

# HD74HC149 ● 8-to-8-line Priority Encoder

The HD74HC149 is priority encoder which has 8 input lines (0~7) and 8 output lines ( $Y_0\sim Y_7$ ).

It is the logical combination of a HD74HC148 8-3 line priority encoder driving a HD74HC138 3-8 line decoder.

Only one request output can be low at a time. The output that is low is dependent on the highest priority request that is low. The order of priority is 7 highest and 0 lowest.

When  $\bar{E}$  input is high, all outputs are high.

When a output ( $Y_0\sim Y_7$ ) is low,  $\bar{P}$  output is low and this indicates active condition.

## FEATURES

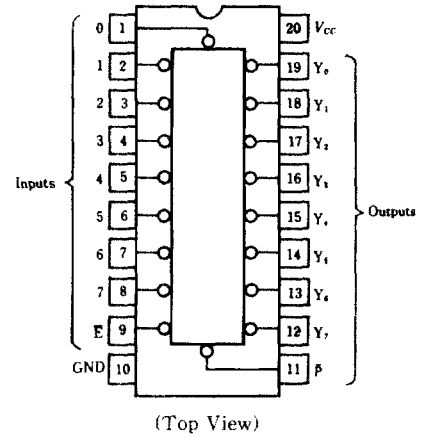
- High Speed Operation :  $t_{pd}$  (0~7 to Y)=16ns  $t_{p}(C_L=50pF)$
- High Output Current : Funout of 10 LSTTL Loads
- Wide Operating Voltage :  $V_{CC}=2\sim 6V$
- Low input current :  $I_{in}=\mu A$  max
- Low Quiescent Supply Current :  $I_{CC}$  (static)= $4\mu A$  max.  $G_a=25^\circ C$

## FUNCTION TABLE

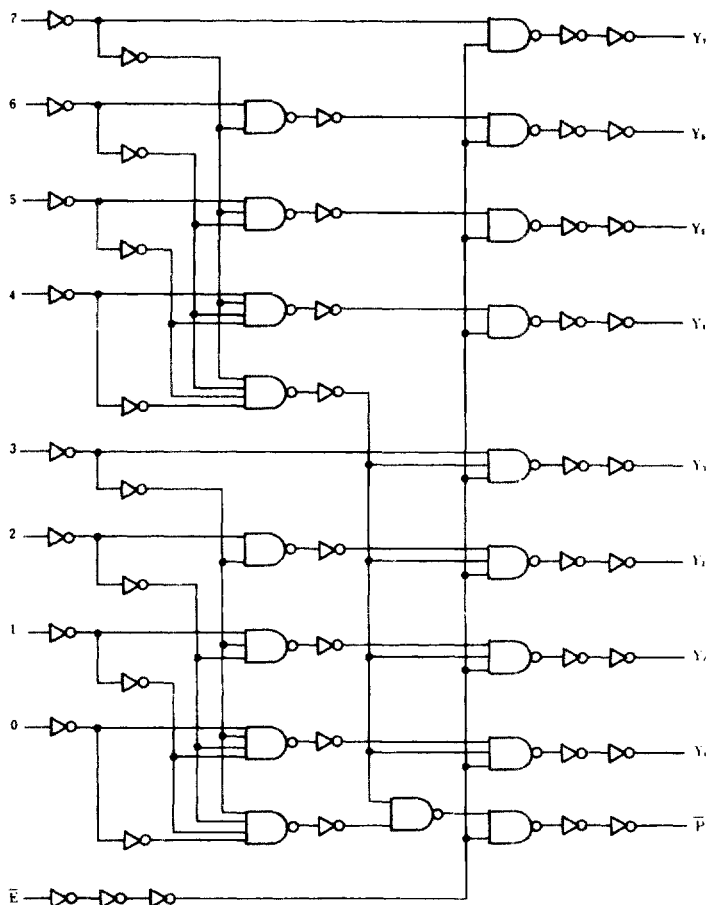
Input s									Output s								
0	1	2	3	4	5	6	7	$\bar{E}$	$Y_0$	$Y_1$	$Y_2$	$Y_3$	$Y_4$	$Y_5$	$Y_6$	$Y_7$	$\bar{P}$
X	X	X	X	X	X	X	X	H	H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
X	X	X	X	X	X	X	L	L	H	H	H	H	H	H	H	L	L
X	X	X	X	X	X	L	H	L	H	H	H	H	H	L	H	H	L
X	X	X	X	L	H	H	H	L	H	H	H	L	H	H	H	H	L
X	X	X	L	H	H	H	H	L	H	H	L	H	H	H	H	H	L
X	L	H	H	H	H	H	H	L	H	L	H	H	H	H	H	H	L
L	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H	H	L

