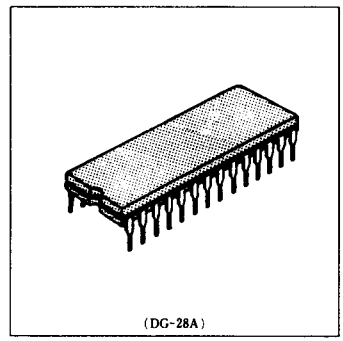
HM10484-10 — Preliminary

4096-words x 4-bit Fully Decoded Random Access Memory

The HM10484 is ECL 10K compatible, 4096-words by 4-bits read/write random access memory developed for high speed systems such as scratch pads and control/buffer storage.



Features

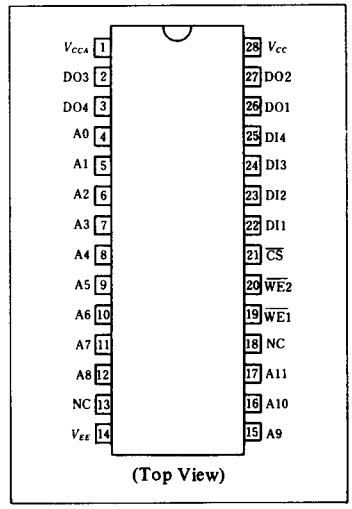
- 4096-word x 4-bits organization
- Very high speed address access time: 10ns (max)
- Write pulse width: 7ns (min)
- Power dissipation: 840mW
- Output obtainable by wired-OR

Function Table

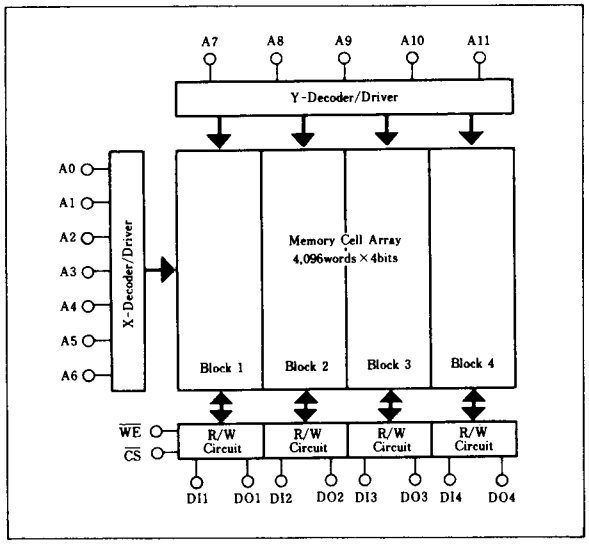
Input			Output	Mode
$\overline{CS}$	$\overline{WE}$	Din		
H	×	×	L	Not Selected
L	L	L	L	Write "0"
L	L	H	L	Write "1"
L	H	×	Dout *	Read

Notes) ×: Irrelevant
*: Read Out Nonivert

Pin Arrangement



Block Diagram



Note) The specifications of this device are subject to change without notice. Please contact your nearest Higashi's Sales Dept. regarding specifications.

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V_{EE} to V_{CC}	+0.5 to −7.0	V
Input Voltage	Vin	+0.5 to V_{EE}	V
Output Current	Iout	−30	mA
Storage Temperature	Tstg	−65 to +150	°C
Storage Temperature	Tstg(Bias)*	−55 to +125	°C

*Under Bias

Electrical Characteristics

DC Characteristics (V_{EE} = −5.2V, R_L = 50Ω to −2.0V, Ta = 0 to +75°C, air flow exceeding 2m/sec)

