

# HD14532B

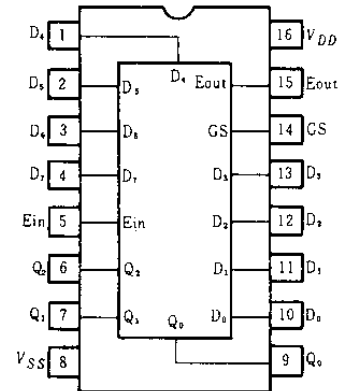
## 8-bit Priority Encoder

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

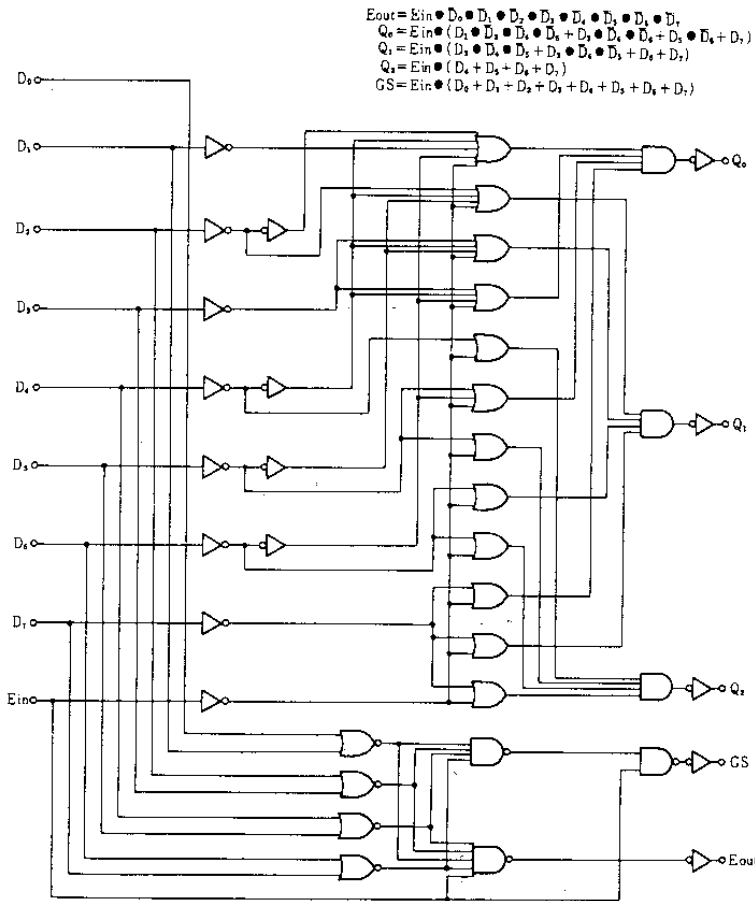
- Quiescent Current = 5nA/pkg typ. @5V
- Noise Immunity = 45% of  $V_{DD}$  typ.
- Low Input Capacitance = 5pF typ.
- Supply Voltage Range = 3 to 18V
- Capable of Driving One Low-power Schottky TTL Load Over the Rated Temperature Range

### PIN ARRANGEMENT



(Top View)

### LOGIC DIAGRAM



### TRUTH TABLE

Inputs									Outputs				
Ein	D7	D6	D5	D4	D3	D2	D1	D0	GS	Q2	Q1	Q0	Eout
0	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	1
1	1	x	x	x	x	x	x	x	1	1	1	1	0
1	0	1	x	x	x	x	x	x	1	1	1	0	0
1	0	0	1	x	x	x	x	x	1	1	0	1	0
1	0	0	0	1	x	x	x	x	1	1	0	0	0
1	0	0	0	0	1	x	x	x	1	0	1	1	0
1	0	0	0	0	0	1	x	x	1	0	0	1	0
1	0	0	0	0	0	0	1	1	1	0	0	0	0

