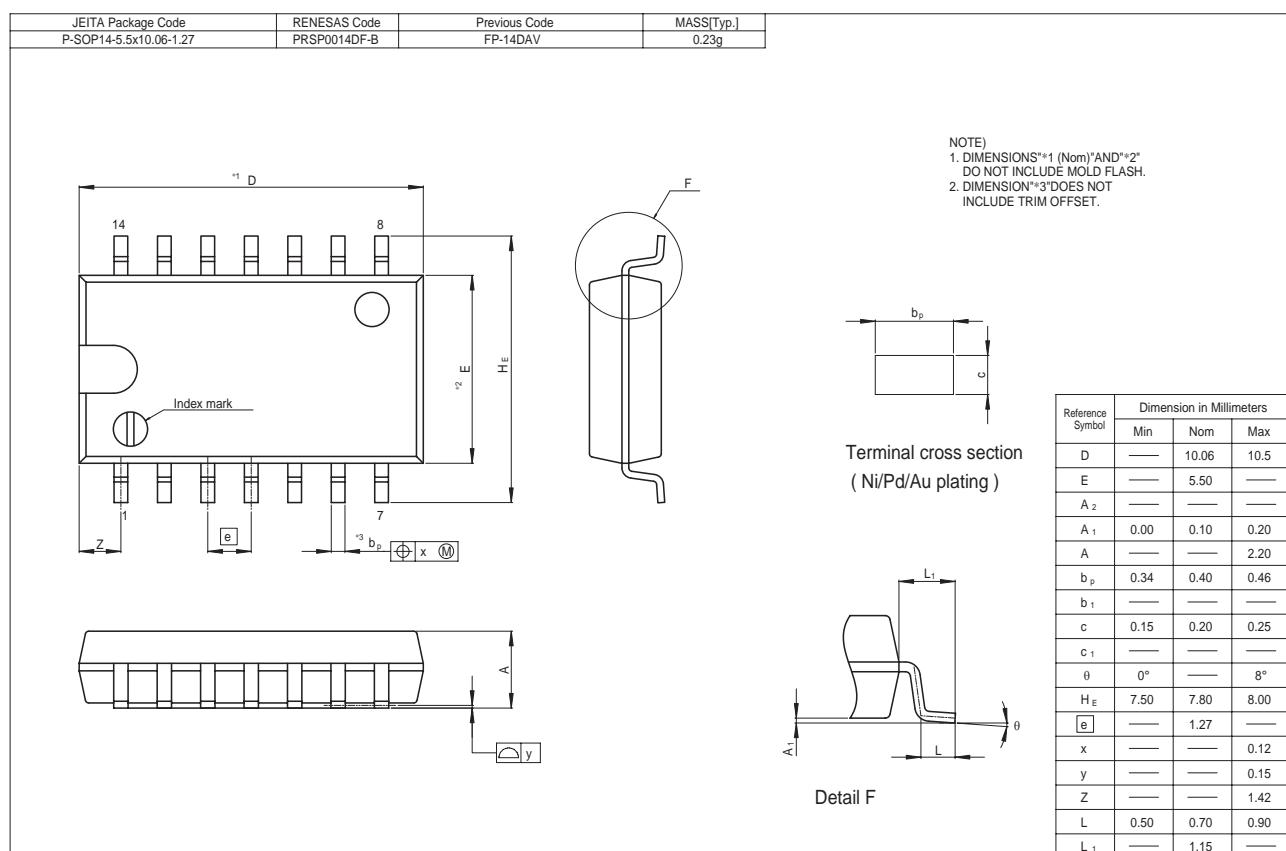
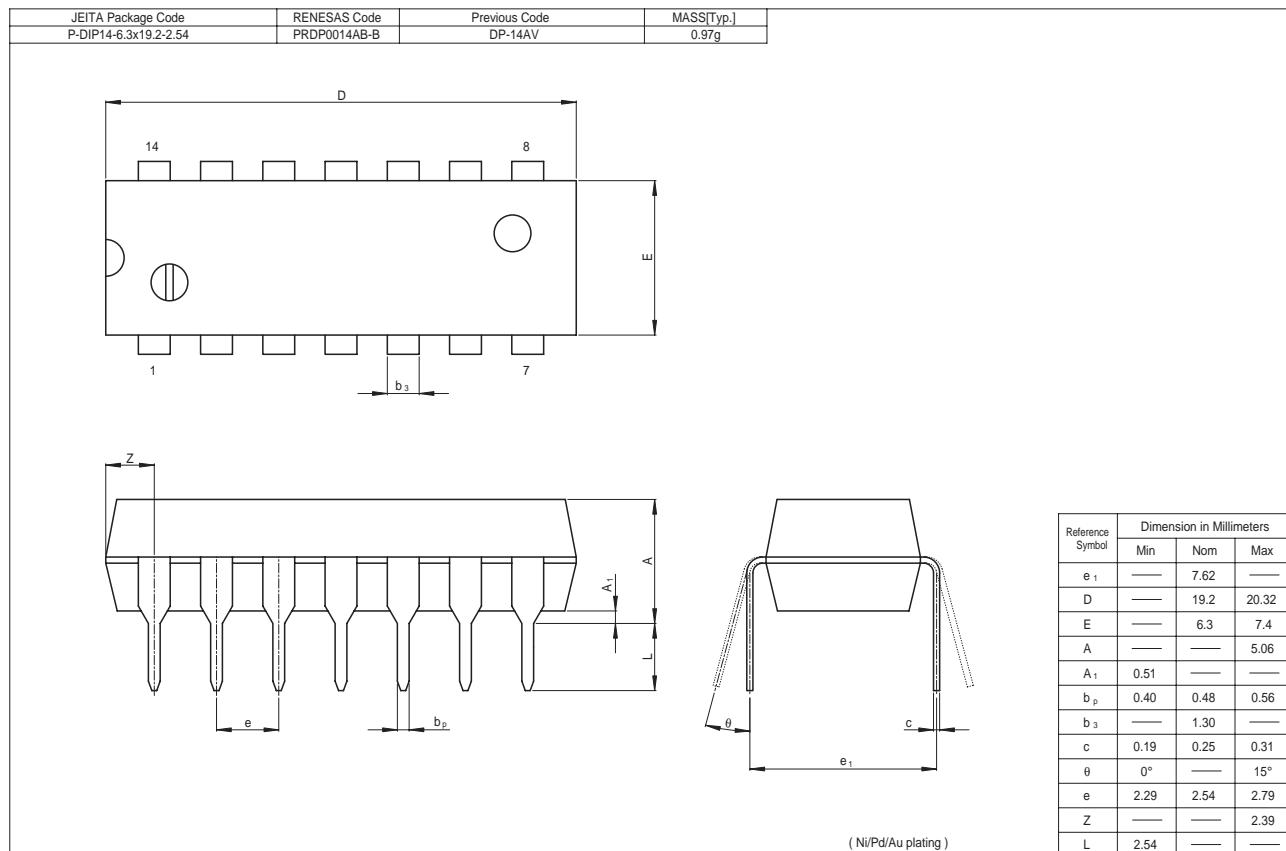
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

Item	Symbol	min.	typ.	max.	Unit	Condition	
Propagation delay time	t _{PLH}	—	10	15	ns	C _L = 15 pF, R _L = 2 kΩ	
	t _{PHL}	—	10	15	ns		

Note: Refer to Test Circuit and Waveform of the Common Item "TTL Common Matter (Document No.: REJ27D0005-0100)".

Package Dimensions



HD74LS02

JEITA Package Code P-SOP14-3.95x8.65-1.27	RENESAS Code PRSP0014DE-A	Previous Code FP-14DNV	MASS[Typ.] 0.13g
			NOTE) 1. DIMENSIONS ^{*1} (Nom) AND ^{*2} DO NOT INCLUDE MOLD FLASH. 2. DIMENSION ^{*3} DOES NOT INCLUDE TRIM OFFSET.
			Dimension in Millimeters
			Reference Symbol
			Min
D	—	8.65	Max
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	—

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