

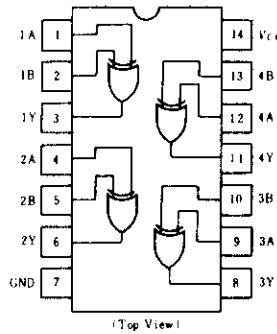
# HD74LS136 ● Quadruple 2-input Exclusive-OR Gates (with open collector outputs)

## 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, X; irrelevant.

## PIN ARRANGEMENT



## RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
High level output voltage	$V_{OH}$	—	—	5.5	V
Low level output current	$I_{OL}$	—	—	8	mA

## 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 current	$I_{OH}$	$V_{CC}=4.75\text{V}, V_{IH}=2\text{V}, V_{IL}=0.8\text{V}, V_{OH}=5.5\text{V}$	—	—	100	$\mu\text{A}$	
Output voltage	$V_{OL}$	$V_{CC}=4.75\text{V}, V_{IH}=2\text{V}, V_{IL}=0.8\text{V}$	$I_{OL}=4\text{mA}$	—	—	0.4	V
			$I_{OL}=8\text{mA}$	—	—	0.5	
Input current	$I_{IH}$	$V_{CC}=5.25\text{V}, V_I=2.7\text{V}$	—	—	40	$\mu\text{A}$	
	$I_{IL}$	$V_{CC}=5.25\text{V}, V_I=0.4\text{V}$	—	—	-0.8	mA	
	$I_I$	$V_{CC}=5.25\text{V}, V_I=7\text{V}$	—	—	0.2	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	

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

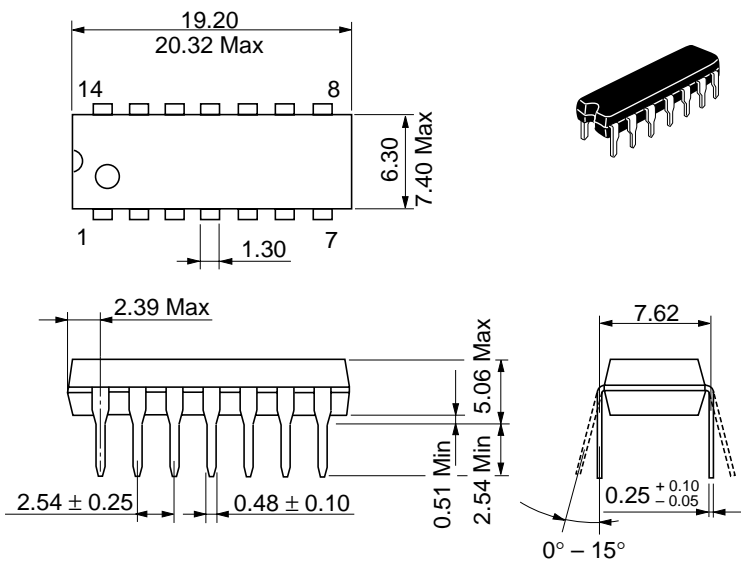
\*\*  $I_{CC}$  is measured with one input of each gate at 4.5V, the other inputs grounded, and the outputs open.

## 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	$C_L=15\text{pF}, R_L=2\text{k}\Omega$	—	18	30	ns	
	$t_{PHL}$			—	18	30		
	$t_{PLH}$	A or B		Other inputs "L"	—	18	30	ns
	$t_{PHL}$				—	18	30	

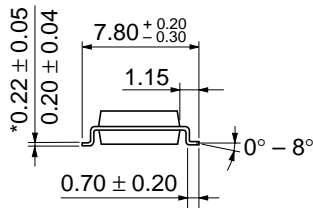
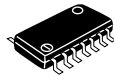
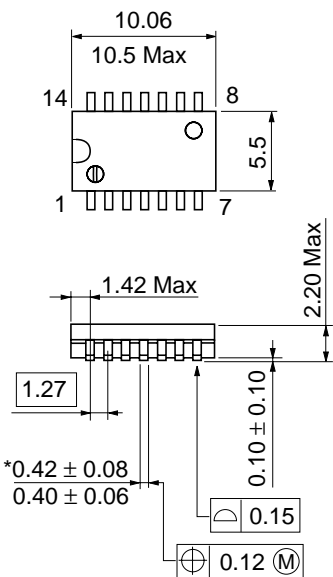
Note) Refer to Test Circuit and Waveform of the Common Item

Unit: mm



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

Unit: mm

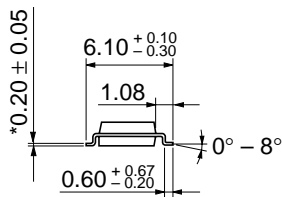
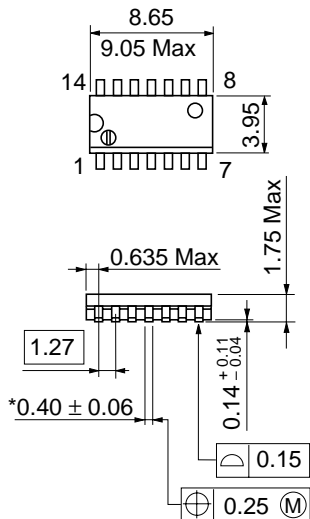


\*Dimension including the plating thickness  
Base material dimension

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

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Unit: mm



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

\*Pd plating

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