

HM100494 Series

16384-word × 4-bit Fully Decoded Random Access Memory

Description

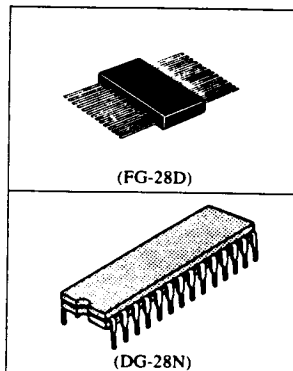
The HM100494 is ECL 100K compatible, 16384-word by 4-bits read/write random access memory developed for high speed systems such as scratch pads and control/buffer storage.

Features

- 16384-word × 4-bit organization
- Fully compatible with 100K ECL level
- Address access time: 10/12 ns (max)
- Write pulse width: 6 ns (min)
- Low power dissipation: 650 mW (typ)
- Output obtainable by wired-OR (open emitter)

Ordering Information

Type No.	Access Time	Package
HM100494-10	10 ns	400 mil 28-pin Cerdip
HM100494-12	12 ns	(DG-28N)
HM100494F-10	10 ns	28-pin Ceramic Flat
HM100494F-12	12 ns	(FG-28D)

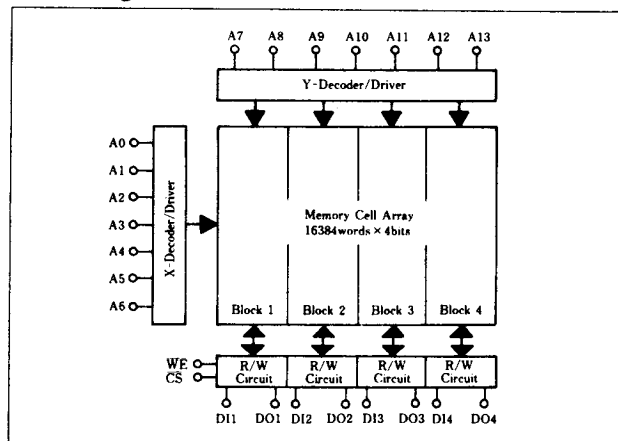


Function Table

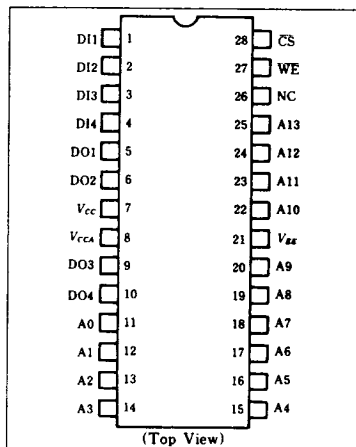
CS	Input		Output	Mode
	WE	Din		
H	x	x	L	Not Selected
L	L	L	L	Write "0"
L	L	H	L	Write "1"
L	H	x	Dout*1	Read

Notes: x; Irrelevant *1; Read Out Noninvert

Block Diagram



Pin Arrangement



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Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply Voltage	V_{EE} to V_{CC}	+0.5 to -7.0	V
Input Voltage	V_{in}	+0.5 to V_{EE}	V
Output Current	I_{out}	-30	mA
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$
Storage Temperature	T_{stg} (Bias) ^{1*}	-55 to +125	$^\circ\text{C}$

Note: *1: Under Bias

Electrical Characteristics**DC Characteristics** ($V_{EE} = -4.5\text{ V}$, $R_L = 50\text{ k}\Omega$ to -2.0 V , $T_a = 0$ to $+85^\circ\text{C}$, air flow exceeding 2 m/sec)

Item	Symbol	Min (B)	Typ	Max (A)	Unit	Test Condition
Output Voltage	V _{OH}	-1025	-955	-880	mV	V _{in} = V _{BHA} or V _{BLB}
	V _{OL}	-1810	-1715	-1620	mV	
Output Threshold Voltage	V _{OHC}	-1035	—	—	mV	V _{in} = V _{BHB} or V _{BLA}
	V _{OLC}	—	—	-1610	mV	
Input Voltage	V _{IH}	-1165	—	-880	mV	Guaranteed Input Voltage
	V _{IL}	-1810	—	-1475	mV	High/Low for All Inputs
Input Current	I _{IH}	—	—	220	μA	V _{in} = V _{BHA}
	I _{IL}	0.5	—	170	μA	V _{in} = V _{ILB}
		-50	—	—		CS
Supply Current	I _{EE}	-180	—	—	mA	Others
		All Inputs and Outputs Open				

AC Characteristics ($V_{EE} = -4.5\text{ V} \pm 5\%$, $T_a = 0$ to $+85^\circ\text{C}$, air flow exceeding 2 m/sec)**Read Mode**

