



T-46-23-12
HM 65764
8K x 8
HIGH SPEED CMOS SRAM

OCTOBER 1987

Features

- FAST ACCESS TIME : 35/45/55 ns max
- STANDBY CURRENT : 20 mA
- OPERATING CURRENT : 150 mA
- ASYNCHRONOUS INPUTS
- TTL COMPATIBLE INPUTS AND OUTPUTS
- SINGLE 5 VOLT SUPPLY
- 300 MILS WIDTH PACKAGE
- CAPABLE OF WITHSTANDING GREATER THAN 2000V ELECTROSTATIC DISCHARGE
- WIDE TEMPERATURE RANGE : - 55°C TO + 125°C

Description

The HM 65764 is a high speed CMOS static RAM organised as 8192 x 8 bits. It is manufactured using MHS's high performance, CMOS technology.

Access times as fast as 35 ns are available with maximum power consumption of only 825 mW.

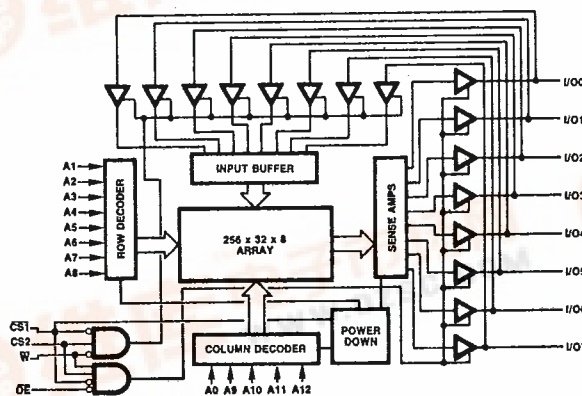
The HM 65764 features fully static operation requiring no external clocks or timing strobes, additionally the automatic power-down feature reduces the power consumption by 73 % when deselected. Easy memory expansion is provided by an active low chip select (CS1) and three state drivers, an active high chip select (CS2), an active low output enable.

All inputs and outputs of the HM 65764 are TTL compatible and operate from a single 5V supply thus simplifying system design.

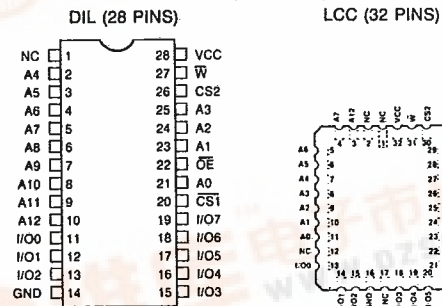
The HM 65764 is packaged in a plastic/ceramic 300 mils 28 pins DIL, SO 28 pins DIL, or a 32 pins Leadless Chip Carrier allowing high board-level packing densities.

The HM 65764 is 100 % processed following the test methods of MIL STD 883C.

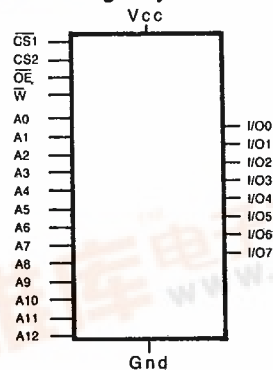
Block Diagram



Pinouts (TOP VIEW)



Logic Symbol



PIN NAMES

A0-A12 : Address inputs	OE : Output enable
I/O : Input/Output	Gnd : Ground
CS1-CS2 : Chip select	W : Write enable
Vcc : Power	

TRUTH TABLE

CS1	CS2	OE	W	Din	Dout	MODE
H	X	X	X	Z	Z	Deselect (power down)
L	H	L	H	Z	Valid	Read
L	H	X	L	Valid	Z	Write
L	H	H	H	Z	Z	Deselect
X	L	X	X	Z	Z	Deselect

L = Low, H = High, X = H or L



HM 65764

T-46-23-12

<p>• ABSOLUTE MAXIMUM RATINGS</p> <p>Supply voltage to GND potential — 0.5 V* to + 7.0V DC input or output voltage : — 3.0V to 7.0V DC output voltage in high Z state : — 0.5V to 7.0V Storage temperature : — 65° C to + 150° C Output current into outputs (low) : 20 mA</p>	<p>• OPERATING RANGE</p> <p>Military (– 2) Commercial (– 5)</p>	<p>Operating Voltage</p> <p>VCC ± 10 % VCC ± 10 %</p>	<p>Operating Temperature</p> <p>– 55° C to + 125° C 0° C to + 70° C</p>
---	---	--	--

Electro Static Discharge Voltage = 2000V
(per MIL STD 883, Method 3015.2)

