8M-Bit (1M X 8) CMOS MASK ROM

FEATURES

- **1,048,576 x 8 bit organization**
- **Fast access time: 150ns (max.)**
- **Supply voltage: single +5V**
- **Current consumption**
  - **Operating: 50mA (max.)**
  - **Standby : 50μA (max.)**
- **Fully static operation**
- **All inputs and outputs TTL compatible**
- **Three state outputs**
- **Polarity programmable chip enable and output enable pin**
- **Package: 32-pin, 600 mil, plastic DIP (JEDEC standard)**
  32-pin, 525 mil, plastic SOP

GENERAL DESCRIPTION

The KM23C8000A is a fully static mask programmable ROM organized 1,048,576×8 bit. It is fabricated using silicon-gate CMOS process technology.

This device operates with a 5V single power supply, and all inputs and outputs are TTL compatible. Because of its asynchronous operation, it requires no external clock assuring extremely easy operation.

It is suitable for use in program memory of microprocessor, and data memory, character generator.

The KM23C8000A is packaged in a 32-DIP and the KM23C8000AG in a 32-SOP, provides polarity programmable OE buffer as user option mode.

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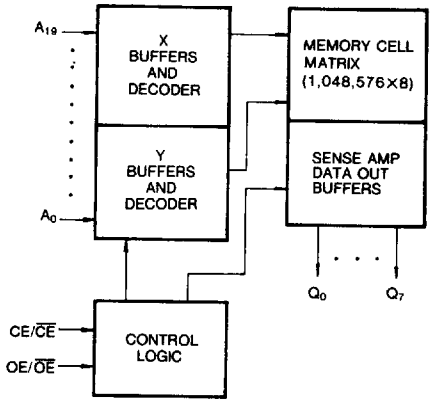
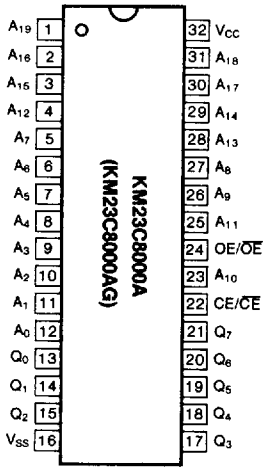
FUNCTIONAL BLOCK DIAGRAM



PIN CONFIGURATION



Pin Name	Pin Function
A_0-A_{19}	Address Inputs
Q_0-Q_7	Data Outputs
CE/$\overline{CE}$*	Chip Enable
OE/$\overline{OE}$*	Output Enable
V_{CC}	Power (+5V)
V_{SS}	Ground

* User Selectable Polarity

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Voltage on Any Pin Relative to V_{SS}	V_{IN}	−0.3 to +7.0	V
Temperature Under Bias	T_{bias}	−10 to + 85	°C
Storage Temperature	T_{stg}	−55 to +150	°C

* Permanent device damage may occur if "ABSOLUTE MAXIMUM RATINGS" are exceeded. Functional Operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS (Voltage reference to V_{SS}, T_A=0 to 70°C)

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	4.5	5.0	5.5	V
Supply Voltage	V_{SS}	0	0	0	V

DC CHARACTERISTICS

Parameter	Symbol	Test Conditions	Min	Max	Unit
Operating Current	I_{CC}	$\overline{CE}=\overline{OE}=V_{IL}$, f=6.7MHz all output open	—	50	mA
Standby Current (TTL)	I_{SB1}	$\overline{CE}=V_{IH}$, all output open	—	1	mA
Standby Current (CMOS)	I_{SB2}	$\overline{CE}=V_{CC}$, all output open	—	50	μA
Input Leakage Current	I_{LI}	V_{IN}=0 to V_{CC}	—	10	μA
Output Leakage Current	I_{LO}	V_{OUT}=0 to V_{CC}	—	10	μA
Input High Voltage, All Inputs	V_{IH}		2.2	V_{CC}+0.3	V
Input Low Voltage, All Inputs	V_{IL}		−0.3	0.8	V
Output High Voltage Level	V_{OH}	I_{OH}=−400μA	2.4	—	V
Output Low Voltage Level	V_{OL}	I_{OL}=2.1mA	—	0.4	V

CAPACITANCE (T_A=25°C, f=1.0MHz)

Item	Symbol	Test Conditions	Min	Max	Unit
Output Capacitance	C_{OUT}	V_{OUT}=0V	—	10.0	pF
Input Capacitance	C_{IN}	V_{IN}=0V	—	10.0	pF

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

MODE SELECTION

CE/$\overline{CE}$	OE/$\overline{OE}$	Mode	Data	Power
L/H	X	Standby	High-Z	Standby
H/L	L/H	Operating	High-Z	Active
	H/L	Operating	Dout	Active

AC CHARCTERISTICS (Ta=0° to +70°C, V_{CC}=5V± 10%, unless otherwise noted.)