Item	Symbol	HM100494-10			HM100494-12			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
Chip Select Access Time	t_{ACS}	—	—	6	—	—	8	ns	
Chip Select Recovery Time	t_{RCS}	—	—	6	—	—	8	ns	
Address Access Time	t_{AA}	—	—	10	—	—	12	ns	

Write Mode

Item	Symbol	HM100494-10			HM100494-12			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
Write Pulse Width	t_W	6	—	—	8	—	—	ns	$t_{WSA} = t_{WSA\text{ min}}$
Data Setup Time	t_{WSD}	2	—	—	2	—	—	ns	
Data Hold Time	t_{WHD}	2	—	—	2	—	—	ns	
Address Setup Time	t_{WSA}	2	—	—	2	—	—	ns	$t_W = t_W\text{ min}$
Address Hold Time	t_{WHA}	2	—	—	2	—	—	ns	
Chip Select Setup Time	t_{WSCS}	2	—	—	2	—	—	ns	
Chip Select Hold Time	t_{WHCS}	2	—	—	2	—	—	ns	
Write Disable Time	t_{WS}	—	—	6	—	—	8	ns	
Write Recovery Time	t_{WR}	—	—	12	—	—	14	ns	



Rise/Fall Time

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Output Rise Time	tr	—	2	—	ns	
Output Fall Time	tf	—	2	—	ns	

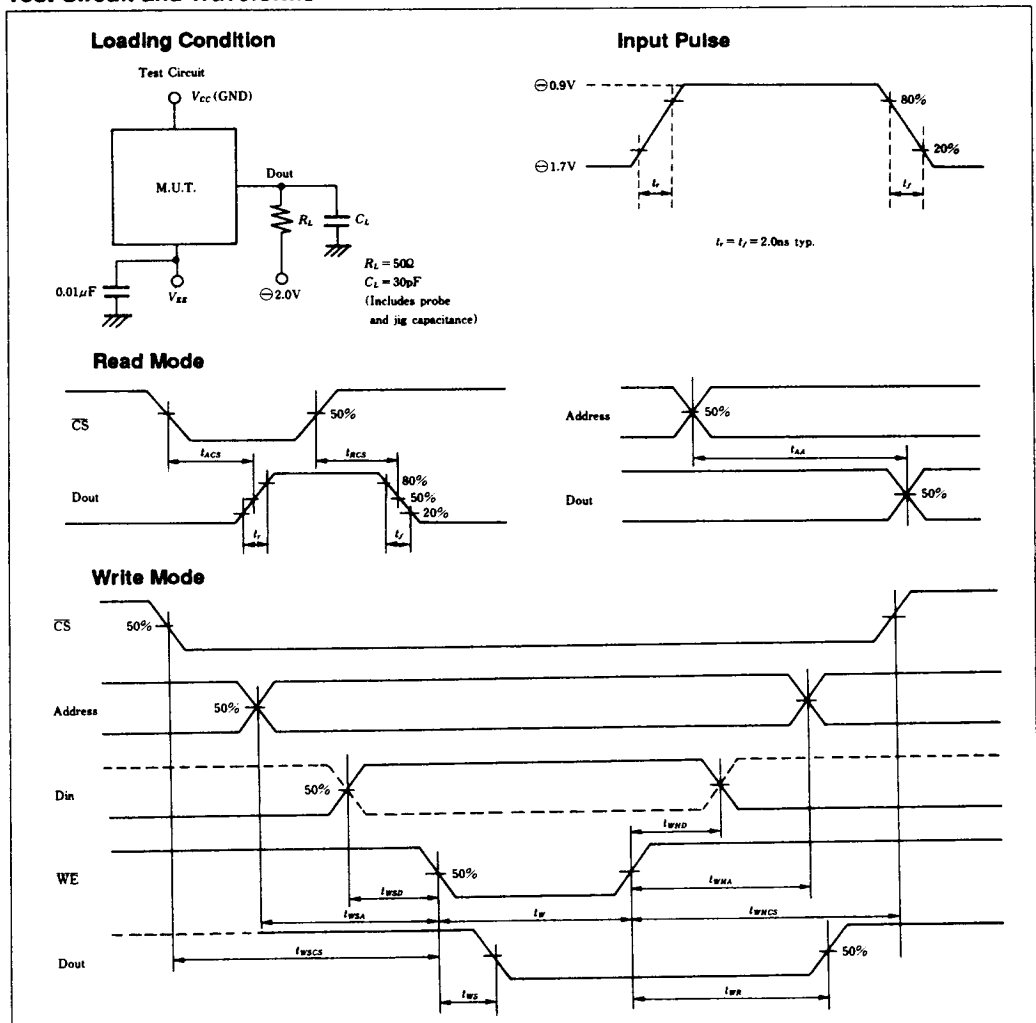
Capacitance

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Input Capacitance	Cin	—	3	—	pF	
Output Capacitance	Cout	—	5	—	pF	



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Test Circuit and Waveforms



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