

262,144-Word × 1-Bit Fully Decoded Random Access Memory

■ DESCRIPTION

The HM100500CG-18 is ECL 100K compatible, 262,144-word × 1-bit, read/write random access memory developed for high speed systems such as main memories for super computers.

■ FEATURES

- 262,144-Word × 1-Bit Organization
- Fully Compatible with 100K ECL Level
- Address Access Time 18ns (max.)
- Write Pulse Width 10ns (min.)
- Low Power Dissipation 500mW (typ.)
- Output Obtainable by Wired-OR (Open Emitter)

■ ORDERING INFORMATION

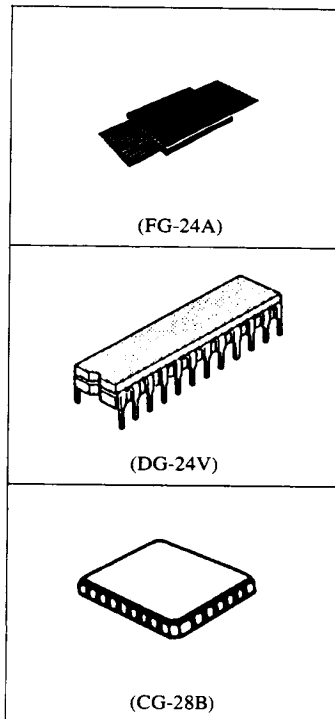
Type No.	Access Time	Package
HM100500-18	18ns	24 pin Cerdip (DG-24V)
HM100500CG-18	18ns	28 pin LCC (CG-28B)
HM100500F-18	18ns	24 pin Ceramic Flat (FG-24A)

■ FUNCTION TABLE

Input			Output	Mode
$\overline{CS}$	$\overline{WE}$	D_{in}		
H	X	X	L	Not Selected
L	L	L	L	Write "0"
L	L	H	L	Write "1"
L	H	X	D_{out}^{*1}	Read