H : High level  
L : Low level  
X : Irrelevant

## PIN ARRANGEMENT



LOGIC DIAGRAM



DC CHARACTERISTICS

Item	Symbol	V <sub>CC</sub> (V)	Test Condition	T <sub>a</sub> = 25°C			T <sub>a</sub> = -40 ~ +85°C		Unit	
				min.	typ.	max.	min.	max.		
Input Voltage	V <sub>IH</sub>	2.0		1.5	-	-	1.5	-	V	
		4.5		3.15	-	-	3.15	-		
		6.0		4.2	-	-	4.2	-		
	V <sub>IL</sub>	2.0		-	-	0.5	-	0.5	V	
		4.5		-	-	1.35	-	1.35		
		6.0		-	-	1.8	-	1.8		
Output Voltage	V <sub>OH</sub>	2.0	V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OH</sub> = -20 μA	1.9	2.0	-	1.9	-	V
		4.5			4.4	4.5	-	4.4	-	
		6.0			5.9	6.0	-	5.9	-	
		4.5		I <sub>OH</sub> = -4 mA	4.18	-	-	4.13	-	
		6.0		I <sub>OH</sub> = -5.2 mA	5.68	-	-	5.63	-	
		V <sub>OL</sub>		2.0	V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OL</sub> = 20 μA	-	0.0	0.1	
	4.5		-	0.0			0.1	-	0.1	
	6.0		-	0.0			0.1	-	0.1	
	4.5		I <sub>OL</sub> = 4 mA	-		-	0.26	-	0.33	
	6.0		I <sub>OL</sub> = 5.2 mA	-		-	0.26	-	0.33	
	Input Current		I <sub>in</sub>	6.0		V <sub>in</sub> = V <sub>CC</sub> or GND	-	-	±0.1	-
	Quiescent Supply Current	I <sub>CC</sub>	6.0	V <sub>in</sub> = V <sub>CC</sub> or GND, I <sub>OH</sub> = 0 μA	-	-	4.0	-	40	μA

■ AC CHARACTERISTICS (C<sub>L</sub>=50pF, Input tr=tf=6μs)

Item	Symbol	V <sub>CC</sub> (V)	Test Conditions	T <sub>a</sub> =25℃			T <sub>a</sub> =-40~+85℃		Unit	
				min.	typ.	max.	min.	max.		
Propagation Delay Time	t <sub>PLH</sub> t <sub>PHL</sub>	2.0	0~7 to Y, $\bar{P}$	-	-	140	-	175	ns	
		4.5		-	16	28	-	35		
		6.0		-	-	24	-	30		
	t <sub>PLH</sub> t <sub>PHL</sub>	2.0		$\bar{E}$ to Y, $\bar{P}$	-	-	155	-	195	ns
		4.5			-	13	31	-	39	
		6.0			-	-	26	-	33	
Output rise / full Time	t <sub>TLH</sub> t <sub>THL</sub>	2.0			-	-	75	-	95	ns
		4.5			-	5	15	-	19	
		6.0			-	-	13	-	16	
Input Capacitance	C <sub>i</sub>	-			-	5	10	-	10	pF