ELECTRICAL CHARACTERISTICS

DC PARAMETERS

Symbol	Parameter	65764K-5 65764M-5	65764M-2	65764N-5	65764N-2	Unit	Value
ICCSB1 (1)	Stand by supply current	40	40	40	40	mA	max
ICCSB2 (2)	Stand by supply current	20	20	20	20	mA	max
ICCOP (3)	Average operating supply current	150	150	150	150	mA	max
IIX (4)	Input leakage current	± 10	± 10	± 10	± 10	µA	max
IOZ (4)	Output leakage current	± 10	± 10	± 10	± 10	µA	max
VIL (5)	Input low voltage	0.8	0.8	0.8	0.8	V	max
VIH (5)	Input high voltage	2.2	2.2	2.2	2.2	V	min
VOL (6)	Output low voltage	0.4	0.4	0.4	0.4	V	max
VOH (6)	Output high voltage	2.4	2.4	2.4	2.4	V	min
I OS (7)	Output short circuit current	– 350	– 350	– 350	– 3	mA	max
C IN (8)	Input capacitance	5	5	5	5	pF	max
C OUT (8)	Output capacitance	7	7	7	7	pF	max

Note 1 : $\overline{CS} \geq V_{IH}$

Note 2 : $\overline{CS} \geq V_{CC} - 0.3V$, $V_{IN} \geq V_{CC} - 0.3V$ or $V_{IN} \leq 0.3V$

Note 3 : $V_{CC} \text{ max, } I_{out} = 0 \text{ mA}$

Note 4 : $GND \leq V_I \leq V_{CC}$, $GND \leq V_O \leq V_{CC}$ Output disabled

Note 5 : $V_{IL} \text{ min} = -3.0V$, $V_{IH} \text{ max} = V_{CC}$

Note 6 : $V_{CC} = \text{min}$, $I_{OH} = -4 \text{ mA}$, $I_{OL} = 8.0 \text{ mA}$

Note 7 : $V_{CC} = \text{max}$, $V_{out} = GND$, duration of the short circuit should not exceed 30 seconds.

Not more than 1 output should be shorted at one time

Note 8 : This parameter is sampled and not 100 % tested. $T_A = 25^\circ\text{C}$, $F = 1 \text{ MHz}$, $V_{CC} = 5.0V$



HM 65764

T-46-23-12

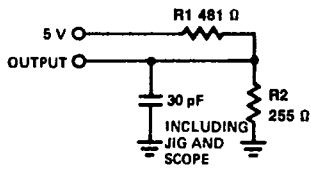


Figure 1a

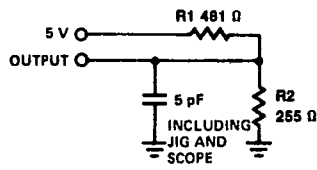


Figure 1b

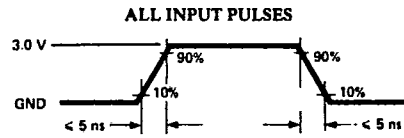
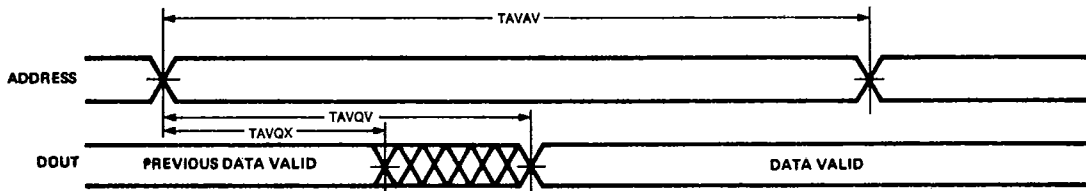


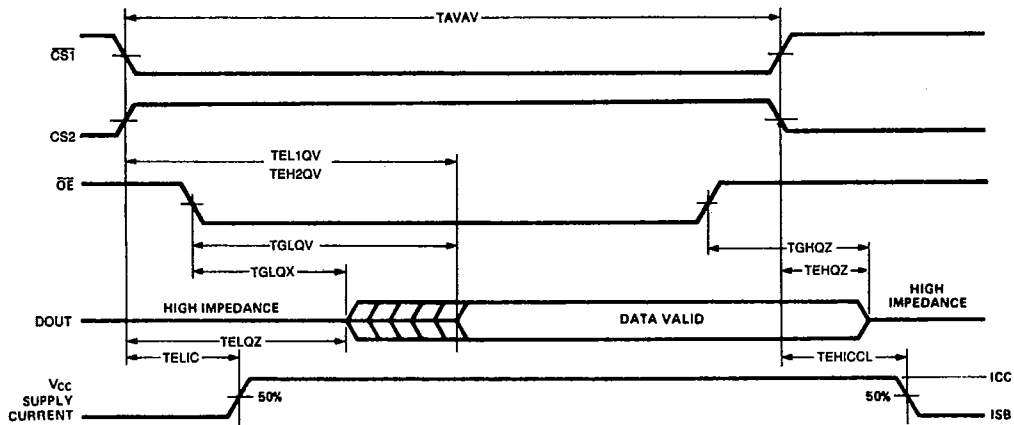
Figure 2

Switching Waveforms

READ CYCLE No. 1 (Notes 11, 12)



