

# HD74LS14

## Hex Schmitt Trigger Inverters

REJ03D0399-0300  
 Rev.3.00  
 Jul.13.2005

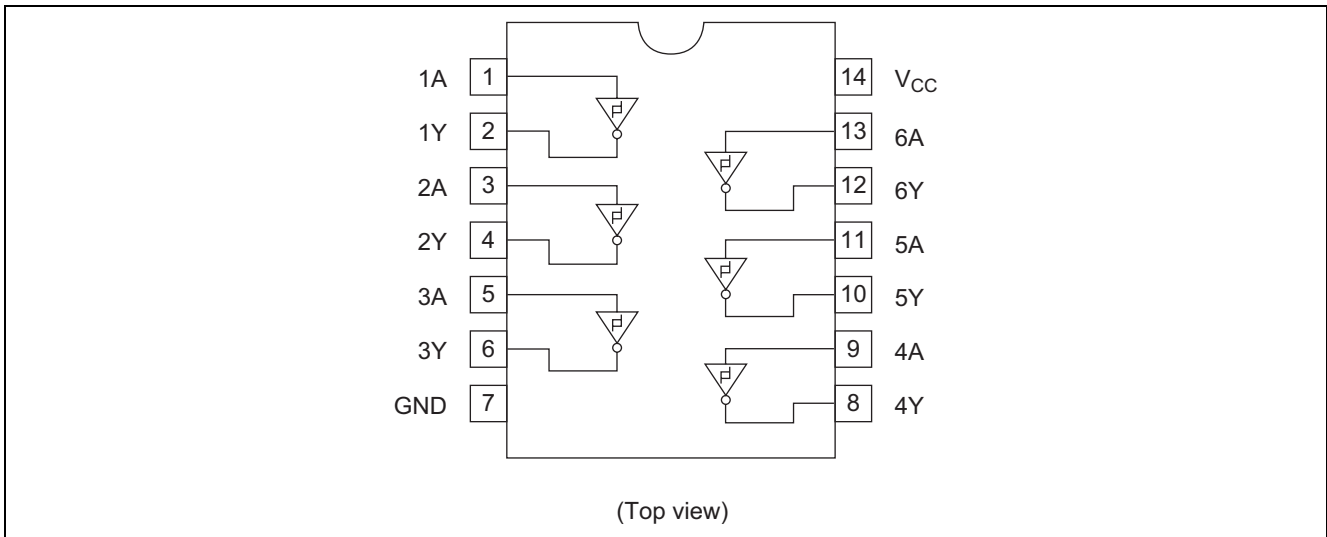
### Features

- Ordering Information

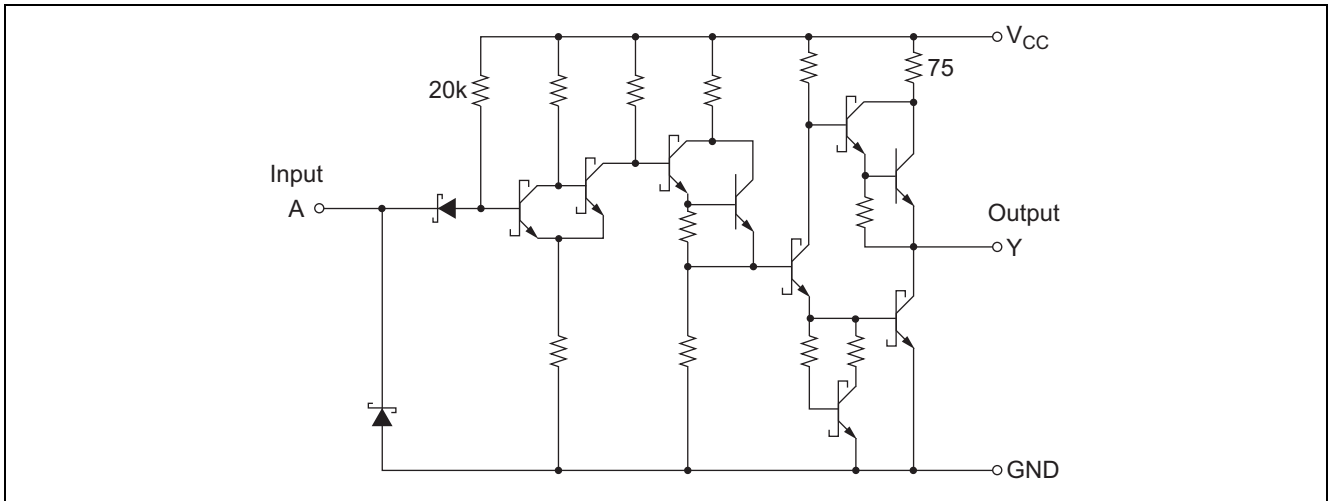
Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS14P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS14FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)

