



MARCH 1978

Preliminary

Features

- 60ns MAXIMUM ADDRESS ACCESS TIME
- 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
- LOW PIN COUNT FOR MAXIMUM DENSITY

Description

The HM-7683 is a fully decoded high speed Schottky TTL 8192-Bit Field Programmable ROM in a 1K word by 8 bit/word format and is available in a 20 pin DIP (ceramic or epoxy) and a 20 pin flatpack.

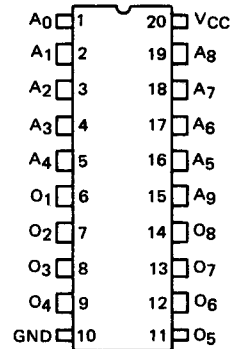
All bits are manufactured storing a logical "1" (positive logic) and can be selectively programmed for a logical "0" in any bit position.

Nichrome fuse technology is used on this and all other Harris Bipolar PROMs.

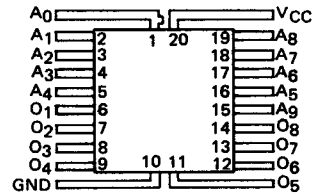
The HM-7683 contains test rows and columns which are in addition to the storage array to assure high programmability and guarantee parameters and A.C. performance. The fuses in these test rows and columns are blown prior to shipment.

Pinouts

TOP VIEW - DIP



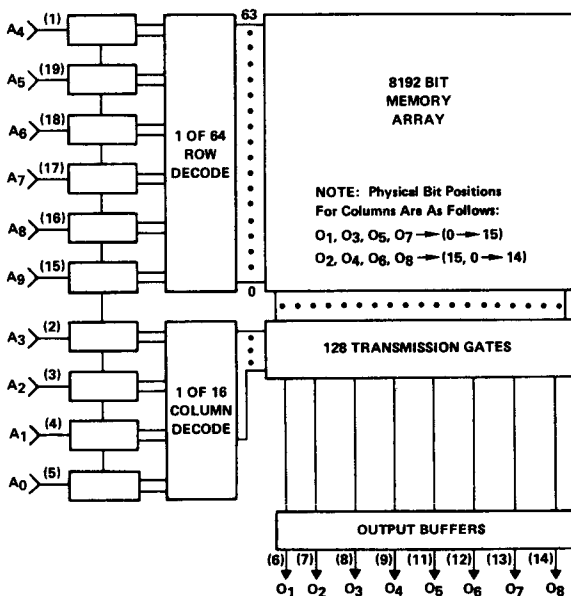
TOP VIEW - FLATPACK



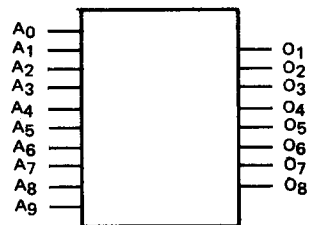
PIN NAMES

- A₀ - A₉ Address Outputs
O₁ - O₈ Data Outputs

Functional Diagram



Logic Symbol



Specifications HM-7683

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. These are stress only ratings 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-7683-5 ($V_{CC} = 5.0V \pm 5\%$, $T_A = 0^\circ$ to $+75^\circ C$)
 HM-7683-2 ($V_{CC} = 5.0V \pm 10\%$, $T_A = -55^\circ C$ 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 Input "1" 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.
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 at a Time 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.

A.C. ELECTRICAL CHARACTERISTICS (Operating)

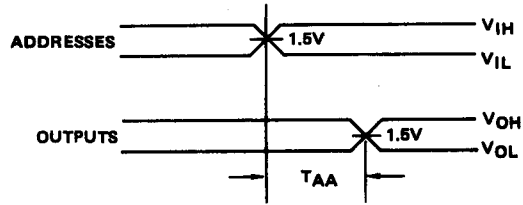
SYMBOL	PARAMETER	HM-7683-5 5V \pm 5% 0°C to +75°C			HM-7683-2 5V \pm 10% -55°C to +125°C			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
TAA	Address Access Time	—	45	60	—	—	80	ns

A.C. limits guaranteed for worst case N² sequencing.

CAPACITANCE: $T_A = 25^\circ C$

SYMBOL	PARAMETER	MAXIMUM	UNITS	TEST CONDITIONS
C _{INA}	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

