

# HD74LS136

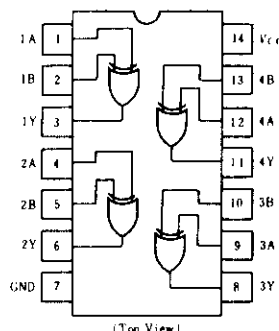
● Quadruple 2-input Exclusive-OR Gates (with open collector outputs)

## 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

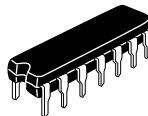
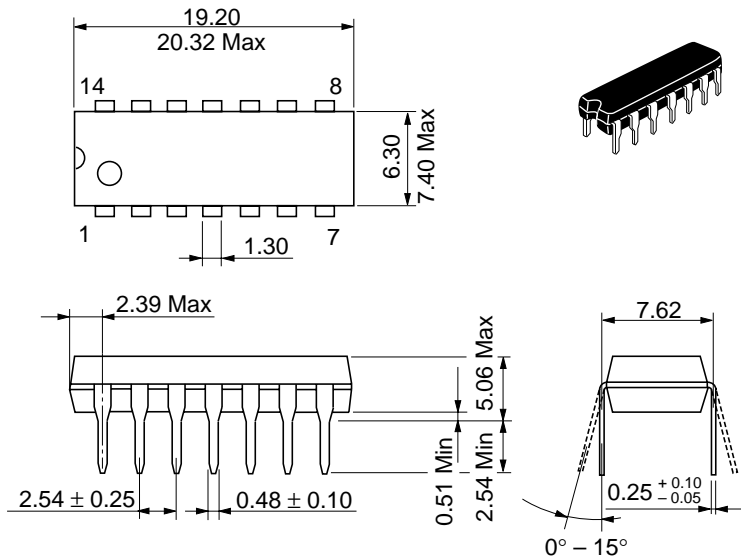
\*  $V_{CC}=5\text{V}$ ,  $T_a=25^\circ\text{C}$

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

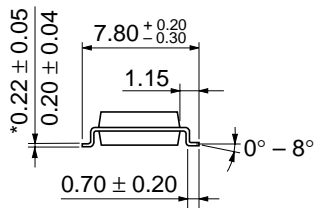
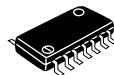
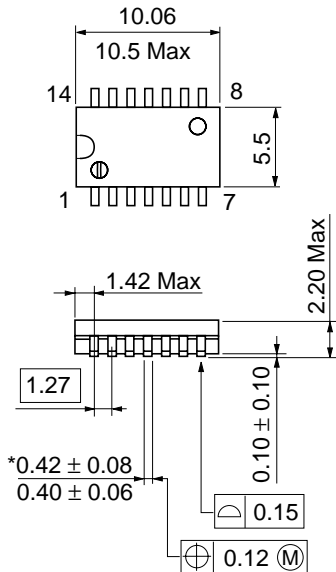
## SWITCHING CHARACTERISTICS ( $V_{CC}=5\text{V}$ , $T_a=25^\circ\text{C}$ )

Item	Symbol	Inputs	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	A or B	Other inputs "L"	—	18	30	ns
	$t_{PHL}$			—	18	30	
	$t_{PLH}$	A or B	Other inputs "H"	—	18	30	ns
	$t_{PHL}$			—	18	30	

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

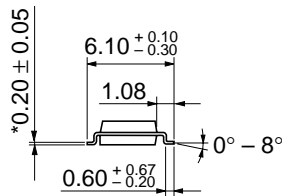
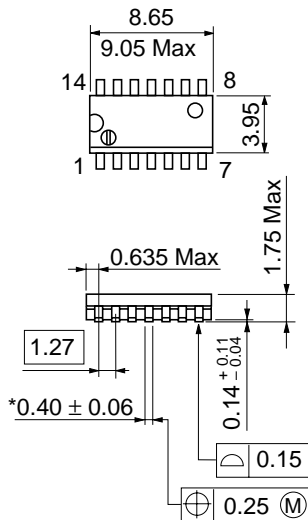


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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

\*Dimension including the plating thickness  
Base material dimension



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

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