To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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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HD74LS03

Quadruple 2-Input Positive NAND Gates (with Open Collector Outputs)

REJ03D0390–0200
Rev.2.00
Feb.18.2005

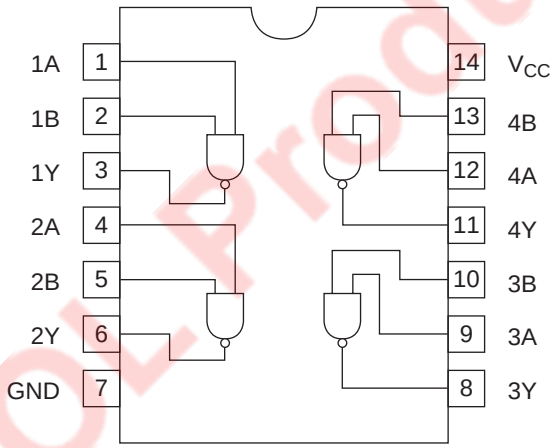
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS03P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS03FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)

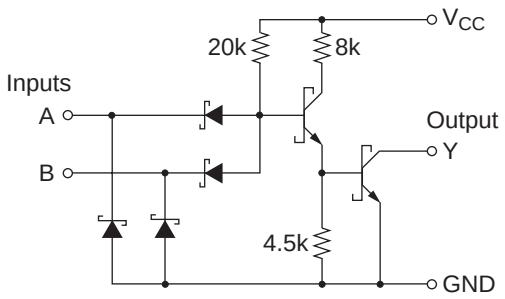
Note: Please consult the sales office for the above package availability.

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	Tstg	–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 voltage	V_{OH}	—	—	5.5	V
Output current	I_{OL}	—	—	8	mA
Operating temperature	Topr	–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_{OL}	—	—	0.5	V	I_{OL} = 8 mA, V_{CC} = 4.75 V, V_{IH} = 2 V
		—	—	0.4		I_{OL} = 4 mA, V_{CC} = 4.75 V, V_{IH} = 2 V
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
Output current	I_{OH}	—	—	100	µA	V_{CC} = 4.75 V, V_{IH} = 0.8 V, V_{OH} = 5.5 V
Supply current	I_{CCH}	—	0.8	1.6	mA	V_{CC} = 5.25 V
	I_{CCL}	—	2.4	4.4	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

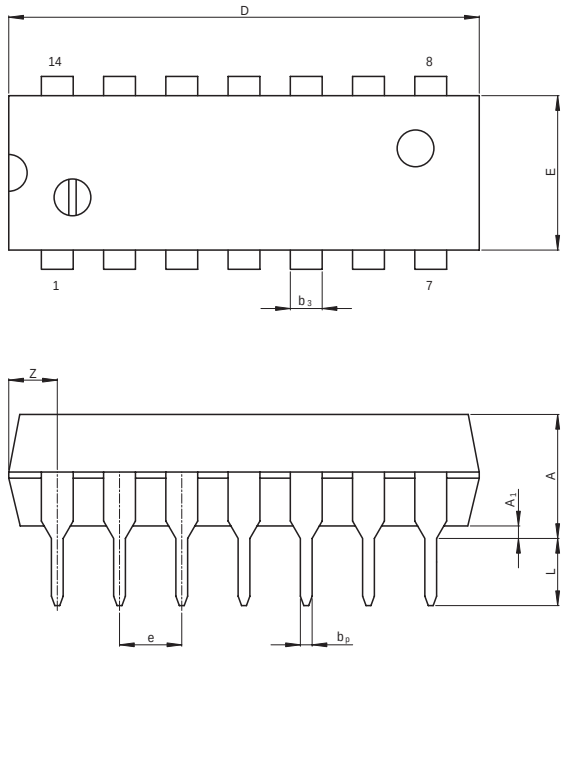
(V_{CC} = 5 V, Ta = 25°C)

Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	—	17	32	ns	C_L = 15 pF, R_L = 2 kΩ
	t_{PHL}	—	25	28	ns	

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

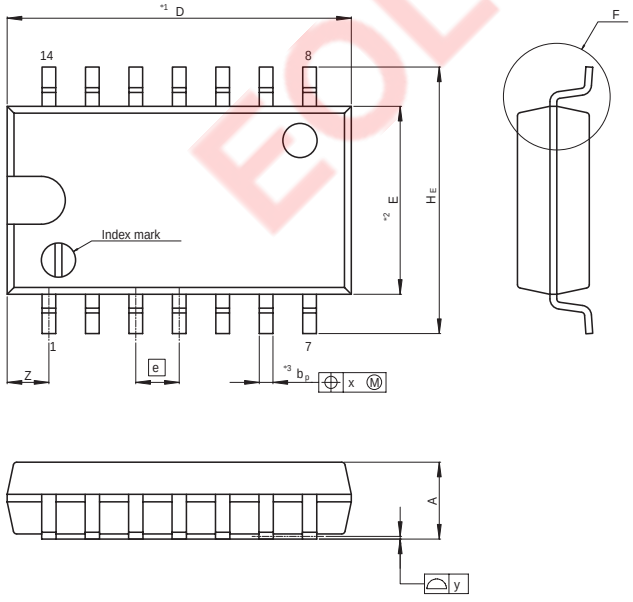
Package Dimensions

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-DIP14-6.3x19.2-2.54	PRDP0014AB-B	DP-14AV	0.97g

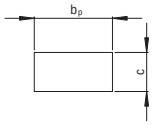


Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e_1	—	7.62	—
D	—	19.2	20.32
E	—	6.3	7.4
A	—	—	5.06
A_1	0.51	—	—
b_p	0.40	0.48	0.56
b_3	—	1.30	—
c	0.19	0.25	0.31
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	2.39
L	2.54	—	—

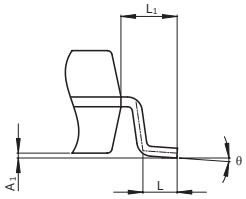
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP14-5.5x10.06-1.27	PRSP0014DF-B	FP-14DAV	0.23g



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	—	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	—

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RENESAS SALES OFFICES

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