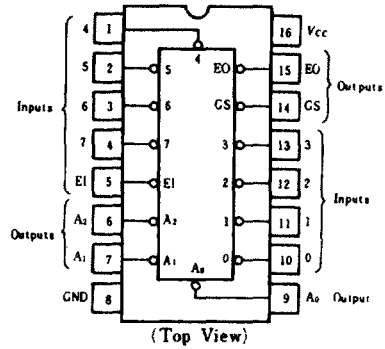


HD74HC148 ● 8-to-3-line Octal Priority Encoder

The HD74HC148 encodes eight data lines to three-line (4-2-1) binary (octal). Cascading circuitry (enable input EI and enable output EO) is provided to allow octal expansion without the need for external circuitry. The data inputs and outputs are active at the low logic level.

■ PIN ARRANGEMENT



■ FEATURES

- High Speed Operation: t_{pd} (0~7 to $A_0 \sim A_2$) = 15ns typ. ($C_L = 50pF$)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2 \sim 6V$
- Low Input Current: $1\mu A$ max.
- Low Quiescent Supply Current: I_{CC} (static) = $4\mu A$ max. ($T_B = 25^\circ C$)

■ FUNCTION TABLE

EI	Inputs								Outputs				
	0	1	2	3	4	5	6	7	A ₂	A ₁	A ₀	GS	EO
H	X	X	X	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	H	H	L	L	H
L	X	X	X	X	L	H	H	H	L	H	L	L	H
L	X	X	L	H	H	H	H	H	H	L	H	L	H
L	X	L	H	H	H	H	H	H	H	H	L	L	H
L	L	H	H	H	H	H	H	H	H	H	H	L	H

H; high level. L; low level, X; irrelevant

■ DC CHARACTERISTICS

Item	Symbol	$V_{CC}(V)$	Test Conditions	$T_a = 25^\circ C$			$T_a = -40 \sim +85^\circ C$		Unit	
				min	typ	max	min	max		
Input Voltage	V_{IH}	2.0		1.5	—	—	1.5	—	V	
		4.5		3.15	—	—	3.15	—		
		6.0		4.2	—	—	4.2	—		
	V_{IL}	2.0		—	—	0.5	—	0.5	V	
		4.5		—	—	1.35	—	1.35		
		6.0		—	—	1.8	—	1.8		
Output Voltage	V_{OH}	2.0	$V_{iN} = V_{IH}$ or V_{IL}	$I_{OH} = -20\mu A$	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		$I_{OH} = -4mA$	4.18	—	—	4.13	—	
		6.0		$I_{OH} = -5.2mA$	5.68	—	—	5.63	—	
		V_{OL}		2.0	$V_{iN} = V_{IH}$ or V_{IL}	$I_{OL} = 20\mu A$	—	0.0	0.1	
	4.5		—	0.0			0.1	—	0.1	
	6.0		—	0.0			0.1	—	0.1	
	4.5		$I_{OL} = 4mA$	—			—	0.26	—	0.33
	6.0	$I_{OL} = 5.2mA$	—	—	0.26	—	0.33			
Input Current	I_{iN}	6.0	$V_{iN} = V_{CC}$ or GND	—	—	± 0.1	—	± 1.0	μA	
Quiescent Supply Current	I_{CC}	6.0	$V_{iN} = V_{CC}$ or GND, $I_{oN} = 0\mu A$	—	—	4.0	—	40	μA	

■ AC CHARACTERISTICS ($C_L=50\text{pF}$, Input $t_r=t_f=6\text{ns}$)

Item	Symbol	$V_{CC}(\text{V})$	Test Conditions	$T_a=25^\circ\text{C}$			$T_a=-40\sim+85^\circ\text{C}$		Unit
				min	typ	max	min	max	
Propagation Delay Time	t_{PLH} t_{PHL}	2.0	0 ~ 7 to $A_0\sim A_2$	—	—	230	—	290	ns
		4.5		—	15	46	—	58	
		6.0		—	—	39	—	49	
	t_{PLH} t_{PHL}	2.0	0 ~ 7 to EO	—	—	250	—	315	ns
		4.5		—	16	50	—	63	
		6.0		—	—	43	—	54	
	t_{PLH} t_{PHL}	2.0	0 ~ 7 to GS	—	—	270	—	340	ns
		4.5		—	18	54	—	68	
		6.0		—	—	46	—	58	
	t_{PLH} t_{PHL}	2.0	EI to $A_0\sim A_2$	—	—	230	—	290	ns
		4.5		—	12	46	—	58	
		6.0		—	—	39	—	49	
	t_{PLH} t_{PHL}	2.0	EI to GS	—	—	250	—	315	ns
		4.5		—	12	50	—	63	
		6.0		—	—	43	—	54	
	t_{PLH} t_{PHL}	2.0	EI to EO	—	—	270	—	340	ns
		4.5		—	12	54	—	68	
		6.0		—	—	46	—	58	
Output Rise/Fall Time	t_{rLH} t_{rHL}	2.0		—	—	75	—	90	ns
		4.5		—	5	15	—	19	
		6.0		—	—	13	—	16	
Input Capacitance	C_{in}	—		—	5	10	—	10	pF