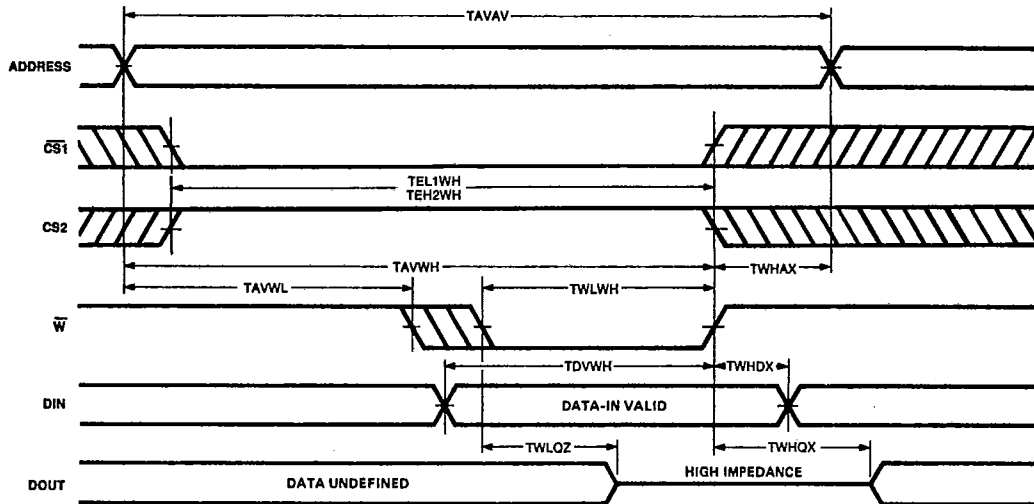
READ CYCLE No. 2 (Notes 11, 13)



2

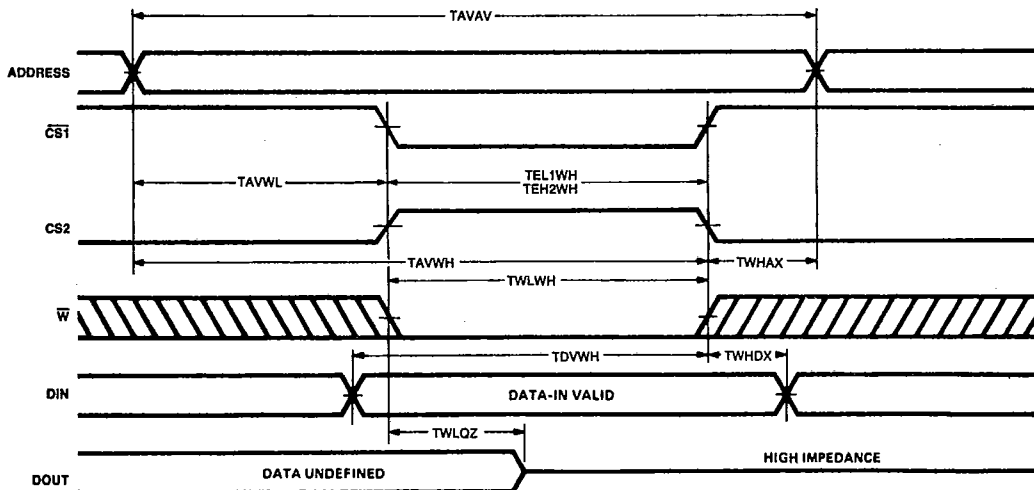


Write Cycle No. 1 (\bar{W} Controlled) (Note 7)



2

Write Cycle No. 2 (\overline{CS} Controlled) (Note 7)



Note : If \overline{CS} goes high simultaneously with \bar{W} high, the output remains in a high impedance state.

Note 12 : \bar{W} is high for read cycle.

Note 13 : Device is continuously selected, $\overline{CS} = \text{VIL}$.

Note 14 : Address valid prior to or coincident with \overline{CS} transition low.



HM 65764

T-46-23-12

Ordering information

DEVICE TYPE	PACKAGE	TEMPERATURE RANGE
HM1-65764 () -5	CERAMIC DIL	0°C to + 70°C
HM1-65764 () -2	CERAMIC DIL	- 55°C to + 125°C
HM1-65764 () -8	CERAMIC DIL	- 55°C to + 125°C
HM3-65764 () -5	PLASTIC DIL	0°C to + 70°C
HMT-65764 () -5	SO PLASTIC DIL	0°C to + 70°C
HM4-65764 () -5	LCC 28 pin	0°C to + 70°C
HM4-65764 () -2	LCC 28 pin	- 55°C to + 125°C
HM4-65764 () -8	LCC 28 pin	- 55°C to + 125°C

TEMPERATURE RANGE (- 2, - 5, - 8)

PERFORMANCE :

K : 35 ns (commercial only)

M : 45 ns

N : 55 ns

DEVICE TITLE

PACKAGE (1, 3, 4, T)

1 : CERAMIC

3 : PLASTIC

4 : LCC

T : SO

2

