KM23C1000/1010(G/J) CMOS MASK ROM

1M-Bit (128K x 8) CMOS MASK ROM

FEATURES

- 131,072×8 bit organization
- Fast access time : 120ns(max).
- Supply voltage : single+5V
- Current consumption
  Operating : 30 mA(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 : 28-pin, 600mil, plastic DIP
  32-pin, 600mil, plastic DIP (JEDEC standard)
  32-pin, 525mil, plastic SOP
  32-pin, PLCC

GENERAL DESCRIPTION

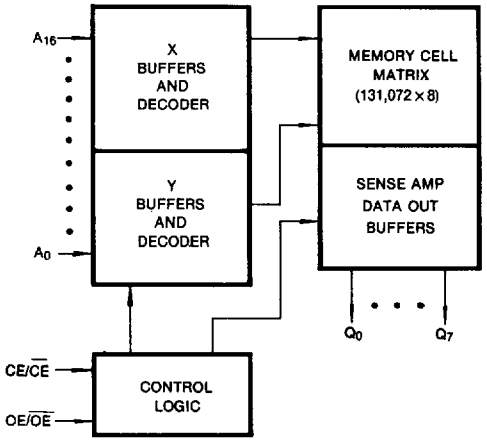
The KM23C1000/1010 is a fully static mask programmable ROM organized 131,072 x 8 bit. It is fabricated using silicon-gate CMOS process technology.

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 KM23C1000 is packaged in a 28-DIP, the KM23C1010 in a 32-DIP, the KM23C1010G in a 32-SOP, and the KM23C1010J in a 32-PLCC, provides polarity programmable CE and OE buffer as user option mode.

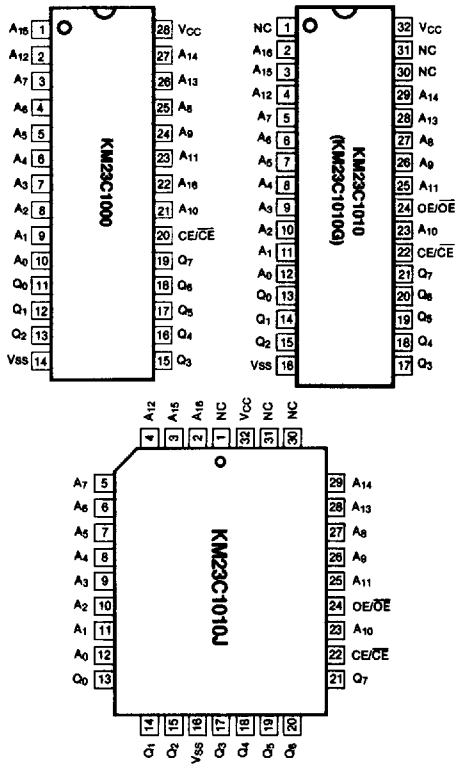
FUNCTIONAL BLOCK DIAGRAM



Pin Name	Pin Function
A_0-A_{16}	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
NC	No Connection

* User Selectable Polarity

PIN CONFIGURATION



SAMSUNG ELECTRONICS

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

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DC CHARACTERISTICS

Parameter	Symbol	Test Conditions	Min	Max	Unit
Operating Current	I_{CC}	$\overline{CE}=\overline{OE}=V_{IL}$, f=5.0MHz all output open	—	30	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	—	100	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)

Parameter	Symbol	Test Conditions	Min	Max	Unit
Output Capacitance	C_{OUT}	V_{OUT}=0V	—	8.0	pF
Input Capacitance	C_{IN}	V_{IN}=0V	—	8.0	pF

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

MODE SELECTION (KM23C1000)

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

MODE SELECTION (KM23C1010)

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	D_{OUT}	Active

AC CHARACTERISTICS

TEST CONDITIONS ($T_A = 0°C$ to $+70°C$, $V_{CC} = 5V \pm 10\%$, unless otherwise noted.)

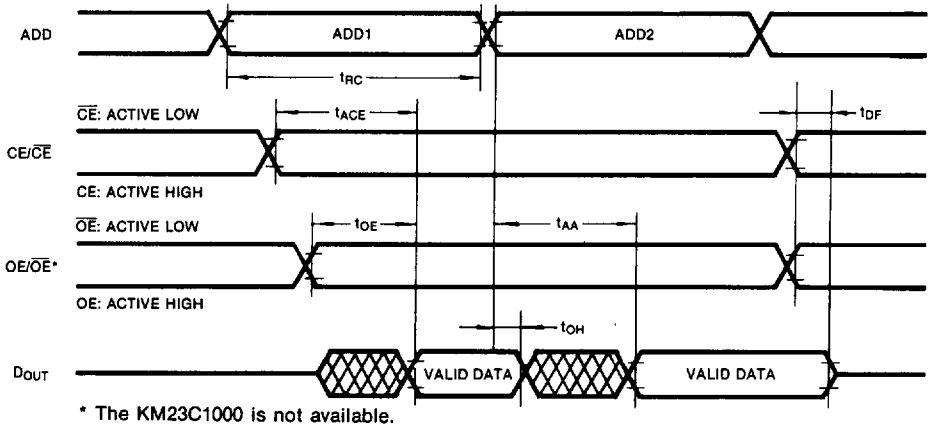
Item	Value
Input Pulse Levels	0.6V to 2.4V
Input Rise and Fall Times	10ns
Input and Output Timing Levels	0.8V and 2.0V
Output Loads	1 TTL Gate and $C_L = 100pF$

