

HM101490 Series

65536-Words × 1-Bit Fully Decoded Random Access Memory

■ DESCRIPTION

The HM101490 is ECL 100K compatible, 65536-words by 1-bit read/write random access memory developed for high speed systems such as scratch pads and control/buffer storage.

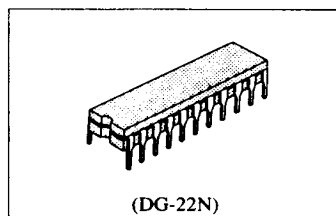
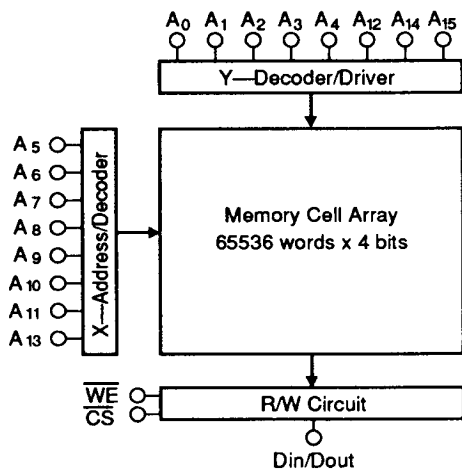
■ FEATURES

- 65536 × 1 Bit Organization
- Fully Compatible with 100K ECL Level
- Address Access Time 10/12ns (max.)
- Write Pulse Width 6/8ns (min.)
- Low Power Dissipation 570mW (typ.)
- Output Obtainable by Wired-OR (Open Emitter)

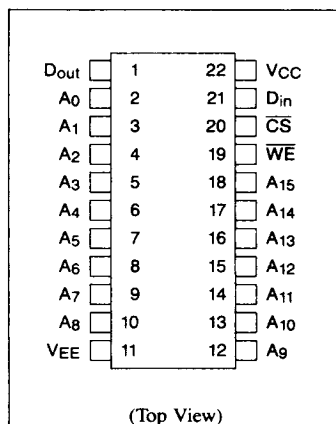
■ ORDERING INFORMATION

Type No.	Access Time	Package
HM101490-10	10ns	300 mil 22 pin Cerdip (DG-22N)
HM101490-12	12ns	

■ BLOCK DIAGRAM



■ PIN ARRANGEMENT



■ FUNCTION TABLE

Input			Output	Mode
CS	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} *	Read

NOTES: X = Irrelevant;
* = Read out noninvert



442 Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300

■ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply Voltage	V_{EE} to V_{CC}	+0.5 to $\Theta 7.0$	V
Input Voltage	V_{in}	+0.5 to $\Theta 3.0$	V
Output Current	I_{out}	$\Theta 30$	mA
Storage Temperature	T_{stg}	$\Theta 65$ to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}(\text{under bias})$	$\Theta 55$ to +125	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS

• DC Characteristics ($V_{EE} = -5.2\text{V}$, $R_L = 50\Omega$ to -2.0V , $T_a = 0$ to $+85^\circ\text{C}$, air flow exceeding 2m/sec.)

Item	Symbol	Test Condition	Min.(B)	Typ.	Max.(A)	Unit
Output Voltage	V_{OH}	$V_{in} = V_{IHA}$ or V_{ILB}	$\Theta 1025$	$\Theta 955$	$\Theta 880$	mV
	V_{OL}		$\Theta 1810$	$\Theta 1715$	$\Theta 1620$	mV
Output Threshold Voltage	V_{OHC}	$V_{in} = V_{IHB}$ or V_{ILA}	$\Theta 1035$	—	—	mV
	V_{OLC}		—	—	$\Theta 1610$	mV
Input Voltage	V_{IH}	Guaranteed Input Voltage High/Low for All Inputs	$\Theta 1165$	—	$\Theta 880$	mV
	V_{IL}		$\Theta 1810$	—	$\Theta 1475$	mV
Input Current	I_{IH}	$V_{in} = V_{IHA}$	—	—	220	μA
	I_{IL}	$V_{in} = V_{ILB}$	$\overline{\text{CS}}$	0.5	—	170
			Others	$\Theta 50$	—	μA
Supply Current	I_{EE}	All Inputs and Outputs Open	$\Theta 140$	—	—	mA

• AC Characteristics ($V_{EE} = -5.2\text{V} \pm 5\%$, $T_a = 0$ to $+85^\circ\text{C}$, air flow exceeding 2m/sec.)

