

Features

- 70ns MAXIMUM ADDRESS ACCESS TIME
- "THREE STATE" OR OPEN COLLECTOR OUTPUTS AND FOUR CHIP ENABLE INPUTS
- SIMPLE HIGH SPEED PROGRAMMING PROCEDURE ONE PULSE/BIT. ASSURES FAST PROGRAMMING AND SUPERIOR RELIABILITY.
- FAST ACCESS TIME - GUARANTEED FOR WORST CASE N² SEQUENCING OVER COMMERCIAL AND MILITARY TEMPERATURE AND VOLTAGE RANGES.
- INDUSTRY'S HIGHEST PROGRAMMING YIELD

Description

The HM-7680/81 is a fully decoded high speed Schottky TTL 8192/Bit Field Programmable ROM in a 1K word by 8 bit/word format with open collector (HM-7680) or "Three State" (HM-7681) outputs. These PROM's are available in a 24 pin D.I.P. (ceramic or epoxy) and a 24 pin flat pack.

All bits are manufactured storing a logical "1" (Positive Logic) and can be selectively programmed for a logical "0" in any one bit position.

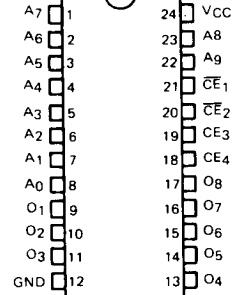
Nickel-chromium fuse technology is used on this and all other Harris Bipolar PROMs.

The HM-7680/81 contains test rows and columns which are in addition to the storage array to assure high programmability and guarantee parametric and A.C. performance. The fuses in these test rows and columns are blown prior to shipment.

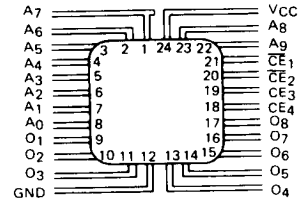
There are four chip enable inputs on the HM-7680/81. \overline{CE}_1 , \overline{CE}_2 low, and CE_3 , CE_4 high enables the chip.

Pinouts

TOP VIEW-DIP



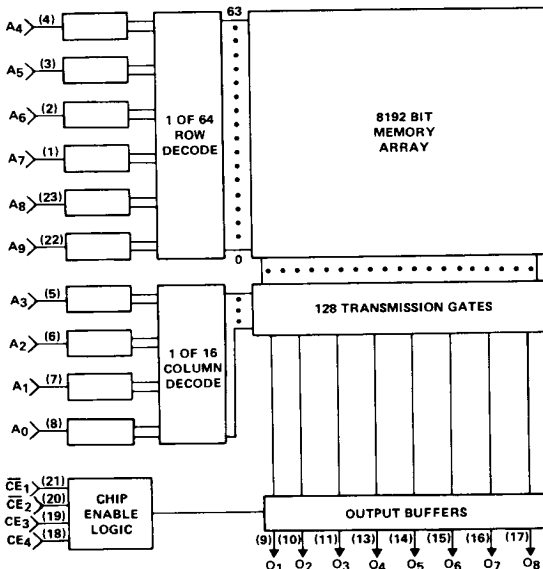
TOP VIEW - FLATPACK



PIN NAMES

- A0 - A9 Address Inputs
- O1 - O8 Data Outputs
- \overline{CE}_1 , \overline{CE}_2 , CE_3 , CE_4 Chip Enable Inputs

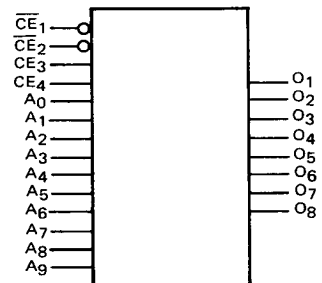
Functional Diagram



NOTE: PHYSICAL BIT POSITIONS FOR COLUMNS ARE AS FOLLOWS:
O1, O3, O5, O7 - 10 - 15
O2, O4, O6, O8 - 16, O - 14

() = Pin Numbers
(24) = V_{CC}
(12) = GND

Logic Symbol



Specifications HM-7680/81

ABSOLUTE MAXIMUM RATINGS

Output or Supply Voltage (Operating)	-0.3 to +7.0V	Storage Temperature	-65°C to +150°C
Address/Enable Input Voltage	5.5V	Operating Temperature (Ambient)	-55°C to +125°C
Address/Enable Input Current	-20mA	Maximum Junction Temperature	+175°C
Output Sink Current	100mA		

CAUTION: Stresses above those listed under the "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and functional operation of the device at these or at any other conditions above those indicated in the operational sections of this specification is not implied. (While programming, follow the programming specifications.)