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	$\mu\text{A}$	$V_{CC} = 5.25\text{ V}$ , $V_I = 2.7\text{ V}$
	$I_{IL}$	—	—	-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: \*  $V_{CC} = 5\text{ V}$ ,  $T_a = 25^\circ\text{C}$ 

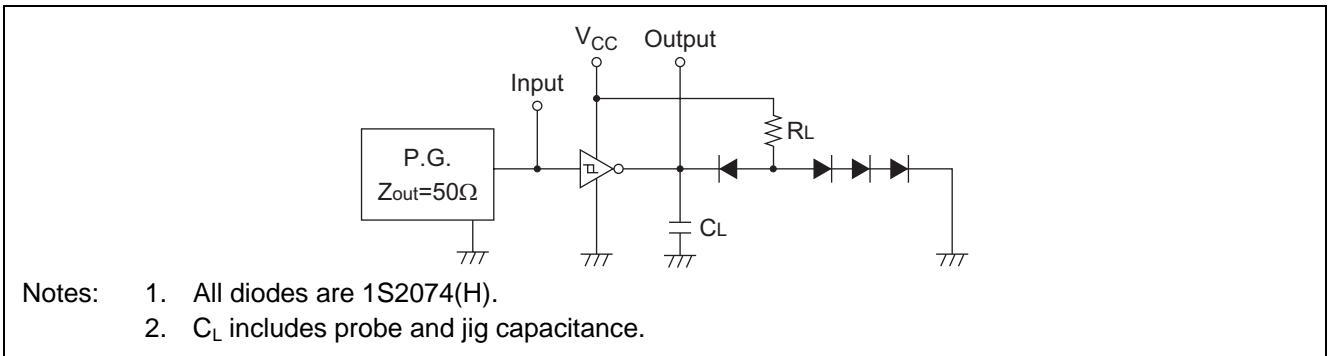
## Switching Characteristics

(V<sub>CC</sub> = 5 V, T<sub>a</sub> = 25°C)

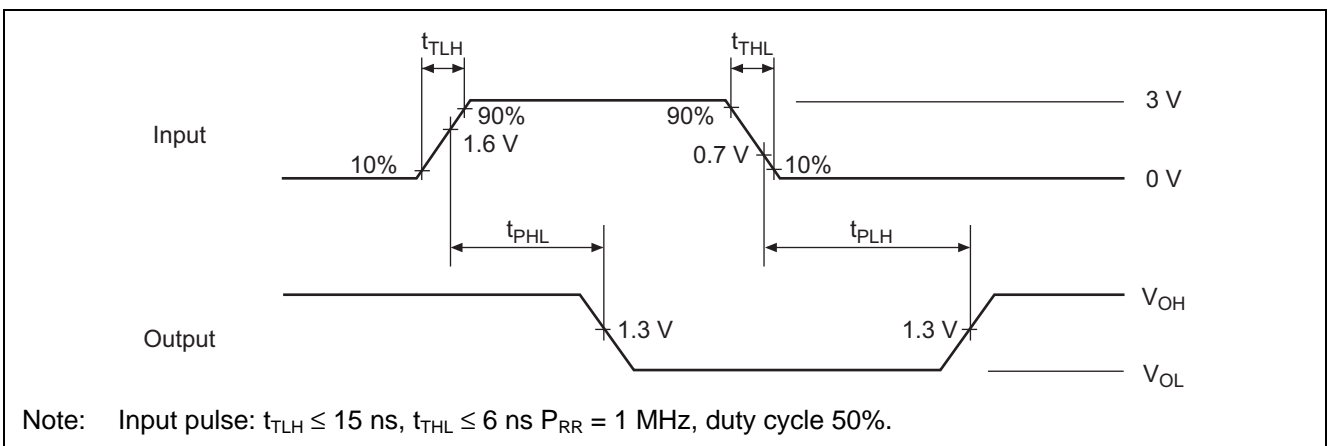
Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	$t_{PLH}$	—	15	22	ns	$C_L = 15\text{ pF}$ , $R_L = 2\text{ k}\Omega$
	$t_{PHL}$	—	15	22	ns	

