Description

The GM23C1000 is high performance read only memory organized as 131,072 words by 8 bits. It is designed to be compatible with all micro-processors and similar applications where high-performance large-bit storage and simple interfacing are important design considerations. The GM23C1000 offers automatic powerdown controlled by the Chip Enable CE/$\overline{CE}$ input. When CE/$\overline{CE}$ goes LOW/HIGH, the device will automatically power down and remain in a low power standby mode as long remain in a low power standby mode as long as CE/$\overline{CE}$ remains LOW/HIGH. Pin 20 may also be mask programmed as CS/$\overline{CS}$ (active HIGH or LOW, but not powerdown) in order to eliminate bus contention in multiple bus micro-processos systems.

Features

- 131,072 x 8 bit Organization
- Single + 5V Supply
- Access Time : 120/150ns (Max)
- Operating current : 40mA (Max)
- Standby current : 30μA (Max)
- TTL-compatible inputs and outputs
- Automatic power down ($\overline{CE}$)
- Polarity programmable chip enable and out enable pin
- 3-$\overline{Sate}$ outputs for wired-$\overline{OR}$ expansion
- Fully static operation
- Package :
  GM23C1000 : 28 Pin Plastic DIP (600 mil)
  GM23C1000FW : 28 Pin Plastic SOP (330mil)

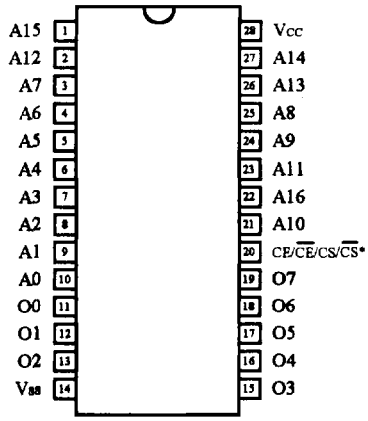
Pin Description

Pin	Function
A0-A16	Address Inputs
O0-O7	Data Outputs
$\overline{CE}$/CE*	Chip Enable Input
$\overline{CS}$/CS*	Output Select Input
Vcc	Power Supply (+5V)
Vss	Ground

*User Selectable Polarity.

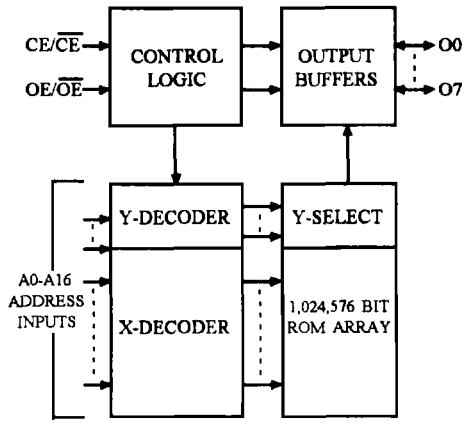
Pin Configuration

28 DIP/SOP



(Top View)

Block Diagram



Absolute Maximum Ratings*

Symbol	Parameter	Rating	Unit
T_A	Ambient Operating Temperature	-10 ~ 80	℃
T_{STG}	Storage Temperature	-65 ~ 150	℃
V_{CC}	Supply Voltage to Ground Potential	-0.5 ~ V_{CC} + 0.5	V
V_{OUT}	Output Voltage	-0.5 ~ V_{CC} + 0.5	V
V_{IN}	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_{CC} = 5.0V ± 10%, T_A = 0 ~ 70℃)

Symbol	Parameter	Min	Typ	Max	Unit
V_{CC}	Supply Voltage	4.5	5.0	5.5	V
V_{SS}	Supply Voltage	0	0	0	V
V_{IH}	Input High Voltage	2.2	-	V_{CC} + 0.3	V
V_{IL}	Input Low Voltage	-0.3	-	0.8	V

DC Electrical Characteristics (V_{CC} = 5.0V ± 10%, T_A = 0 ~ 70℃)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_{OH}	Output High Voltage	I_{OH} = -1mA	2.4			V
V_{OL}	Output Low Voltage	I_{OL} = 2.1mA			0.4	V
$I_{I(L)}$	Input Leakage Current	V_{IN} = 0V to V_{CC}			± 10	μA
$I_{O(L)}$	Output Leakage Current	V_{OUT} = 0V to V_{CC}			± 10	μA
I_{CC}	Operating Supply Current (f = 6.7 MHz)	$\overline{CE}$ = V_{IL}, CE = V_{IH}			40	mA
I_{SB1}	Standby Current (TTL)	$\overline{CE}$ = V_{IH}, all Output Open			1	mA
I_{SB2}	Standby Current (CMOS)	$\overline{CE}$ = V_{CC}, all Output Open			30	μA

Capacitance (T_A = 25℃, f = 1.0 MHz)

