

HD14532B

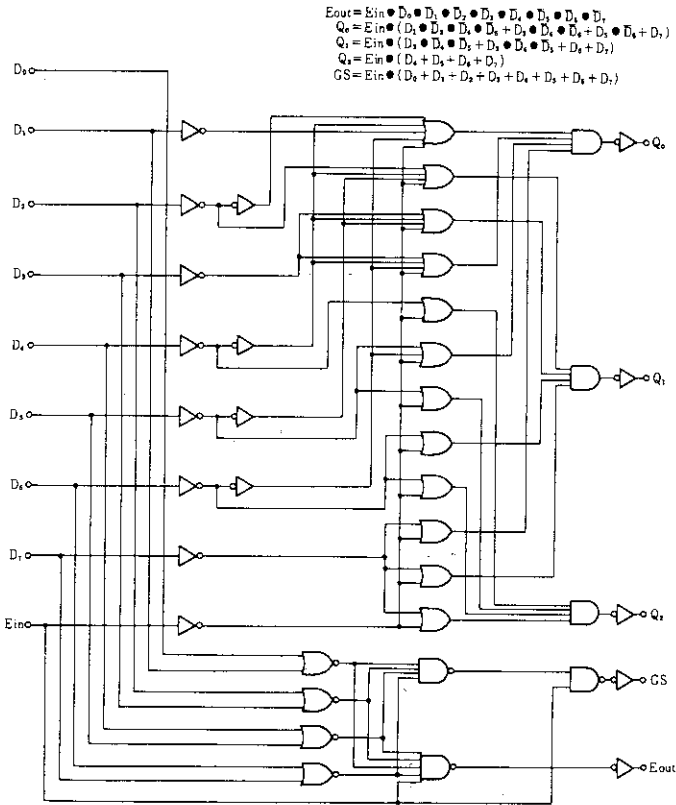
8-bit Priority Encoder

The HD14532B priority encoder is to provide a binary address for the active input with the highest priority. Eight data inputs (D0 thru D7) and an enable input (Ein) are provided. Five outputs are available, three are address outputs (Q0 thru Q2), one group select (GS) and one enable output (Eout).

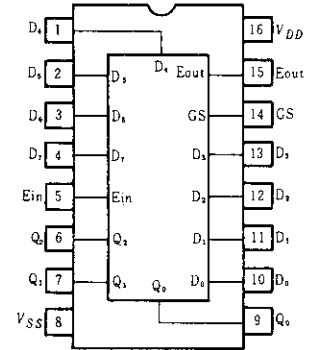
FEATURES

- Quiescent Current = 5nA/pkg typ. @5V
- Noise Immunity = 45% of V_{DD} typ.
- Low Input Capacitance = 5pF typ.
- Supply Voltage Range = 3 to 18V
- Capable of Driving One Low-power Schottky TTL Load Over the Rated Temperature Range

LOGIC DIAGRAM



PIN ARRANGEMENT



(Top View)

TRUTH TABLE

		Inputs								Outputs				
	E_{in}	D_7	D_6	D_5	D_4	D_3	D_2	D_1	D_0	GS	Q_2	Q_1	Q_0	E_{out}
0	x	x	x	x	x	x	x	x	x	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	x	x	x	x	x	x	x	x	1	1	1	1	0
1	0	1	x	x	x	x	x	x	x	1	1	1	0	0
1	0	0	1	x	x	x	x	x	x	1	1	0	1	0
1	0	0	0	1	x	x	x	x	x	1	1	0	0	0
1	0	0	0	0	1	x	x	x	x	1	0	1	1	0
1	0	0	0	0	0	1	x	x	x	1	0	0	1	0
1	0	0	0	0	0	0	1	x	x	1	0	0	0	0
1	0	0	0	0	0	0	0	1	1	1	0	0	0	0

