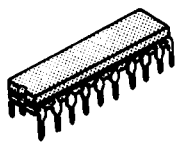
HM100480-15, HM100480F-15

16,384-words × 1-bit Fully Decoded Random Access Memory

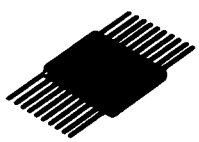
The HM100480-15 is ECL 100K compatible, 16,384-words x 1-bit, read/write random access memory developed for high speed systems such as scratch pads and control/buffer storages.
The fabrication process uses the Hitachi's U-groove isolation method.
The HM100480-15 is encapsulated in cerdip-20 pin and flat-20 pin package, compatible with Fairchild's 100480.

HM100480-15



(DG-20N)

HM100480F-15



(FG-20D)

■FEATURES

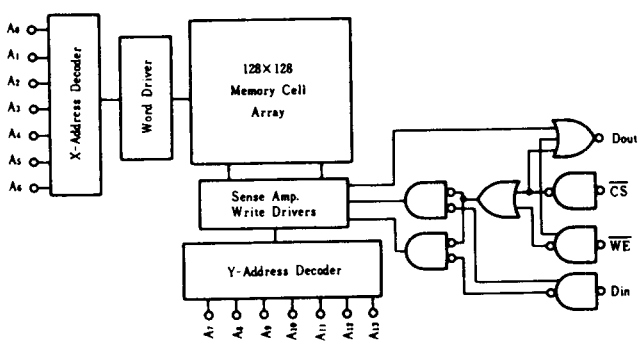
- 16,384-words x 1-bit organization
- Fully compatible with 100K ECL level
- Address access time: 15ns (max)
- Write pulse width: 15ns (min)
- Low power dissipation: 0.06mW/bit
- Output obtainable by wired-OR (open emitter)

■TRUTH TABLE

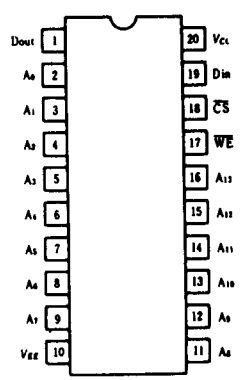
Input			Output	Mode
$\overline{CS}$	$\overline{WE}$	Din		
H	×	×	L	Not Selected
L	L	L	L	Write "0"
L	L	H	L	Write "1"
L	H	×	Dout*	Read

Notes) × : Irrelevant
* : Read Out Noninvert

■BLOCK DIAGRAM



■PIN ARRANGEMENT



(Top View)

■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	V_{in}	+0.5 to V_{EE}	V
Output Current	I_{out}	−30	mA
Storage Temperature	T_{stg}	−65 to +150	°C
Storage Temperature	T_{stg}(Bias)*	−55 to +125	°C

* Under Bias

■ELECTRICAL CHARACTERISTICS

●DC CHARACTERISTICS (V_{EE} = −4.5V, R_L = 50Ω to −2.0V, Ta = 0 to +85°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}		−1025	−955	−880	mV
	V_{OL}			−1810	−1715	−1620	mV
Output Threshold Voltage	V_{OHC}	V_{in} = V_{IHB} or V_{ILA}		−1035	—	—	mV
	V_{OLC}			—	—	−1610	mV
Input Voltage	V_{IH}	Guaranteed Input Voltage		−1165	—	−880	mV
	V_{IL}	High/Low for All Input		−1810	—	−1475	mV
Input Current	I_{IH}	V_{in} = V_{IHA}		—	—	220	μA
	I_{IL}	V_{in} = V_{ILB}	$\overline{CS}$	0.5	—	170	μA
			Others	−50	—	—	
Supply Current	I_{EE}	All Inputs and Outputs Open		−220	—	—	mA

●AC CHARACTERISTICS (V_{EE} = −4.5V ± 5%, Ta = 0 to +75°C, air flow exceeding 2m/sec)

1. READ MODE

Item	Symbol	Test Condition	min	typ	max	Unit
Chip Select Access Time	t_{ACS}		2	—	8	ns
Chip Select Recovery Time	t_{RCS}		2	—	8	ns
Address Access Time	t_{AA}		3	12	15	ns

2. WRITE MODE

Item	Symbol	Test Condition	min	typ	max	Unit
Write Pulse Width	t_W	t_{WSA} = 3ns	15	—	—	ns
Data Setup Time	t_{WSD}		2	—	—	ns
Data Hold Time	t_{WHD}		2	—	—	ns
Address Setup Time	t_{WSA}	t_W = t_W min	3	—	—	ns
Address Hold Time	t_{WHA}		3	—	—	ns
Chip Select Setup Time	t_{WSCS}		2	—	—	ns
Chip Select Hold Time	t_{WHCS}		2	—	—	ns
Write Disable Time	t_{WS}		—	—	12	ns
Write Recovery Time	t_{WR}		—	—	17	ns

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3. RISE/FALL TIME

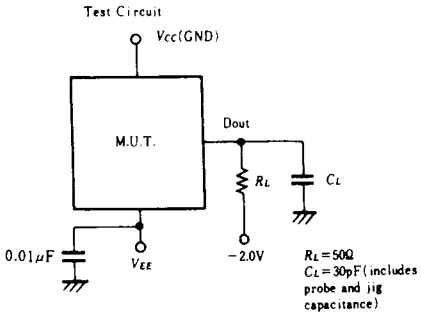
Item	Symbol	Test Condition	min	typ	max	Unit
Output Rise Time	t_r		—	2	—	ns
Output Fall Time	t_f		—	2	—	ns

4. CAPACITANCE

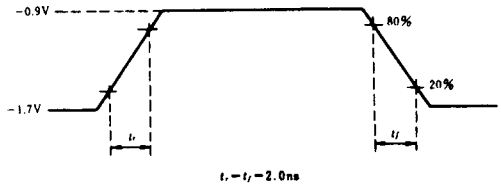
Item	Symbol	Test Condition	min	typ	max	Unit
Input Capacitance	C_{in}		—	3	—	pF
Output Capacitance	C_{out}		—	5	—	pF

■ TEST CIRCUIT AND WAVEFORMS

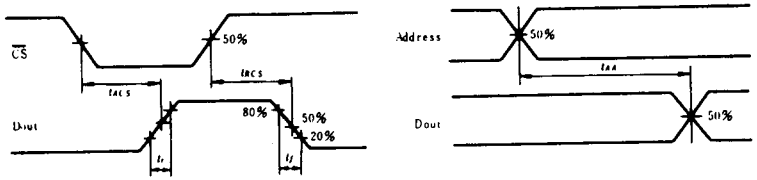
1. LOADING CONDITION



2. INPUT PULSE



3. READ MODE



4. WRITE MODE