x = Don't Care

**ELECTRICAL CHARACTERISTICS**

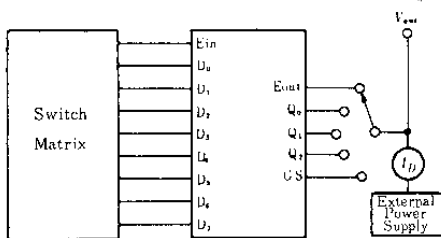
Characteristic	Symbol	Test Conditions	-40°C		25°C			85°C		Unit		
			min	max	min	typ	max	min	max			
Output Voltage	$V_{OL}$	$V_{DD}(V)$										
		5.0	$V_{in}=V_{DD}$ or 0		-	0.05	-	0	0.05	-	0.05	
		10			-	0.05	-	0	0.05	-	0.05	
	15			-	0.05	-	0	0.05	-	0.05		
	$V_{OH}$	5.0	$V_{in}=0$ or $V_{DD}$		4.95	-	4.95	5.0	-	4.95	-	
		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	
		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	-	
		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	-	
		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	-	
		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			-	$\pm 0.3$	-	$\pm 0.00001$	$\pm 0.3$	-	$\pm 1.0$	$\mu A$
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	$\mu A$
		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		-	-	-	1.74	-	-	-	$\mu A$
		10	$C_L=50pF, f=1kHz$		-	-	-	3.65	-	-	-	
		15			-	-	-	5.73	-	-	-	

\* To calculate total supply current at frequency other than 1kHz.

@ $V_{DD}=5.0V$   $I_T=(1.74\mu A/kHz)f+I_{DD}$ . @ $V_{DD}=10V$   $I_T=(3.65\mu A/kHz)f+I_{DD}$ . @ $V_{DD}=15V$   $I_T=(5.73\mu A/kHz)f+I_{DD}$

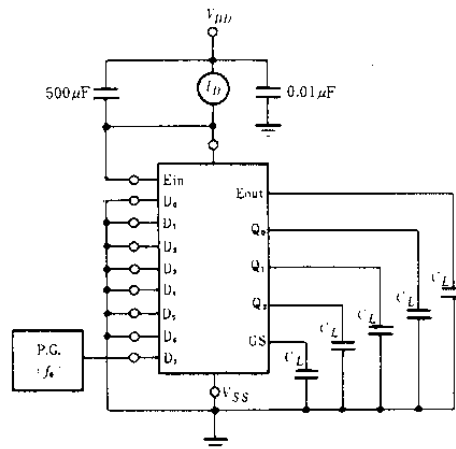
**DC CHARACTERISTIC TEST CIRCUIT**

●  $I_{OH}, I_{OL}$



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

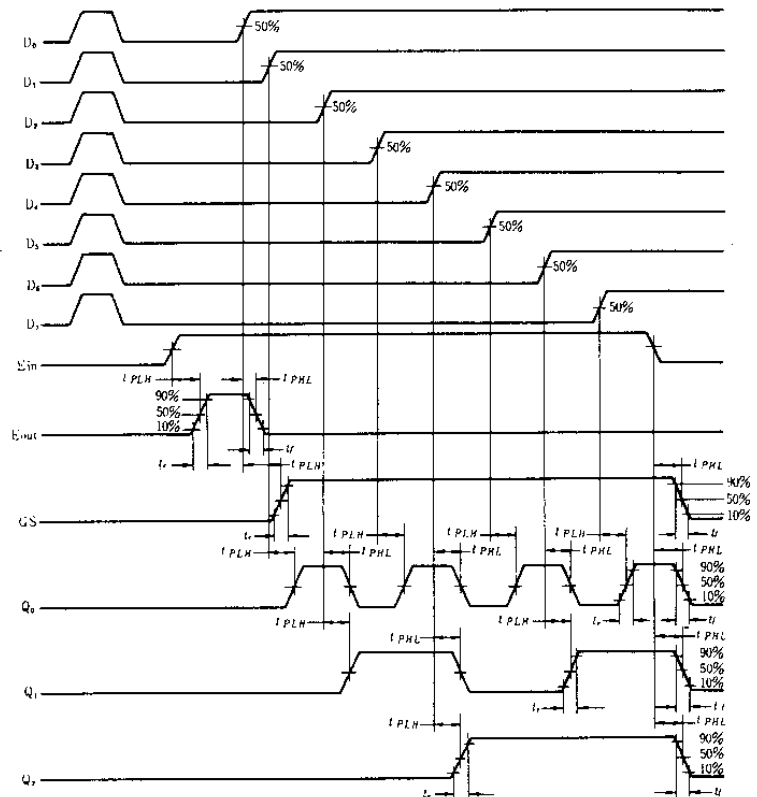
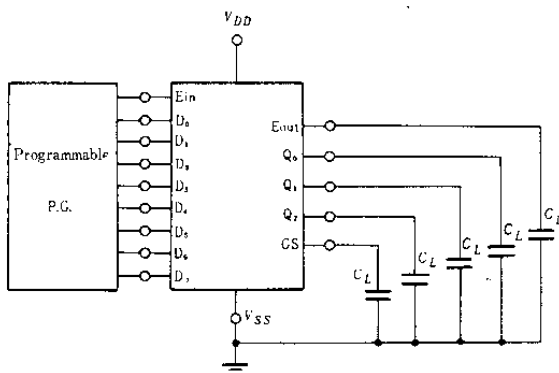
● Typical Power Dissipation