x = Don't Care

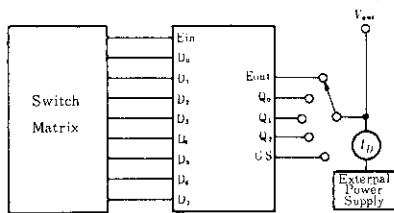
■ ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	$V_{DD}(V)$	Test Conditions	-40°C		25°C			85°C		Unit
				min	max	min	typ	max	min	max	
Output Voltage	V_{OL}	5.0	$V_{in} = V_{DD}$ or 0	—	0.05	—	0	0.05	—	0.05	V
		10		—	0.05	—	0	0.05	—	0.05	
		15		—	0.05	—	0	0.05	—	0.05	
	V_{OH}	5.0	$V_{in} = 0$ or V_{DD}	4.95	—	4.95	5.0	—	4.95	—	V
		10		9.95	—	9.95	10	—	9.95	—	
		15		14.95	—	14.95	15	—	14.95	—	
Input Voltage	V_{IL}	5.0	$V_{out} = 4.5$ or $0.5V$	—	1.5	—	2.25	1.5	—	1.5	V
		10	$V_{out} = 9.0$ or $1.0V$	—	3.0	—	4.50	3.0	—	3.0	
		15	$V_{out} = 13.5$ or $1.5V$	—	4.0	—	6.75	4.0	—	4.0	
	V_{IH}	5.0	$V_{out} = 0.5$ or $4.5V$	3.5	—	3.5	2.75	—	3.5	—	V
		10	$V_{out} = 1.0$ or $9.0V$	7.0	—	7.0	5.50	—	7.0	—	
		15	$V_{out} = 1.5$ or $13.5V$	11.0	—	11.0	8.25	—	11.0	—	
Output Drive Current	I_{OH}	5.0	$V_{OH} = 2.5V$	-1.0	—	-0.8	-1.7	—	-0.6	—	mA
		5.0	$V_{OH} = 4.6V$	-0.2	—	-0.16	-0.36	—	-0.12	—	
		10	$V_{OH} = 9.5V$	-0.5	—	-0.4	-0.9	—	-0.3	—	
		15	$V_{OH} = 13.5V$	-1.4	—	-1.2	-3.5	—	-1.0	—	
	I_{OL}	5.0	$V_{OL} = 0.4V$	0.52	—	0.44	0.88	—	0.36	—	mA
		10	$V_{OL} = 0.5V$	1.3	—	1.1	2.25	—	0.9	—	
15		$V_{OL} = 1.5V$	3.6	—	3.0	8.8	—	2.4	—		
Input Current	I_{in}	15		—	± 0.3	—	± 0.0001	± 0.3	—	± 1.0	μA
Input Capacitance	C_{in}		$V_{in} = 0$	—	—	—	5.0	7.5	—	—	pF
Quiescent Current	I_{DD}	5.0	Zero Signal, per Package	—	20	—	0.005	20	—	150	μA
		10		—	40	—	0.010	40	—	300	
		15		—	80	—	0.015	80	—	600	
Total Supply Current*	I_T	5.0	Dynamic $\div I_{DD}$, per Gate $C_L = 50pF, f = 1kHz$	—	—	—	1.74	—	—	—	μA
		10		—	—	—	3.65	—	—	—	
		15		—	—	—	5.73	—	—	—	

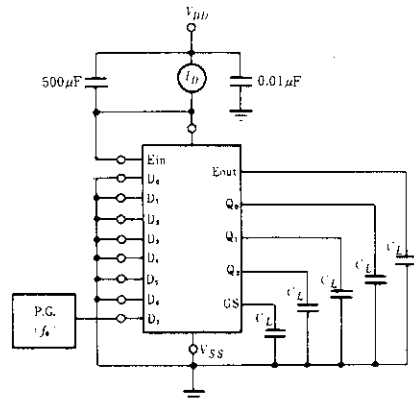
* To calculate total supply current at frequency other than 1kHz.
 @ $V_{DD} = 5.0V$ $I_T = (1.74\mu A/kHz)f + I_{DD}$. @ $V_{DD} = 10V$ $I_T = (3.65\mu A/kHz)f + I_{DD}$. @ $V_{DD} = 15V$ $I_T = (5.73\mu A/kHz)f + I_{DD}$