## Testing Method

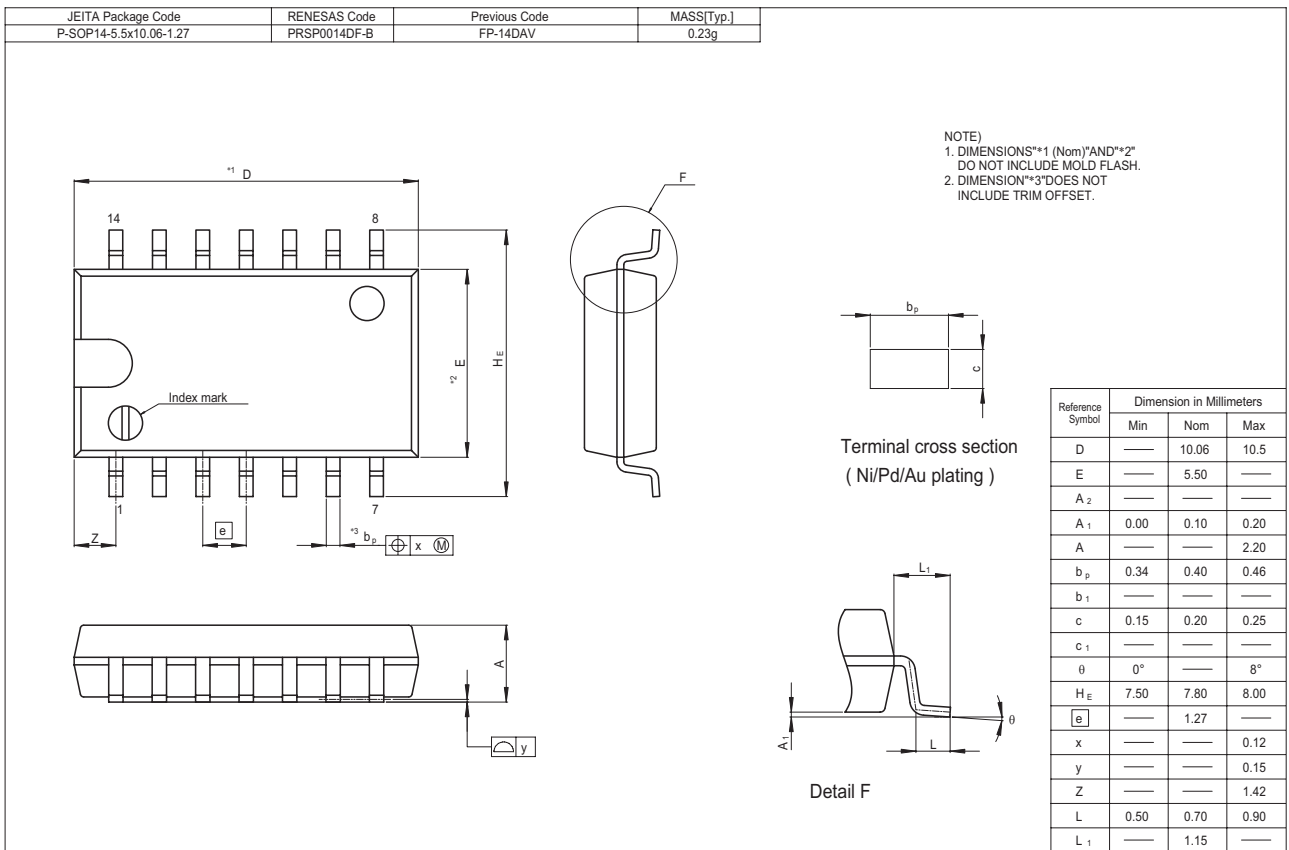
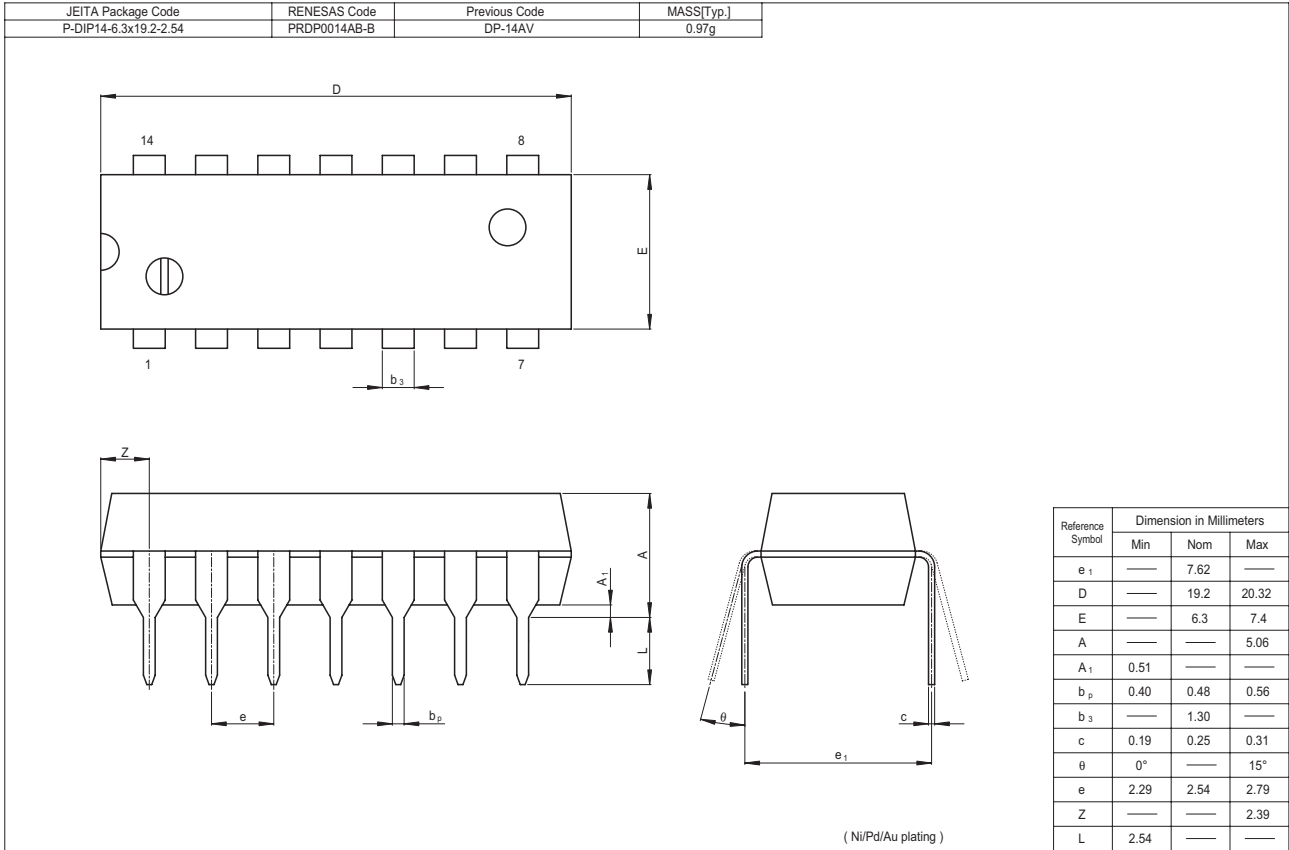
### Test Circuit



### Waveform



Package Dimensions



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