

HD74LS14

Hex Schmitt Trigger Inverters

REJ03D0399-0300

Rev.3.00

Jul.13.2005

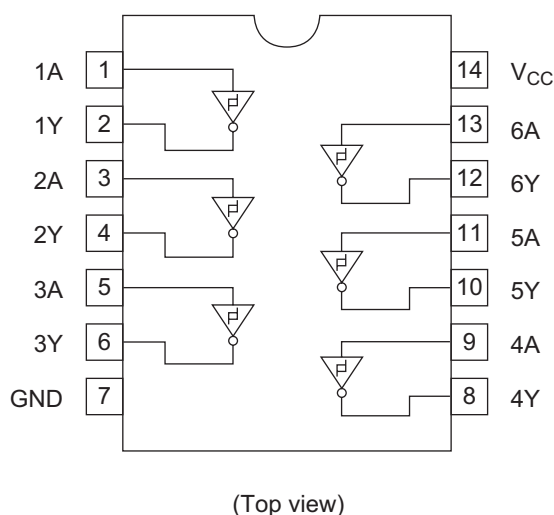
Features

- Ordering Information

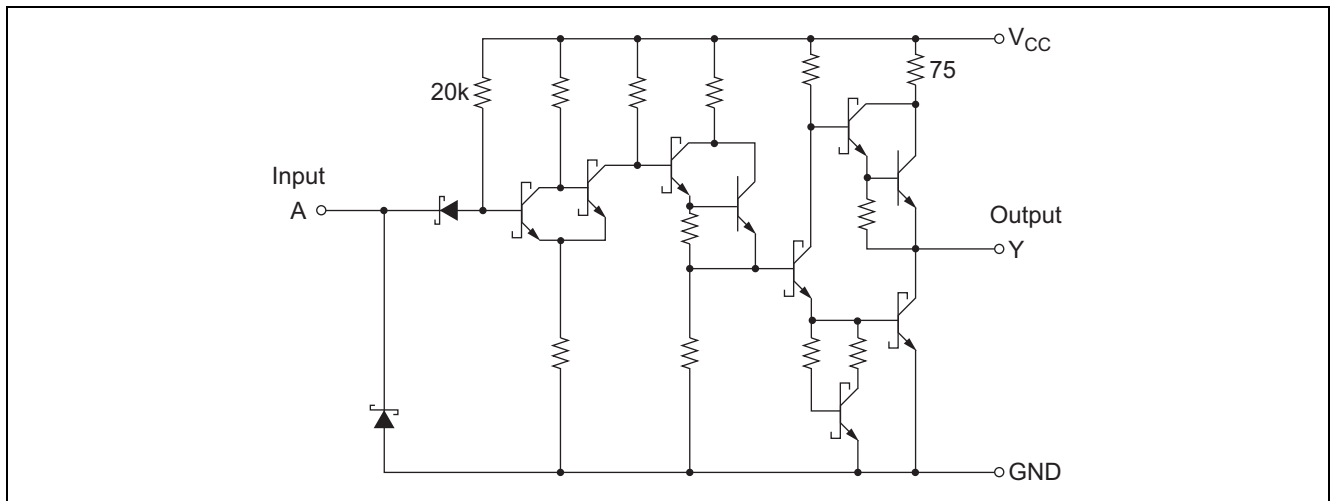
Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS14P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS14FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)

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

Pin Arrangement



Circuit Schematic (1/6)



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Input voltage	V_{IN}	7	V
Supply voltage	V_{CC}	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	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}	—	8.6	16	mA	$V_{CC} = 5.25\text{ V}$
	I_{CCL}	—	12	21	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: * $V_{CC} = 5\text{ V}$, $T_a = 25^{\circ}\text{C}$

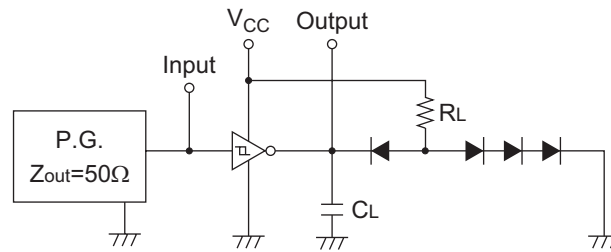
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°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	

