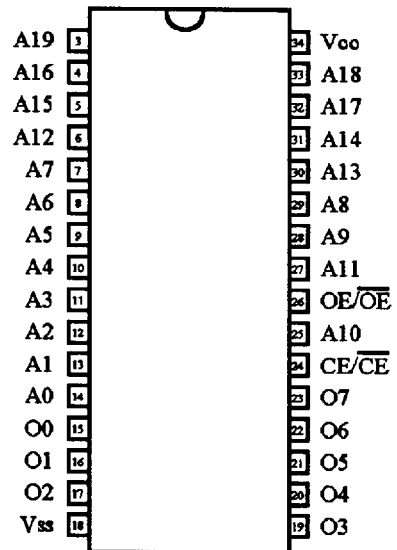


**Description**

The GM23C8000B high performance read only memory is organised as 1,048,576 x 8 bits and has an access time of 120ns. The GM23C8000B offers automatic power down controlled by the mask programmed CE or  $\overline{CE}$  input. The low power feature allow the battery operation. The large size of 8M bit memory density is ideal for character generator, data or program memory in microprocessor application. This ROM is packaged in 32 pin DIP or SOP..

**Pin Configuration**

**32 DIP/SOP**



**(Top View)**

**Features**

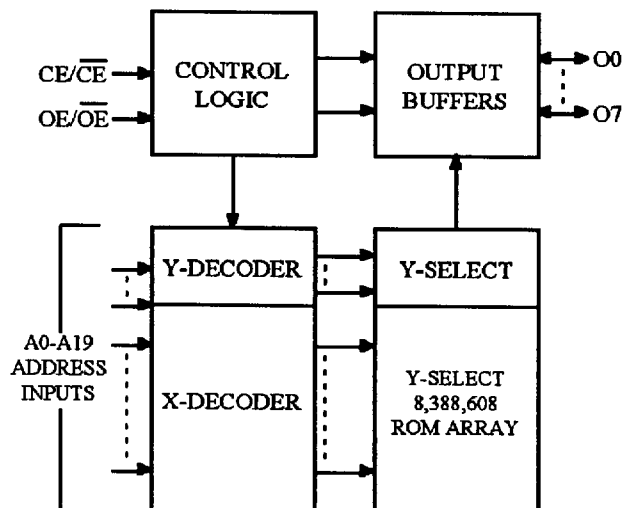
- 1,048,576 x 8 bit Organization
- Single + 5V Supply
- Access Time : 120ns (Max)
- Operating current : 60mA (Max)
- Standby current : 50  $\mu$ A(Max)
- TTL-compatible inputs and outputs
- Polarity programmable chip enable and out enable pin
- 3-State outputs for wired-OR expansion
- Package :
  - GM23C8000B : 32 Pin Plastic DIP (600 mil)
  - GM23C8000BFW : 32 Pin Plastic SOP (525 mil)

**Pin Description**

Pin	Function
A0-A19	Address Inputs
O0-O7	Data Outputs
CE/ $\overline{CE}$ *	Chip Enable Input
OE/ $\overline{OE}$ *	Output Enable Input
Vcc	Power Supply (+5V)
Vss	Ground

\*User Selectable Polarity.

**Block Diagram**



**Absolute Maximum Ratings\***

Symbol	Parameter	Rating	Unit
T <sub>A</sub>	Ambient Operating Temperature	-10 ~ 80	°C
T <sub>STG</sub>	Storage Temperature	-65 ~ 150	°C
V <sub>CC</sub>	Supply Voltage to Ground Potential	-0.5 ~ V <sub>CC</sub> + 0.5	V
V <sub>OUT</sub>	Output Voltage	-0.5 ~ V <sub>CC</sub> + 0.5	V
V <sub>IN</sub>	Input Voltage	-0.5 ~ 7.0	V

**\*Comments**

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only functional operation of this device at these or any other conditions above those indicated in the operational sections of this specification is not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**Recommended DC Operating Conditions (V<sub>CC</sub> = 5.0V ± 10%, T<sub>A</sub> = 0 ~ 70°C)**

Symbol	Parameter	Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage	4.5	5.0	5.5	V
V <sub>SS</sub>	Supply Voltage	0	0	0	V
V <sub>IH</sub>	Input High Voltage	2.2	-	V <sub>CC</sub> + 0.3	V
V <sub>IL</sub>	Input Low Voltage	-0.3	-	0.8	V