TEST CONDITIONS

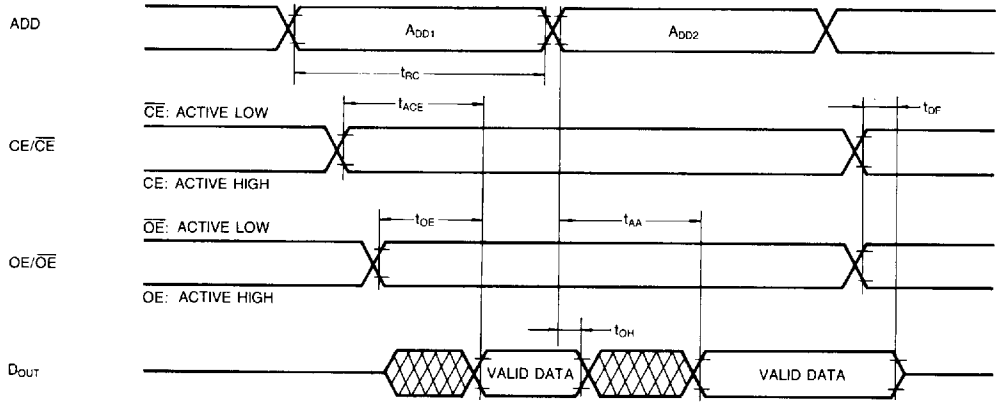
Item	Value
Input Pulse Levels	0.6V to 2.4V
Input Rise and Fall Times	10ns
Input and Output timing Levels	0.8V and 2.0V
Output Loads	1 TTL Gate and C_L = 100pF

READ CYCLE

Parameter	Symbol	KM23C8000A(G)-15		KM23C8000A(G)-20		KM23C8000A(G)-25		Unit
		Min	Max	Min	Max	Min	Max	
Read Cycle Time	t_{RC}	150		200		250		ns
Chip Enable Access Time	t_{ACE}		150		200		250	ns
Address Access Time	t_{AA}		150		200		250	ns
Output Enable Access Time	t_{OE}		70		90		110	ns
Output or Chip Disable to Output High-Z	t_{DF}		30		40		50	ns
Output Hold from Address Change	t_{OH}	0		0		0		ns

TIMING DIAGRAM

READ

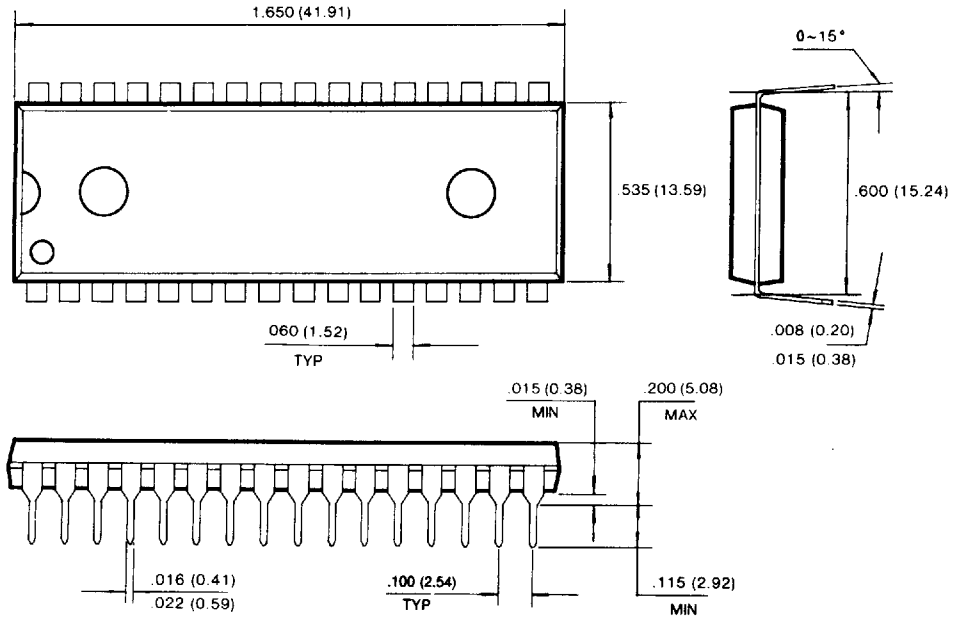


* After power up, in order to prevent wrong operation of special application, dummy cycle of CE or any address input (Min. 80ns) is required.

PACKAGE DIMENSIONS

32 LEAD PLASTIC DUAL IN LINE PACKAGE (KM23C8000A)

Units: Inches (millimeters)



32 LEAD SMALL OUTLINE PACKAGE (KM23C8000AG)