1. Read Mode

Item	Symbol	Test Condition	HM101490-10			HM101490-12			Unit
			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

2. Write Mode

Item	Symbol	Test Condition	HM101490-10			HM101490-12			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Write Pulse Width	t_w	$t_{WSA} = t_{WSA} \text{ min.}$	6	—	—	8	—	—	ns
Data Setup Time	t_{WSD}	$t_w = t_w \text{ min.}$	2	—	—	2	—	—	ns
Data Hold Time	t_{WHD}		2	—	—	2	—	—	ns
Address Setup Time	t_{WSA}		2	—	—	2	—	—	ns
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



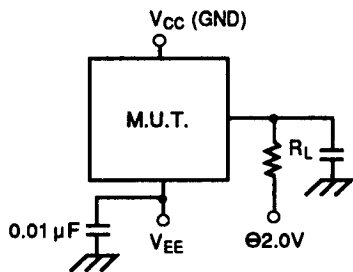
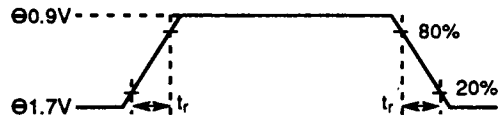
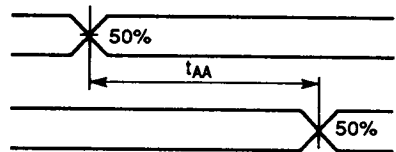
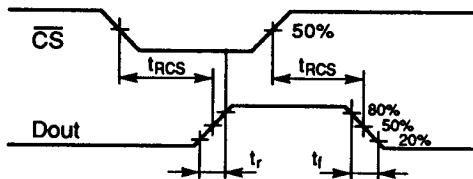
Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300 443

3. Rise/Fall Time

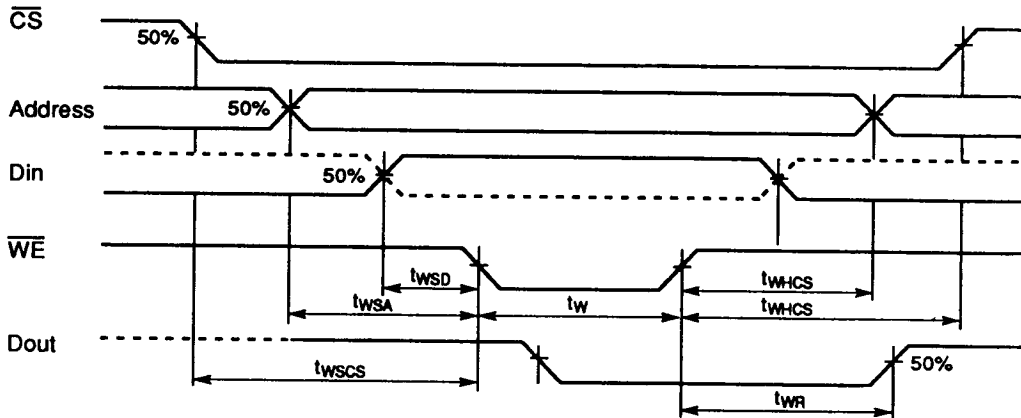
Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Rise Time	t_r		—	2	—	ns
Output Fall Time	t_f		—	2	—	ns

4. Capacitance

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

■ TEST CIRCUIT AND WAVEFORMS**1. Loading Condition****2. Input Pulse****3. Read Mode**

4. Write Mode



Hitachi America, Ltd. • Hitachi Plaza • 2000 Sierra Point Pkwy. • Brisbane, CA 94005-1819 • (415) 589-8300 445