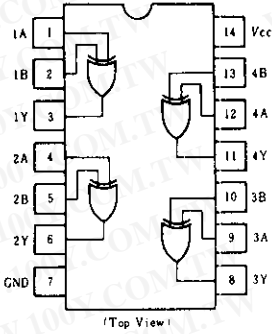


# HD74LS86 • Quadruple 2-input Exclusive-OR Gates

## ■ PIN ARRANGEMENT



## ■ FUNCTION TABLE

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

H; high level, L; low level

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## ■ ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	—	—	V	
	$V_{IL}$		—	—	0.8	V	
Output voltage	$V_{OH}$	$V_{CC} = 4.75\text{V}$ , $V_{IH} = 2\text{V}$ , $V_{IL} = 0.8\text{V}$ , $I_{OH} = -400\mu\text{A}$	2.7	—	—	V	
	$V_{OL}$	$V_{OL} = 4.75\text{V}$ , $V_{IH} = 2\text{V}$ , $V_{IL} = 0.8\text{V}$	$I_{OL} = 4\text{mA}$	—	—	0.4	V
			$I_{OL} = 8\text{mA}$	—	—	0.5	
Input current	$I_i$	$V_{CC} = 5.25\text{V}$ , $V_i = 7\text{V}$	—	—	0.2	mA	
	$I_{IH}$	$V_{CC} = 5.25\text{V}$ , $V_i = 2.7\text{V}$	—	—	40	$\mu\text{A}$	
	$I_{IL}$	$V_{CC} = 5.25\text{V}$ , $V_i = 0.4\text{V}$	—	—	-0.8	mA	
Short-circuit output current	$I_{OS}$	$V_{CC} = 5.25\text{V}$	-20	—	-100	mA	
Supply current **	$I_{CC}$	$V_{CC} = 5.25\text{V}$	—	6.1	10	mA	
Input clamp voltage	$V_{IK}$	$V_{CC} = 4.75\text{V}$ , $I_{IN} = -18\text{mA}$	—	—	-1.5	V	

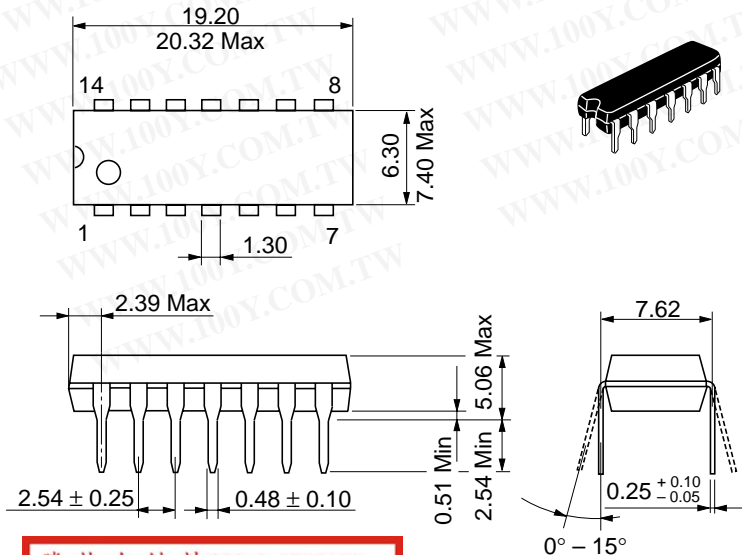
\*  $V_{CC} = 5\text{V}$ ,  $T_a = 25^\circ\text{C}$

\*\*  $I_{CC}$  is measured with all outputs open and all inputs grounded.

## ■ SWITCHING CHARACTERISTICS ( $V_{CC} = 5\text{V}$ , $T_a = 25^\circ\text{C}$ )

Item	Symbol	Inputs	Test Conditions	min	typ	max	Unit	
Propagation delay time	$t_{PLH}$	A or B	$C_L = 15\text{pF}$ , $R_L = 2\text{k}\Omega$	Other inputs = 0V	—	12	23	ns
	$t_{PHL}$				—	10	17	ns
	$t_{PLH}$	A or B		Other inputs = 4.5V	—	20	30	ns
	$t_{PHL}$				—	13	22	ns

Note) Refer to Test Circuit and Waveform of the Common Item

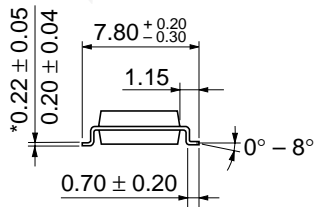
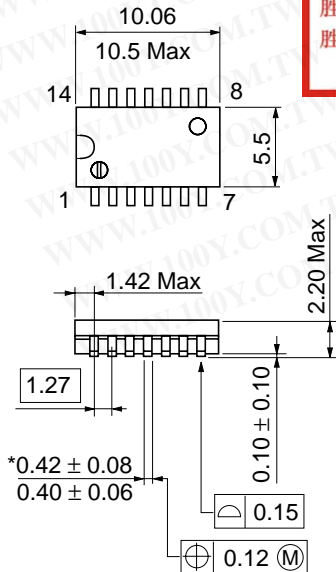
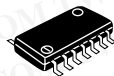


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Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g

Unit: mm

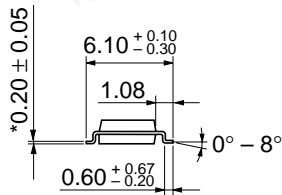
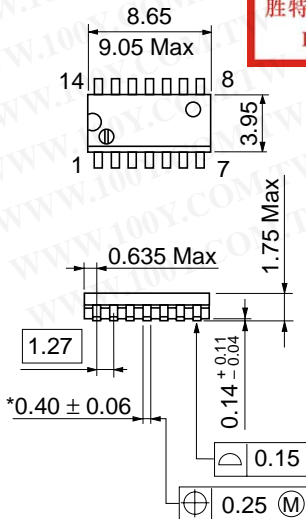
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\*Dimension including the plating thickness  
 Base material dimension

Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

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Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.13 g

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