Item	Symbol	min(B)	typ	max(A)	Unit	Test Condition	
Output Voltage	V_{OH}	−1000	—	−840	mV	V_{IN} = V_{IHA} or V_{ILB}	0°C
		−960	—	−810			+25°C
		−900	—	−720			+75°C
	V_{OL}	−1870	—	−1665			0°C
		−1850	—	−1650			+25°C
		−1830	—	−1625			+75°C
Output Threshold Voltage	V_{OHC}	−1020	—	—	mV	V_{IN} = V_{IHB} or V_{ILA}	0°C
		−980	—	—			+25°C
		−920	—	—			+75°C
	V_{OLC}	—	—	−1645			0°C
		—	—	−1630			+25°C
		—	—	−1605			+75°C
Input Voltage	V_{IH}	−1145	—	−840	mV	Guaranteed Input Voltage High for All Inputs	0°C
		−1105	—	−810			+25°C
		−1045	—	−720			+75°C
	V_{IL}	−1870	—	−1490		Guaranteed Input Voltage Low for All Inputs	0°C
		−1850	—	−1475			+25°C
		−1830	—	−1450			+75°C
Input Current	I_{IH}	—	—	220	μA	V_{IN} = V_{IHA}	0 to +75°C
	I_{IL}	0.5	—	170		$\overline{CS}$ — V_{IN} = V_{ILB}	0 to +75°C
		−50	—	—		Others	
Supply Current	I_{EE}	−210	—	—	mA	All Inputs and Outputs Open. Test Pin 11	0°C
		−210	—	—			+75°C

AC Characteristics

(V_{EE} = −5.2V ±5%, Ta = 0 to +75°C, air flow exceeding 2m/sec)

Read Mode

Item	Symbol	min	typ	max	Unit	Test Condition
Chip Select Access Time	t_{ACS}	—	—	6	ns	
Chip Select recoverry Time	t_{RCS}	—	—	6	ns	
Address Access Time	t_{AA}	—	—	10	ns	

Write Mode

Item	Symbol	min	typ	max	Unit	Test Condition
Write Pulse Width	tw	7	—	—	ns	$t_{WSA}=t_{WSA}$ min
Data Setup Time	t_{WSD}	1	—	—	ns	
Data Hold Time	t_{WHD}	2	—	—	ns	
Address Setup Time	t_{WSA}	1	—	—	ns	tw=tw min
Address Hold Time	t_{WHA}	2	—	—	ns	
Chip Select Setup Time	t_{WSCS}	1	—	—	ns	
Chip Select Hold Time	t_{WHCS}	2	—	—	ns	
Write Disable Time	t_{WS}	—	—	6	ns	
Write Recovery Time	t_{WR}	—	—	12	ns	

Rise/Fall Time

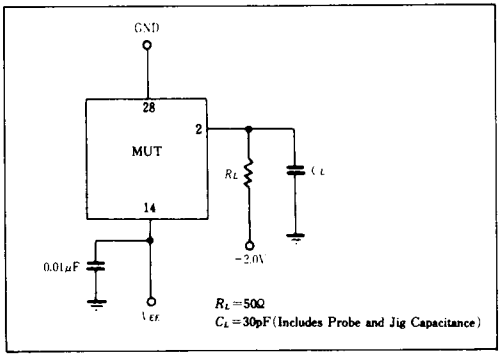
Item	Symbol	min(B)	typ	max(A)	Unit	Test Condition
Output Rise Time	t_r	—	2	—	ns	
Output Fall Time	t_f	—	2	—	ns	

Capacitance

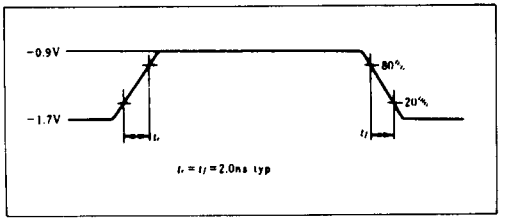
Item	Symbol	min(B)	typ	max(A)	Unit	Test Condition
Input Capacitance	Cin	—	3	—	pF	
Output Capacitance	Cout	—	5	—	pF	

Test Circuit and Waveforms

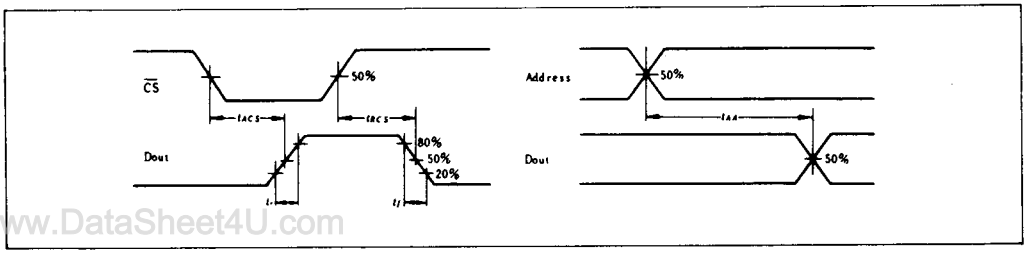
Loading Condition



Input Pulse



Read Mode



Write Mode