



2K x 8 CMOS PROM

Pinouts

CMOS MEMORY 6

Specifications HM-6617/883

Absolute Maximum Ratings

Supply Voltage	+7.0V
Input, Output or I/O Voltage	GND-0.3V to VCC+0.3V
Storage Temperature Range	-65°C to +150°C
Junction Temperature	+175°C
Lead Temperature (Soldering 10s)	+300°C
Typical Derating Factor	5mA/MHz Increase in ICCOP
ESD Classification	Class 1

Reliability Information

Thermal Resistance	θ_{ja}	θ_{jc}
Ceramic DIP Package	48°C/W	9°C/W
Ceramic LCC Package	58°C/W	19°C/W
Maximum Package Power Dissipation at +125°C		
Ceramic DIP Package	1.0 W	
Ceramic LCC Package	0.86 W	
Gate Count	5473 Gates	

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

Operating Conditions

Operating Voltage Range	+4.5V to +5.5V	Input Low Voltage	-0.3V to +0.8V
Operating Temperature Range	-55°C to +125°C	Input High Voltage	+2.4V to VCC +0.3V

TABLE 1. HM-6617/883 DC ELECTRICAL PERFORMANCE CHARACTERISTICS

Device Guaranteed and 100% Tested

PARAMETERS	SYMBOL	(NOTES 1, 4) CONDITIONS	GROUP A SUBGROUPS	TEMPERATURE	LIMITS		UNITS
					MIN	MAX	
High Level Output Voltage	VOH1	VCC = 4.5V, IO = -2.0mA	1, 2, 3	-55°C ≤ TA ≤ +125°C	2.4	-	V
Low Level Output Voltage	VOL	VCC = 4.5V, IO = +4.8mA	1, 2, 3	-55°C ≤ TA ≤ +125°C	-	0.4	V
High Impedance Output Leakage Current	IIOZ	VCC = 5.5V, $\bar{G}$ = 5.5V, VI/O = GND or VCC	1, 2, 3	-55°C ≤ TA ≤ +125°C	-1.0	1.0	μA
Input Leakage Current	II	VCC = 5.5V, VI = GND or VCC, $\bar{P}$ Not Tested	1, 2, 3	-55°C ≤ TA ≤ +125°C	-1.0	1.0	μA
Standby Supply Current	ICCSB	VI = VCC or GND, VCC = 5.5V, IO = 0mA	1, 2, 3	-55°C ≤ TA ≤ +125°C	-	100	μA
Operating Supply Current	ICCOP	VCC = 5.5V, $\bar{G}$ = GND, (Note 3), f = 1MHz, IO = 0mA, VI = VCC or GND	1, 2, 3	-55°C ≤ TA ≤ +125°C	-	20	mA
Functional Test	FT	VCC = 4.5V (Note 6)	7, 8A, 8B	-55°C ≤ TA ≤ +125°C	-	-	

TABLE 2. HM-6617/883 AC ELECTRICAL PERFORMANCE CHARACTERISTICS

Device Guaranteed and 100% Tested

PARAMETERS	SYMBOL	(NOTES 1, 2, 4) CONDITIONS	GROUP A SUBGROUPS	TEMPERATURE	LIMITS HM-6617B/883		LIMITS HM-6617/883		UNITS
					MIN	MAX	MIN	MAX	
Address Access Time	TAVQV	VCC = 4.5V and 5.5V (Note 5)	9, 10, 11	-55°C ≤ TA ≤ +125°C	-	105	-	140	ns
Output Enable Access Time	TGLQV	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	-	40	-	50	ns
Chip Enable Access Time	TELQV	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	-	90	-	120	ns
Address Setup Time	TAVEL	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	15	-	20	-	ns
Address Hold Time	TELAX	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	20	-	25	-	ns
Chip Enable Low Width	TELEH	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	95	-	120	-	ns
Chip Enable High Width	TEHEL	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	40	-	40	-	ns
Read Cycle Time	TELEL	VCC = 4.5V and 5.5V	9, 10, 11	-55°C ≤ TA ≤ +125°C	136	-	160	-	ns

NOTES:

1. All voltages referenced to Device GND.
2. AC measurements assume transition time ≤ 5ns; input levels = 0.0V to 3.0V; timing reference levels = 1.5V; output load = 1TTL equivalent load and CL ≤ 50pF.
3. Typical derating = 5mA/MHz increase in ICCOP.
4. All tests performed with $\bar{P}$ hardwired to VCC.
5. TAVQV = TELQV + TAVEL
6. Tested as follows: f = 1MHz, VIH = 2.4V, VIL = 0.8V, IOH = -1mA, IOL = +1mA, VOH ≥ 1.5V, VOL ≤ 1.5V.