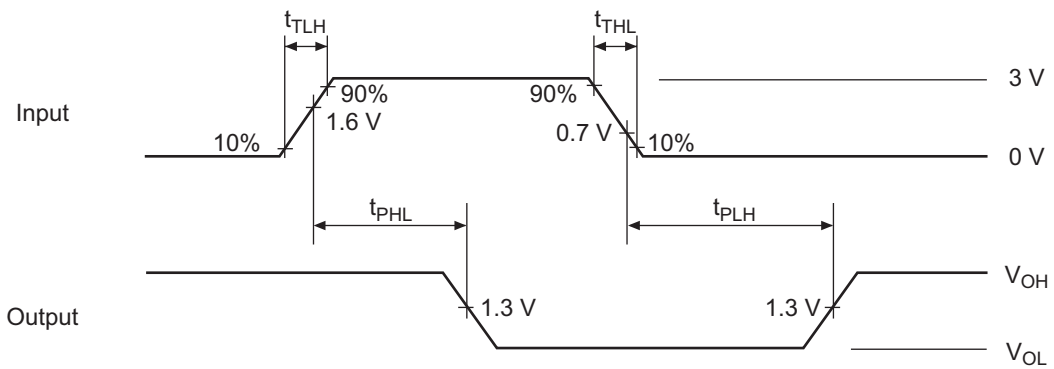
Testing Method

Test Circuit



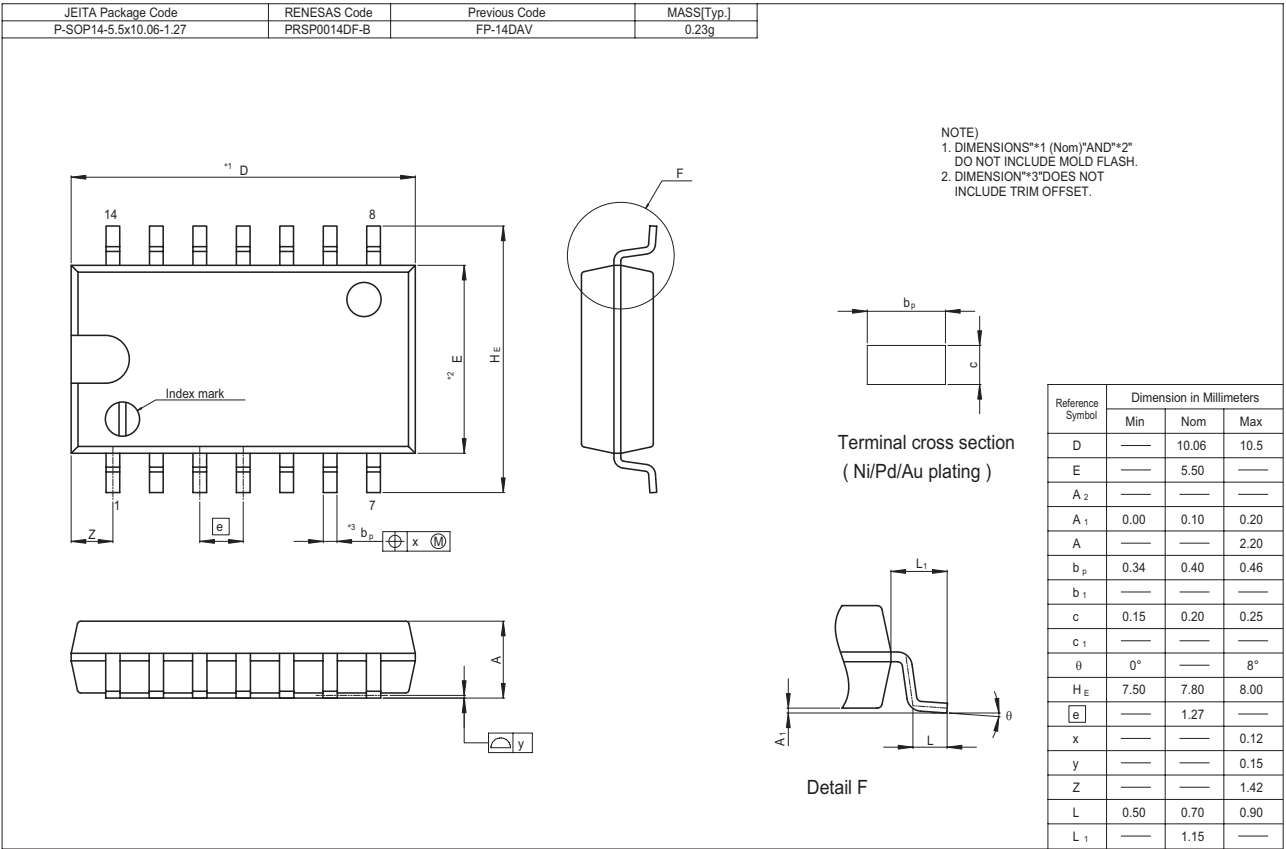
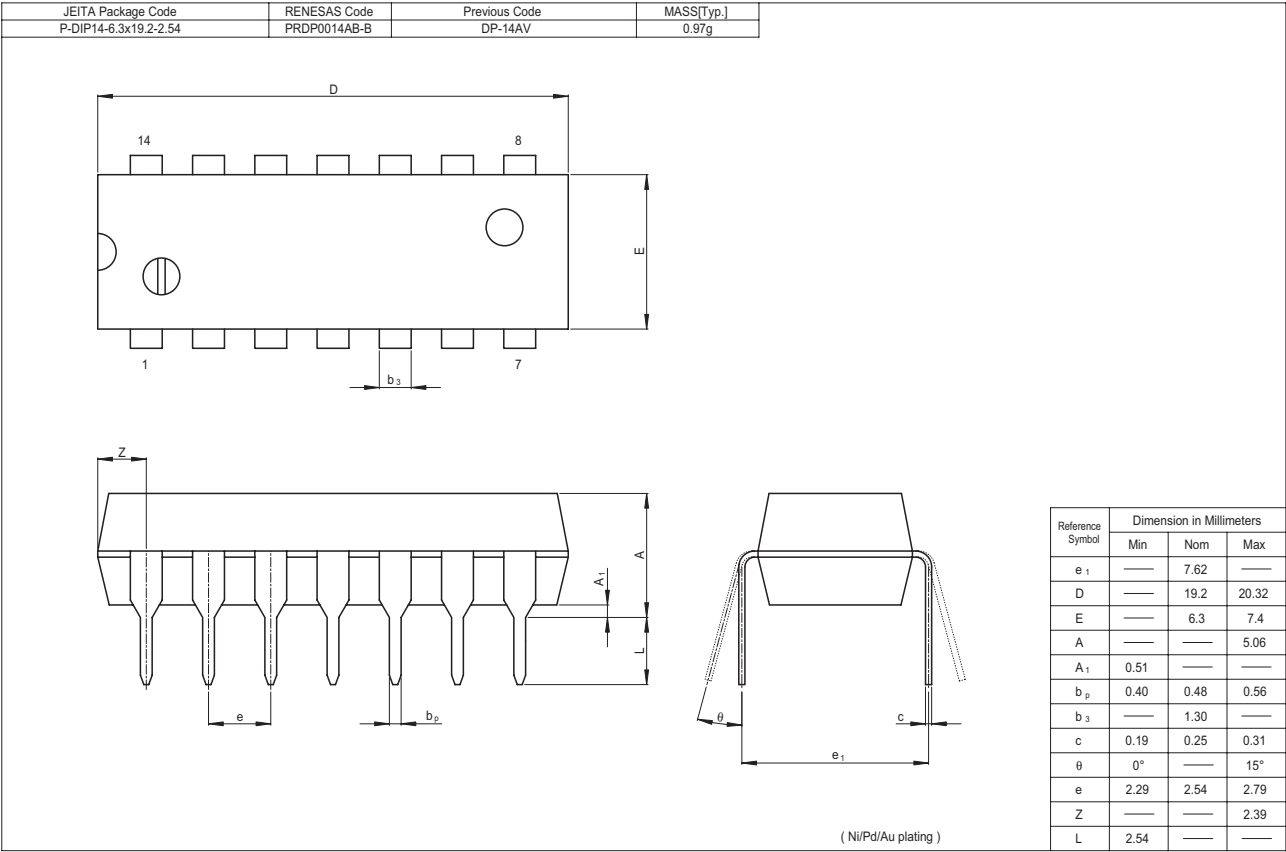
- Notes:
1. All diodes are 1S2074(H).
 2. C_L includes probe and jig capacitance.

Waveform



Note: Input pulse: $t_{TLH} \leq 15 \text{ ns}$, $t_{THL} \leq 6 \text{ ns}$ $P_{RR} = 1 \text{ MHz}$, duty cycle 50%.

Package Dimensions



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