**DC Electrical Characteristics (V<sub>CC</sub> = 5.0V ± 10%, T<sub>A</sub> = 0 ~ 70°C)**

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V <sub>OH</sub>	Output High Voltage	I <sub>OH</sub> = -1mA	2.4			V
V <sub>OL</sub>	Output Low Voltage	I <sub>OL</sub> = 2.1mA			0.4	V
I <sub>I(L)</sub>	Input Leakage Current	V <sub>IN</sub> = 0V to V <sub>CC</sub>			± 10	μA
I <sub>O(L)</sub>	Output Leakage Current	V <sub>OUT</sub> = 0V to V <sub>CC</sub>			± 10	μA
I <sub>CC</sub>	Operating Supply Current (f = 6.7 MHz)	$\overline{CE} = V_{IL}, CE = V_{IH}$			60	mA
I <sub>SB1</sub>	Standby Current(TTL)	$\overline{CE} = V_{IH}, I_o = 0$			1	mA
I <sub>SB1</sub>	Standby Current(CMOS)	$\overline{CE} = V_{CC}, I_o = 0$			50	μA

**Capacitance (T<sub>A</sub> = 25°C, f = 1.0 MHz)**

Symbol	Parameter	Condition	Min	Max	Unit
C <sub>I</sub>	Input Capacitance	V <sub>IN</sub> = 0V		10	pF
C <sub>O</sub>	Output Capacitance	V <sub>OUT</sub> = 0V		10	pF

Note : Capacitance is periodically sampled and not 100% tested.

**Mode Selection**

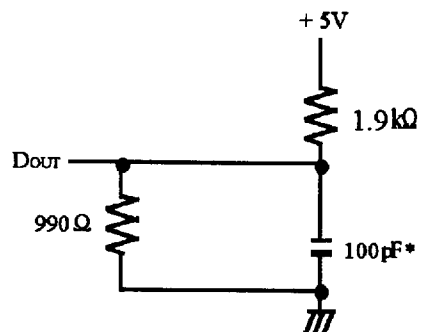
CE/ $\overline{\text{CE}}$	OE/ $\overline{\text{OE}}$	Mode	Data	Power
L/H	X	Standby	High Z	Standby
H/L	H/L	Operating	Door	Active
	L/H	Output Disable	High Z	

**AC Operating Characteristics** ( $V_{CC} = 5.0V \pm 10\%$ ,  $T_A = 0 \sim 70^\circ\text{C}$ )

Symbol	Parameter	GM23C8000B-12		GM23C8000B-15		Unit
		Min	Max	Min	Max	
$t_{RC}$	Read Cycle Time	120		150		ns
$t_{ACE}$	Chip Enable Access Time		120		150	ns
$t_{AA}$	Address Access Time		120		150	ns
$t_{AOE}$	Output Enable Access Time		60		70	ns
$t_{OH}$	Output Hold From Address Change	0		0		ns
$t_{OHZ}$ $t_{CHZ}$	Output or Chip Disable to Output High-Z		50		60	ns
$t_{OLZ}$ $t_{CLZ}$	Output or Chip Enable to Output Low-Z	10		10		ns

**AC Test Condition**

Input Pulse Level	0.4V to 2.4V
Input Rise and Fall Time	10ns
Input and Output Timing Level	0.8V to 2.0V
Output Load	See Fig. 1