Specifications HM-6617/883

TABLE 3. HM-6617/883 AC AND DC ELECTRICAL PERFORMANCE CHARACTERISTICS

PARAMETERS	SYMBOL	(NOTES 1, 2) CONDITIONS	NOTES	TEMPERATURE	LIMITS HM-6617B/883		LIMITS HM-6617/883		UNITS
					MIN	MAX	MIN	MAX	
Input Capacitance	C _{IN}	VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 3	+25°C	-	10	-	10	pF
		VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 4	+25°C	-	12	-	12	pF
		VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 5	+25°C	-	10	-	10	pF
I/O Capacitance	C _{I/O}	VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 3	+25°C	-	12	-	12	pF
		VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 4	+25°C	-	14	-	14	pF
		VCC = Open, f = 1MHz, All Measurements Referenced to Device GND	2, 5	+25°C	-	12	-	12	pF
Chip Enable Time	TELQX	VCC = 4.5V and 5.5V	2	-55°C ≤ TA ≤ +125°C	5	-	5	-	ns
Output Enable Time	TGLQX	VCC = 4.5V and 5.5V	2	-55°C ≤ TA ≤ +125°C	5	-	5	-	ns
Chip Disable Time	TEHQZ	VCC = 4.5V and 5.5V	2	-55°C ≤ TA ≤ +125°C	-	45	-	50	ns
Output Disable Time	TGHQZ	VCC = 4.5V and 5.5V	2	-55°C ≤ TA ≤ +125°C	-	40	-	50	ns
Output High Voltage	VOH2	VCC = 4.5V, IO = 100μA	2	-55°C ≤ TA ≤ +125°C	VCC-1V	-	VCC-1V	-	V

NOTES:

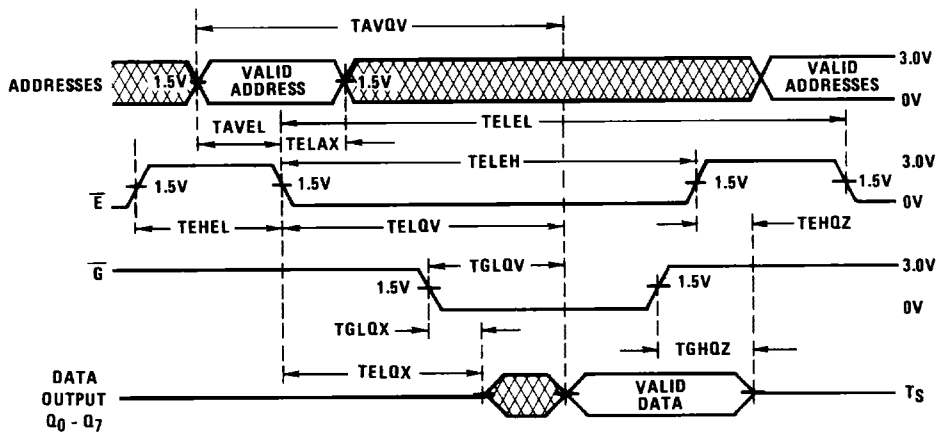
1. All tests performed with $\overline{P}$ hardwired to VCC.
2. The parameters listed in Table 3 are controlled via design or process parameters and are not directly tested. These parameters are characterized upon initial design changes which would affect these characteristics.
3. Applies to .600 inch Ceramic Dual-In-Line (DIP) device types only.
4. Applies to .300 inch Ceramic Dual-In-Line (DIP) device types only.
5. Applies to Ceramic Leadless Chip Carrier (LCC) device types only.