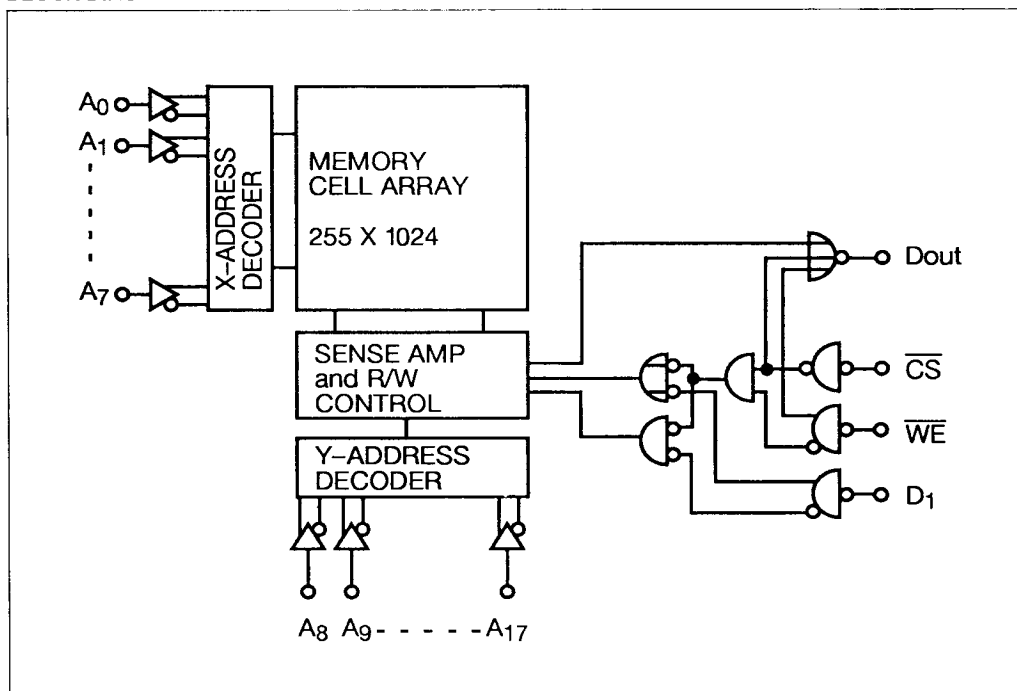
NOTES: X = Irrelevant

*1 = Read Out Noninvert

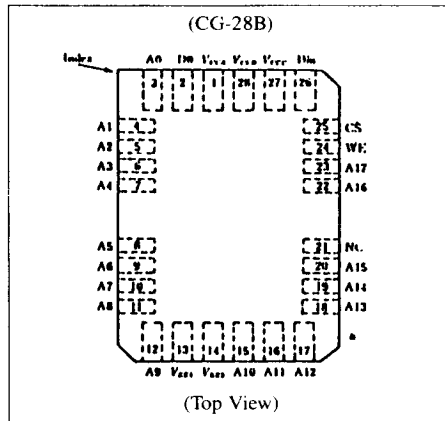
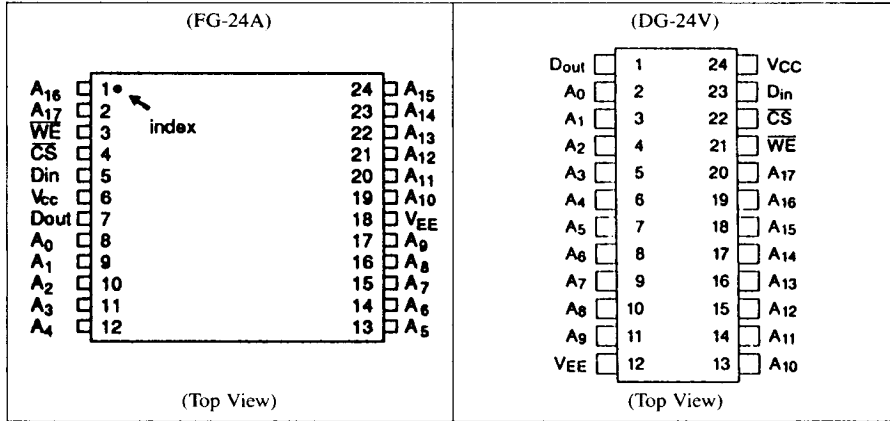


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BLOCK DIAGRAM



Pin Arrangement



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** ($V_{EE} = -4.5\text{ V}$, $R_L = 50\Omega$ 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 Conditions
Output Voltage	V_{OH}	-1025	-955	-880	mV	$V_{in} = V_{B1A}$ or V_{B1B}
	V_{OL}	-1810	-1715	-1620	mV	
Output Threshold Voltage	V_{OHC}	-1035	—	—	mV	$V_{in} = V_{B1B}$ or V_{B1A}
	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	$V_{in} = V_{B1A}$
	I_{IL}	0.5	—	170	μA	$V_{in} = V_{B1B}$ CS
		-50	—	—		Others
Supply Current	I_{EE}	-160	—	—	mA	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	Min	Typ	CG-18 Max	F-18 Max	Unit	Test Conditions
Chip Select Access Time	t_{ACS}	—	—	18	15	ns	
Chip Select Recovery Time	t_{RCS}	—	—	18	10	ns	
Address Access Time	t_{AA}	—	—	18	18	ns	

Write Mode

Item	Symbol	Min	Typ	CG-18 Max	F-18 Max	Unit	Test Conditions
Write Pulse Width	t_W	10	—	—	—	ns	$t_{WSA} = 2\text{ ns}$
Data Setup Time	t_{WSD}	2	—	—	—	ns	
Data Hold Time	t_{WHD}	3	—	—	—	ns	
Address Setup Time	t_{WSA}	2	—	—	—	ns	$t_W = 10\text{ ns}$
Address Hold Time	t_{WHA}	3	—	—	—	ns	
Chip Select Setup Time	t_{WSCS}	2	—	—	—	ns	
Chip Select Hold Time	t_{WHCS}	3	—	—	—	ns	
Write Disable Time	t_{WS}	—	—	15	10	ns	
Write Recovery Time	t_{WR}	—	—	21	21	ns	