Symbol	Parameter	Condition	Min	Max	Unit
C_I	Input Capacitance	V_{IN} = 0V		10	pF
C_O	Output Capacitance	V_{OUT} = 0V		10	pF

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

Mode Selection

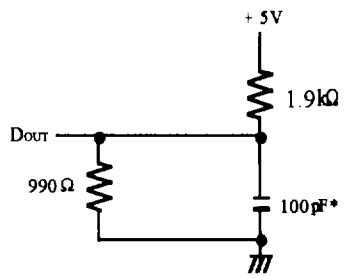
CE/$\overline{CE}$	CS/$\overline{CS}$	Mode	Data	Power
L/H	X	Standby	High Z	Standby
H/L	L/H	Operating	High Z	Active
	H/L		D_{OUT}	

AC Operating Characteristics ($V_{CC} = 5.0V \pm 10\%$, $T_A = 0 \sim 70℃$)

Symbol	Parameter	GM23C1000-12		GM23C1000-15		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_{CS}	Chip select Access Time		60		70	ns
t_{OH}	Output Hold From Address Change	10		10		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

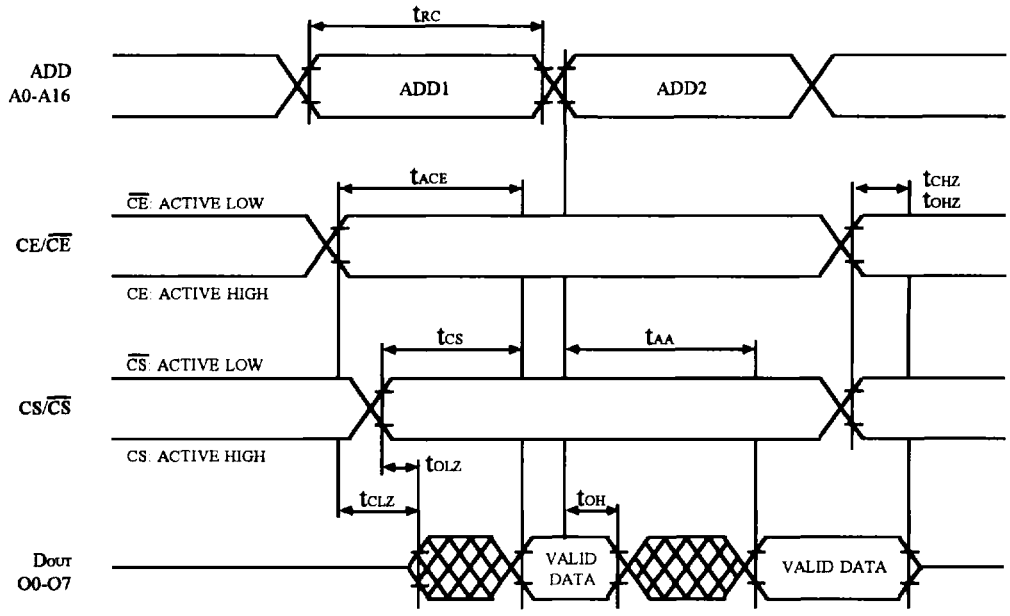


*Including scope and jig.

Fig. 1 Output Load Circuit

Timing Waveforms

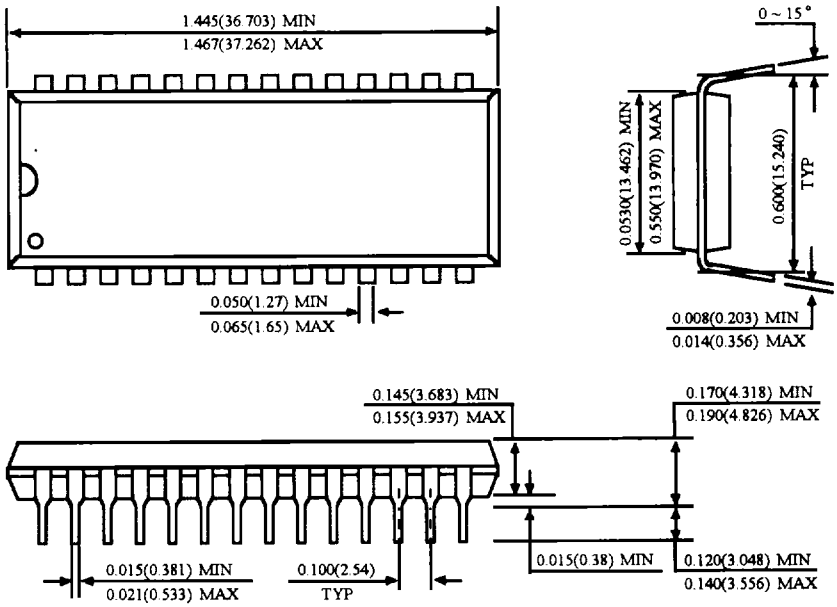
Read



Package Dimensions

Unit: Inches (mm)

28 DIP



28 SOP