TABLE 4. APPLICABLE SUBGROUPS

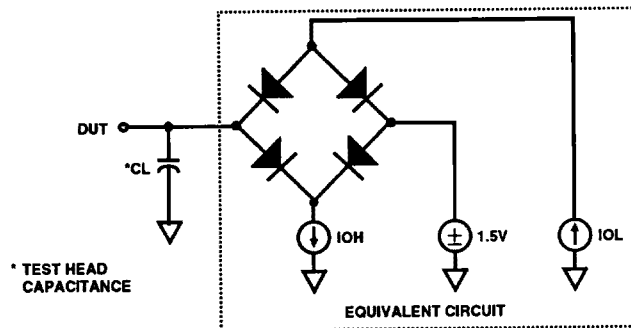
CONFORMANCE GROUPS	METHOD	SUBGROUPS
Initial Test	100%/5004	-
Interim Test	100%/5004	1, 7, 9
PDA	100%/5004	1
Final Test	100%/5004	2, 3, 8A, 8B, 10, 11
Group A	Samples/5005	1, 2, 3, 7, 8A, 8B, 9, 10, 11
Groups C & D	Samples/5005	1, 7, 9

Switching Waveforms

READ CYCLE

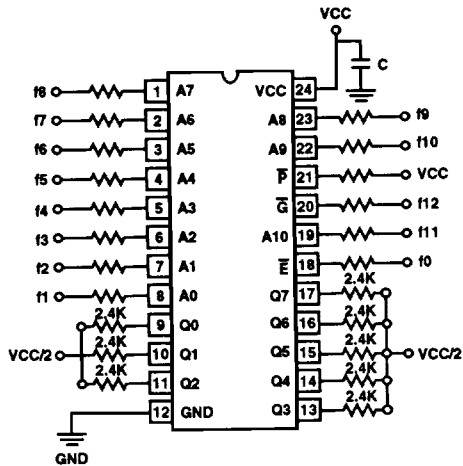


Test Circuit

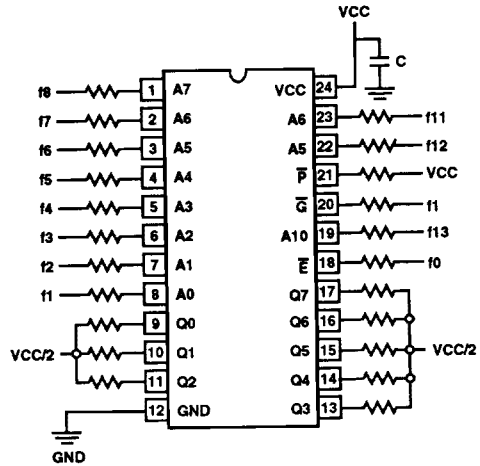


Burn-In Circuits

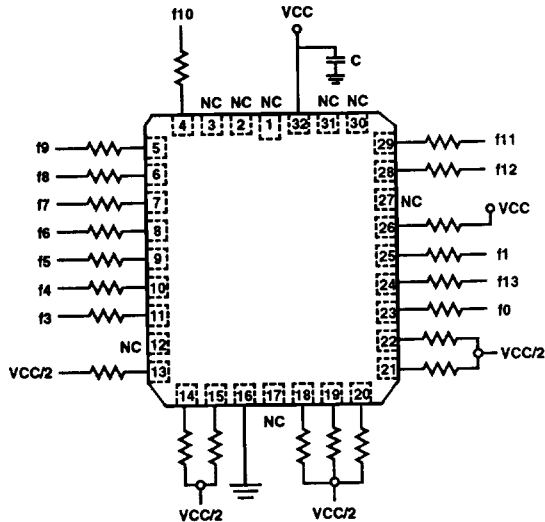
HM-6617/883 (.300 INCH) CERAMIC DIP



HM-6617/883 (.600 INCH) CERAMIC DIP



HM-6617/883 CERAMIC LCC



NOTES:

f0 = 100KHz $\pm$ 10%

All resistors = 47k Ω Unless Otherwise Noted

VCC = 5.5V $\pm$ 0.05V

C = 0.01 μ F min.