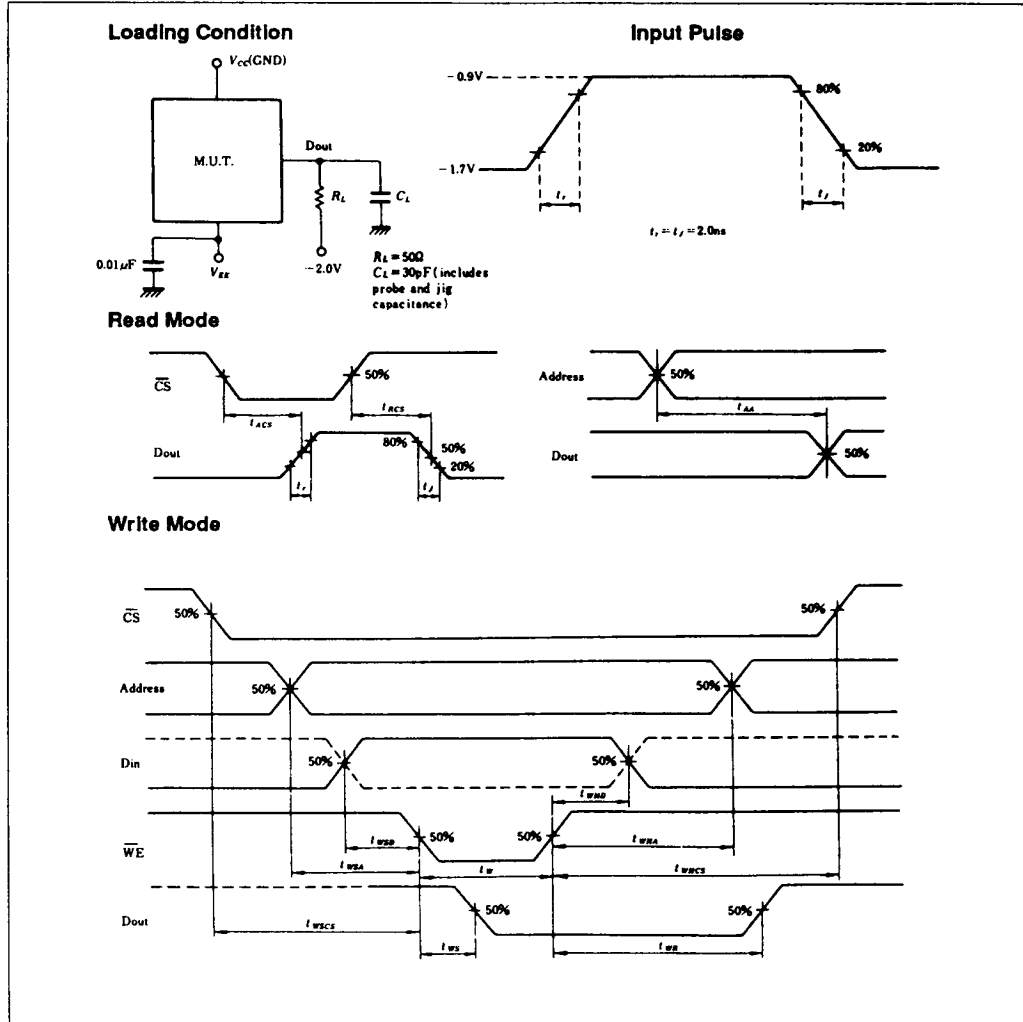


Rise/Fall Time

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Output Rise Time	t_r	—	2	—	ns	
Output Fall Time	t_f	—	2	—	ns	

Capacitance

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Input Capacitance	C_{in}	—	3	—	pF	
Output Capacitance	C_{out}	—	5	—	pF	

Test Circuit and Waveforms

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