■ DC CHARACTERISTIC TEST CIRCUIT

● I_{OH}, I_{OL}



● Typical Power Dissipation

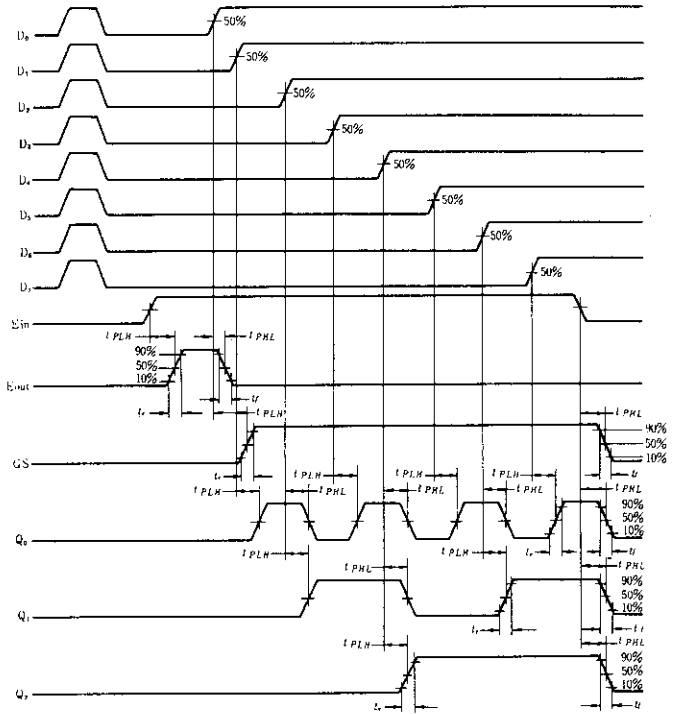
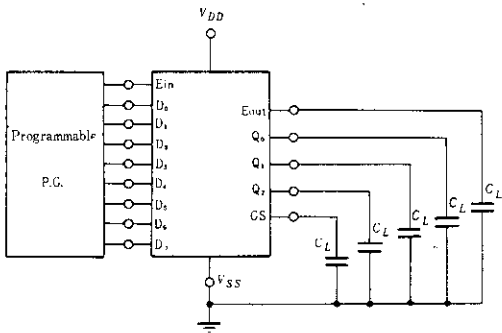


Output Under Test	I_{OL}		I_{OH}		
	$V_{GS} = V_{DD}, V_{DS} = V_{out}$		$V_{GS} = -V_{DD}, V_{DS} = V_{out} - V_{DD}$		
	$D_0 \sim D_7$	E_{in}	$D_0 \sim D_6$	D_7	E_{in}
E_{out}	×	0	0	0	1
Q_0	×	0	0	1	1
Q_1	×	0	0	1	1
Q_2	×	0	0	1	1
GS	×	0	0	1	1

■ SWITCHING CHARACTERISTICS ($C_L=50\text{pF}$, $T_a=25^\circ\text{C}$)

Characteristic		Symbol	V_{DD} (V)	min	typ	max	Unit
Output Rise Time		t_r	5.0	—	180	400	ns
			10	—	90	200	
			15	—	65	160	
Output Fall Time		t_f	5.0	—	100	200	ns
			10	—	50	100	
			15	—	37	80	
Propagation Delay Time	Ein to Eout		5.0	—	205	475	ns
			10	—	110	250	
			15	—	80	190	
	Ein to GS		5.0	—	175	400	
			10	—	90	200	
			15	—	65	155	
	Ein to Qn	t_{PLH} , t_{PHL}	5.0	—	280	650	
			10	—	140	325	
			15	—	100	250	
	Dn to Qn		5.0	—	300	720	
			10	—	170	350	
			15	—	110	265	
Dn to GS		5.0	—	280	650		
		10	—	140	325		
		15	—	100	250		

■ SWITCHING TIME TEST CIRCUIT



Note) Input rise and fall times are 20ns



Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g

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