Metallization Topology

DIE DIMENSIONS:

140 x 232 x 19 ± 1 mils

METALLIZATION:

Type: Si - Al

Thickness: $11\text{k}\text{\AA} \pm 15\text{k}\text{\AA}$

GLASSIVATION:

Type: SiO_2

Thickness: $7\text{k}\text{\AA} \pm 9\text{k}\text{\AA}$

DIE ATTACH:

Material: Gold Silicon Eutectic Alloy

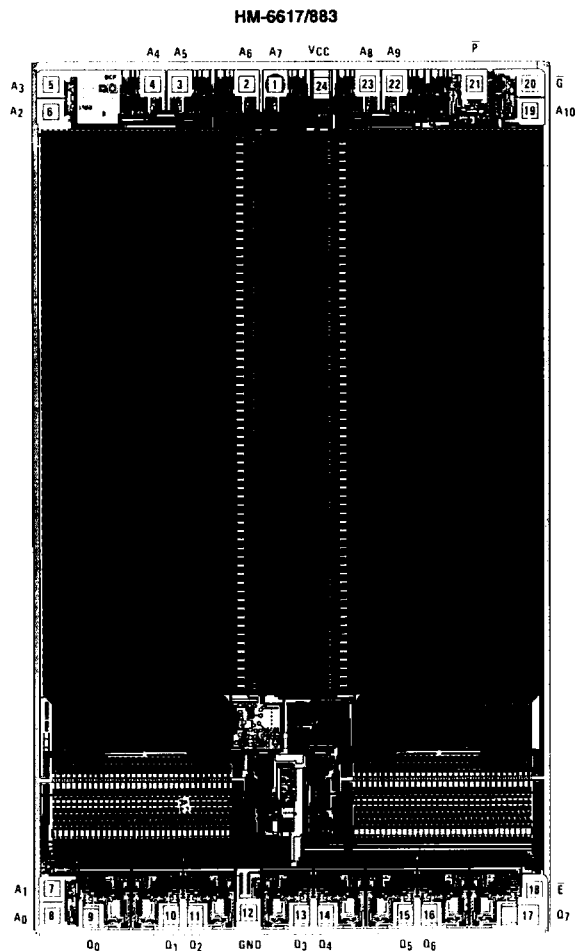
Temperature: Ceramic DIP - 460°C (Max)

Ceramic LCC - 420°C (Max)

WORST CASE CURRENT DENSITY:

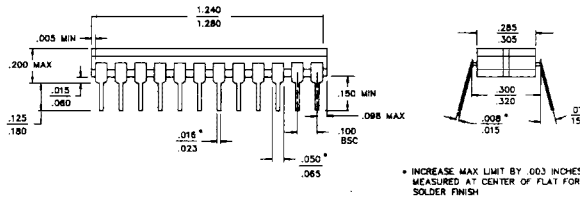
$1.7 \times 10^5 \text{ A/cm}^2$

Metallization Mask Layout



Packaging

24 PIN (0.300) CERAMIC DIP



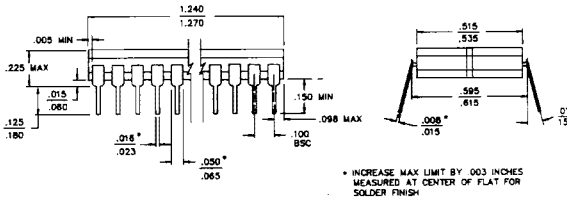
LEAD FINISH: Type A

MATERIALS: Compliant to MIL-M-38510

COMPLIANT OUTLINE:

MIL-STD-1835, GDIP3-T24

24 PIN (.600) CERAMIC DIP



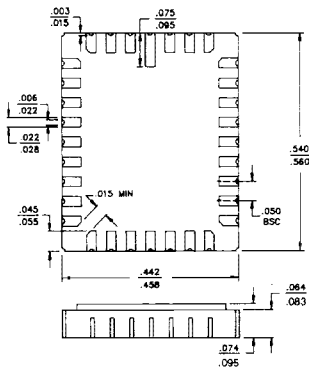
LEAD FINISH: Type A

MATERIALS: Compliant to MIL-M-38510

COMPLIANT OUTLINE:

MIL-STD-1835, GDIP1-T24

32 PAD CERAMIC LCC



LEAD FINISH: Type A

MATERIALS: Compliant to MIL-M-38510

COMPLIANT OUTLINE:

MIL-STD-1835, CQCC1-N32

NOTE: All Dimensions are $\frac{\text{Min}}{\text{Max}}$ Dimensions are in inches.