D.C. ELECTRICAL CHARACTERISTICS (Operating)

HM-7680/81-5 ($V_{CC} = 5.0V \pm 5\%$, $T_A = 0^\circ C$ to $+75^\circ C$)
 HM-7680/81-2 ($V_{CC} = 5.0V \pm 10\%$, $T_A = -55^\circ C$ to $+125^\circ C$)
 Typical measurements are at $T_A = 25^\circ C$, $V_{CC} = +5V$

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I _{IH} I _{IL}	Address/enable "1" Input Current "0"	—	—	+40 -250	μA μA	V _{IH} = V _{CC} Max. V _{IL} = 0.45V
V _{IH} V _{IL}	Input Threshold "1" Voltage "0"	2.0 —	1.5 1.5	— 0.8	V V	V _{CC} = V _{CC} Min. V _{CC} = V _{CC} Max.
V _{OH} V _{OL}	Output "1" Voltage "0"	2.4* —	3.2* 0.35	— 0.50	V V	I _{OH} = -2.0mA, V _{CC} = V _{CC} Min. I _{OL} = +16mA, V _{CC} = V _{CC} Min.
I _{OHE} I _{OLE}	Output Disable "1" Current "0"	—	—	+40 -40*	μA μA	V _{OH} , V _{CC} = V _{CC} Max. V _{OL} = 0.3V, V _{CC} = V _{CC} Max.
V _{CL}	Input Clamp Voltage	—	—	-1.2	V	I _{IN} = -18mA
I _{OS}	Output Short Circuit Current	-15*	—	-100*	mA	V _{OUT} = 0.0V One Output Only for a Max. of 1 Second
I _{CC}	Power Supply Current	—	130	170	mA	V _{CC} = V _{CC} Max. All Inputs Grounded

NOTE: Positive current defined as into device terminals.
 * "Three State" only

A.C. ELECTRICAL CHARACTERISTICS (Operating)

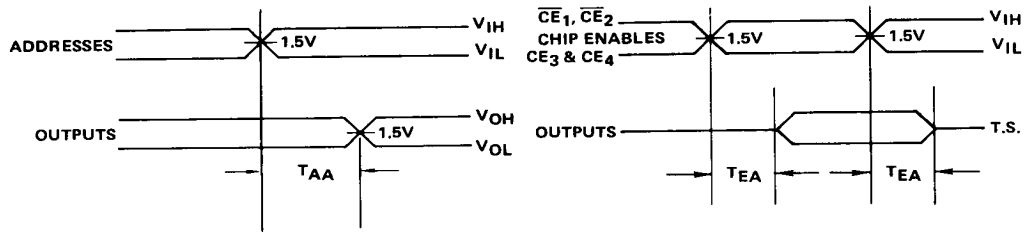
SYMBOL	PARAMETER	HM-7680/81-5 5V $\pm 5\%$ 0°C to + 75°C			HM-7680/81-2 5V $\pm 10\%$ -55°C to +125°C			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
T _{AA}	Address Access Time	—	45	70	—	—	90	ns
T _{EA}	Chip Enable Access Time	—	30	40	—	—	50	ns

A.C. limits guaranteed for worst case N2 sequencing with maximum test frequency of 5MHz.

CAPACITANCE : $T_A = 25^\circ C$ (NOTE: Sampled and guaranteed — but not 100% tested.)

SYMBOL	PARAMETER	MAXIMUM	UNITS	TEST CONDITIONS
C _{INA} , C _{INCE}	Input Capacitance	8	pF	V _{CC} = 5V, V _{IN} = 2.0V, f = 1MHz
C _{OUT}	Output Capacitance	10	pF	V _{CC} = 5V, V _{OUT} = 2.0V, f = 1MHz

SWITCHING TIME DEFINITIONS



A.C. TEST LOAD

