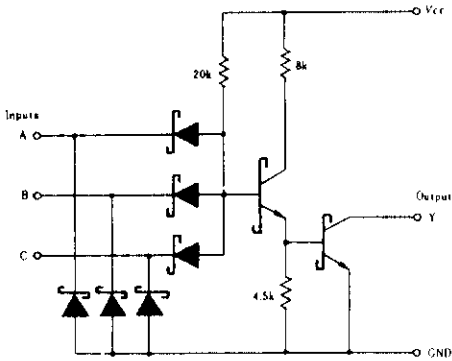
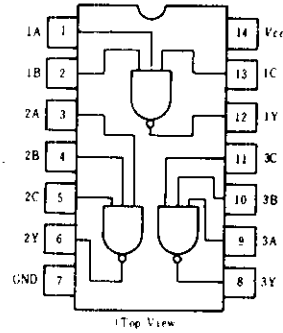


# HD74LS12 ● Triple 3-input Positive NAND Gates (with Open Collector Outputs)

## ■ CIRCUIT SCHEMATIC (1/3)



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

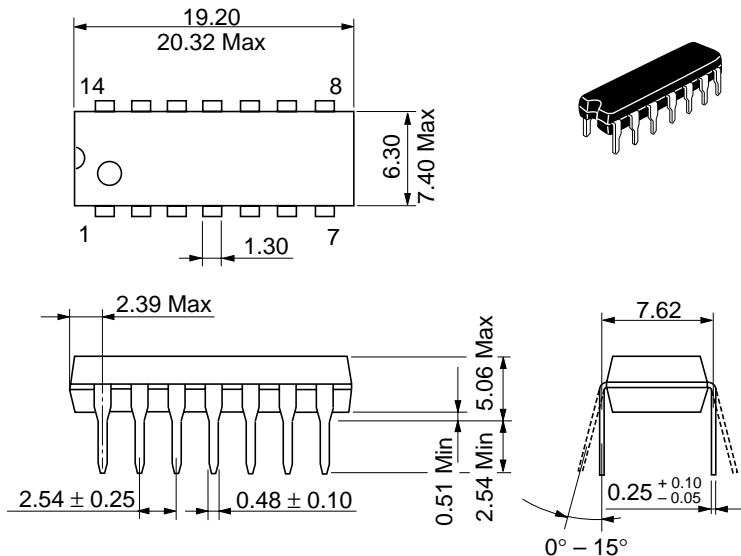
Item	Symbol	Test Conditions	min	typ*	max	Unit	
Input voltage	$V_{IH}$		2.0	—	—	V	
	$V_{IL}$		—	—	0.8	V	
Output voltage	$V_{OL}$	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}$	$I_{OL} = 8\text{mA}$	—	—	0.5	V
			$I_{OL} = 4\text{mA}$	—	—	0.4	
Output current	$I_{OH}$	$V_{CC} = 4.75\text{V}, V_{IL} = 0.8\text{V}, V_{OH} = 5.5\text{V}$	—	—	100	$\mu\text{A}$	
Input current	$I_{IH}$	$V_{CC} = 5.25\text{V}, V_I = 2.7\text{V}$	—	—	20	$\mu\text{A}$	
	$I_{IL}$	$V_{CC} = 5.25\text{V}, V_I = 0.4\text{V}$	—	—	-0.4	mA	
	$I_I$	$V_{CC} = 5.25\text{V}, V_I = 7\text{V}$	—	—	0.1	mA	
Supply current	$I_{CCH}$	$V_{CC} = 5.25\text{V}$	—	0.7	1.4	mA	
	$I_{CCL}$		—	1.8	3.3		
Input clamp voltage	$V_{IK}$	$V_{CC} = 4.75\text{V}, I_{IS} = -18\text{mA}$	—	—	-1.5	V	

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

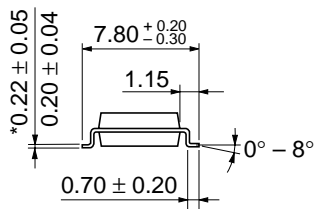
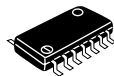
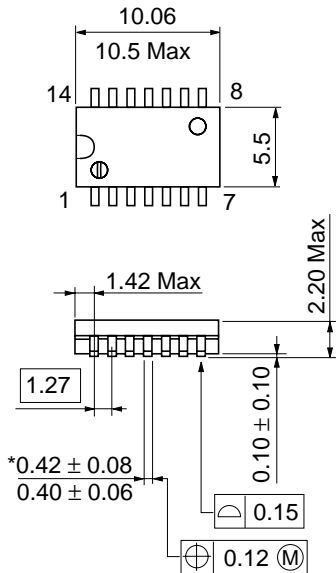
## ■ SWITCHING CHARACTERISTICS ( $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$ )

Item	Symbol	Test Conditions	min	typ	max	Unit
Propagation delay time	$t_{PLH}$	$C_L = 15\text{pF}, R_L = 2\text{k}\Omega$	—	17	32	ns
	$t_{PHL}$		—	15	28	

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

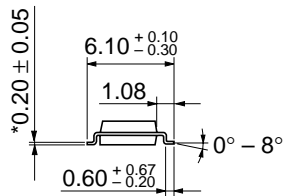
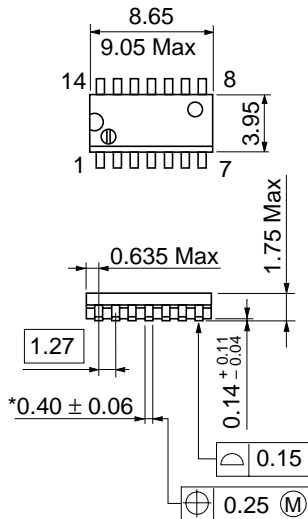


Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g



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

\*Pd plating

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