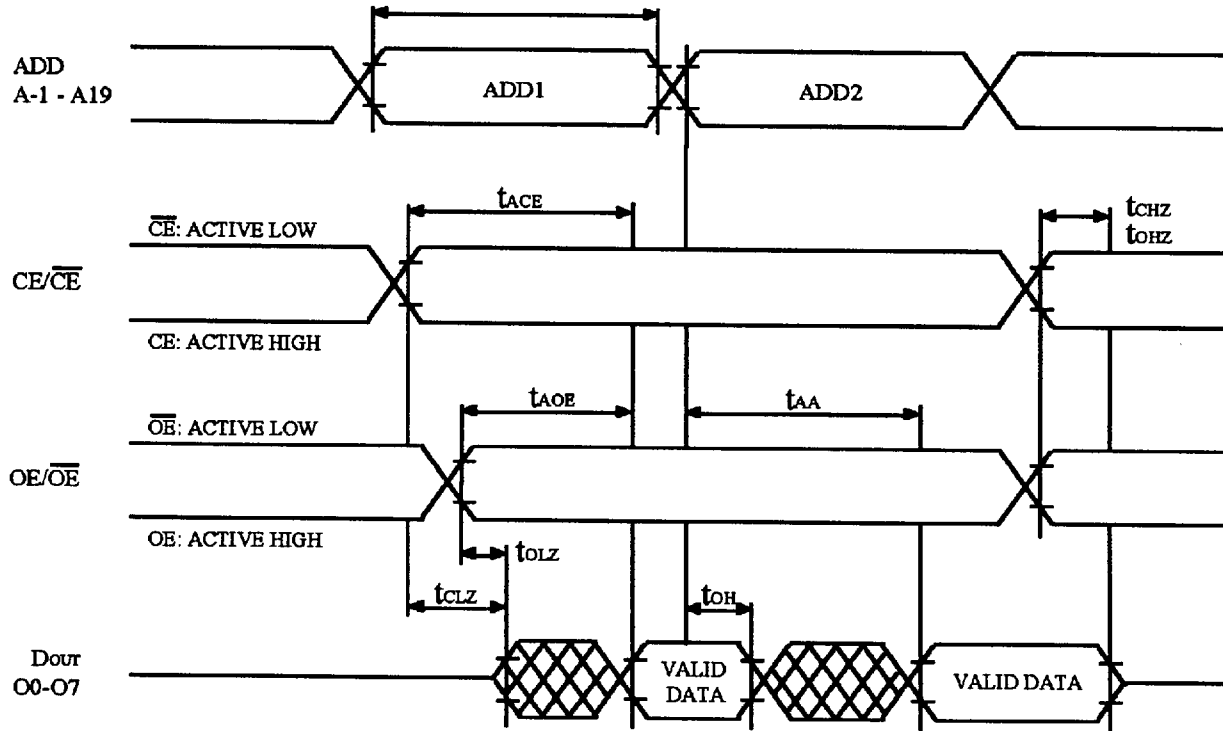


\*Including scope and jig.

**Fig. 1 Output Load Circuit**

**Timing Waveforms**

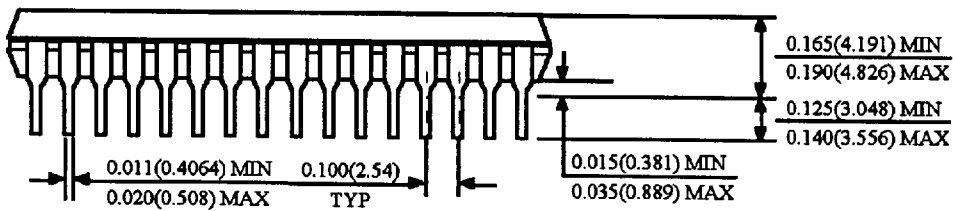
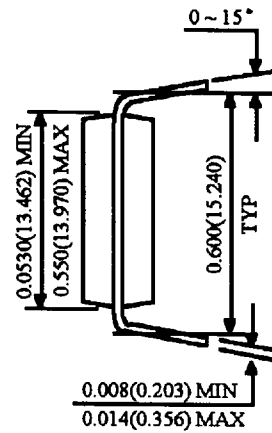
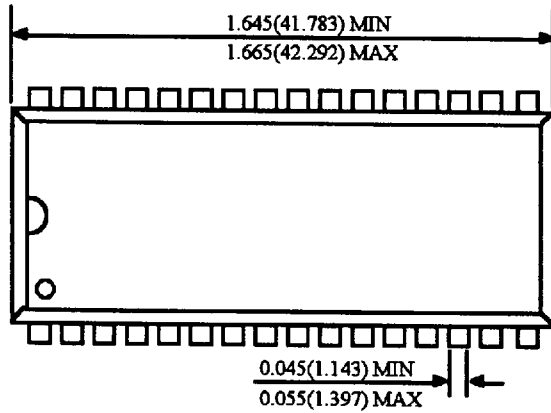
**Read**



**Package Dimensions**

Unit: Inches (mm)

**32 DIP**



**32 SOP**