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

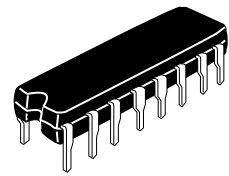
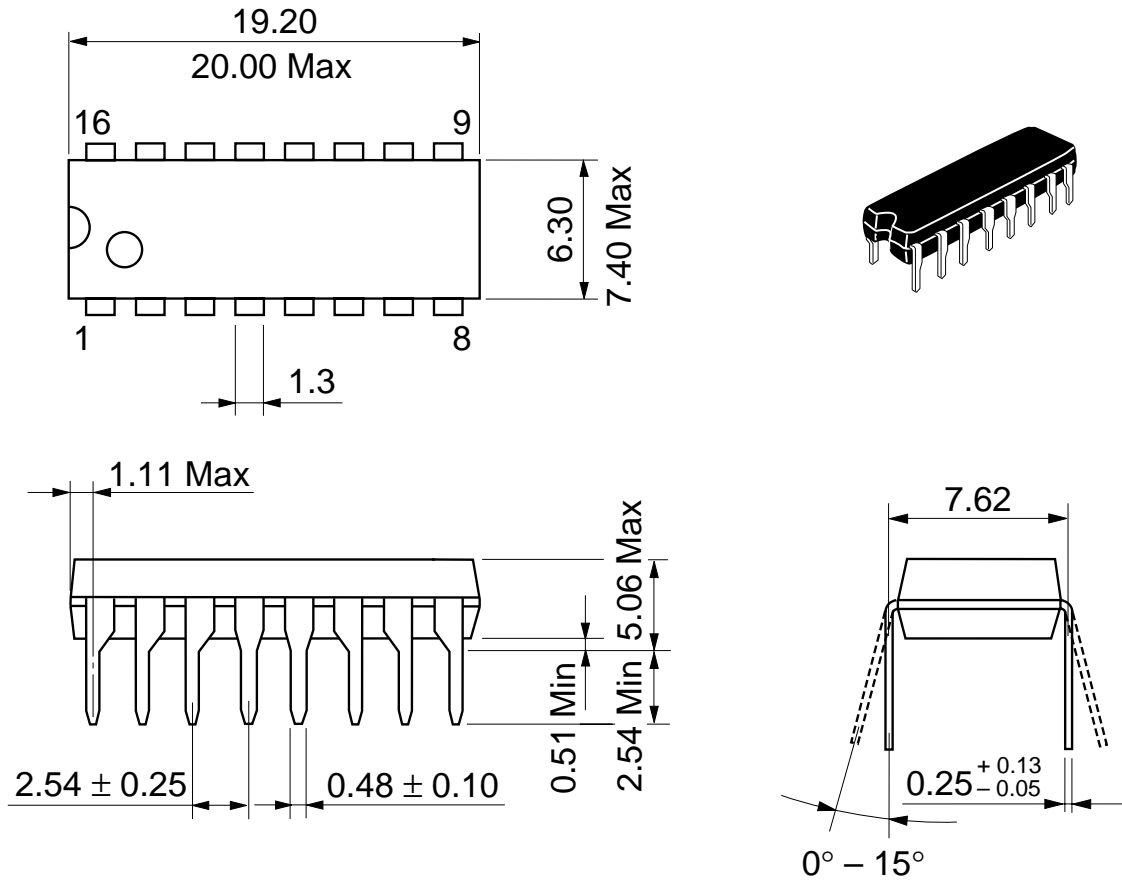
Characteristic		Symbol	$V_{DD}$ (V)	min	typ	max	Unit
Output Rise Time		$t_r$	5.0	—	180	400	ns
			10	—	90	200	
			15	—	65	160	
Output Fall Time		$t_f$	5.0	—	100	200	ns
			10	—	50	100	
			15	—	37	80	
Propagation Delay Time	Ein to Eout		5.0	—	205	475	ns
			10	—	110	250	
			15	—	80	190	
	Ein to GS		5.0	—	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

Unit: mm



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

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