READ CYCLE

Parameter	Symbol	KM23C 1000-12 KM23C1010(G/J)12		KM23C 1000-15 KM23C1010(G/J)-15		KM23C 1000-20 KM23C 1010(G/J)-20		Unit
		Min	Max	Min	Max	Min	Max	
Read Cycle Time	t_{RC}	120		150		200		ns
Chip Enable Access Time	t_{ACE}		120		150		200	ns
Address Access Time	t_{AA}		120		150		200	ns
Output Enable Access Time	t_{OE}		60		70		90	ns
Output or Chip Disable to Output High-Z	t_{DF}		20		30		40	ns
Output Hold from Address Change	t_{OH}	0		0		0		ns

TIMING DIAGRAM

READ



* The KM23C1000 is not available.

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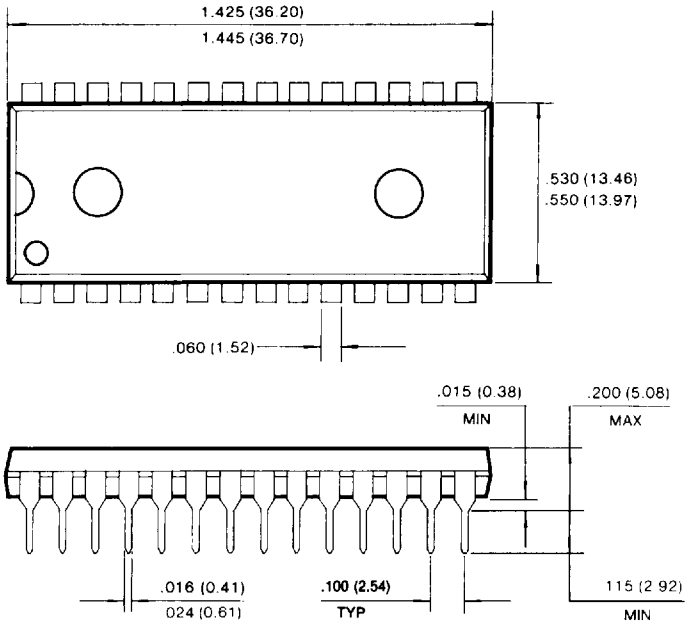
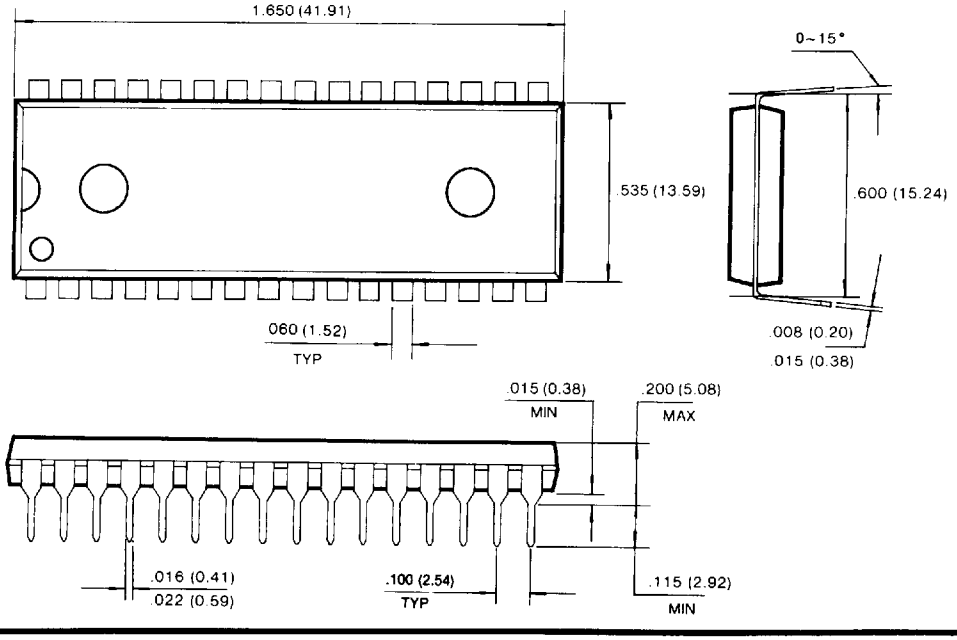
PACKAGE DIMENSIONS

28 LEAD PLASTIC DUAL IN LINE PACKAGE (KM23C1000)

Units: Inches (millimeters)



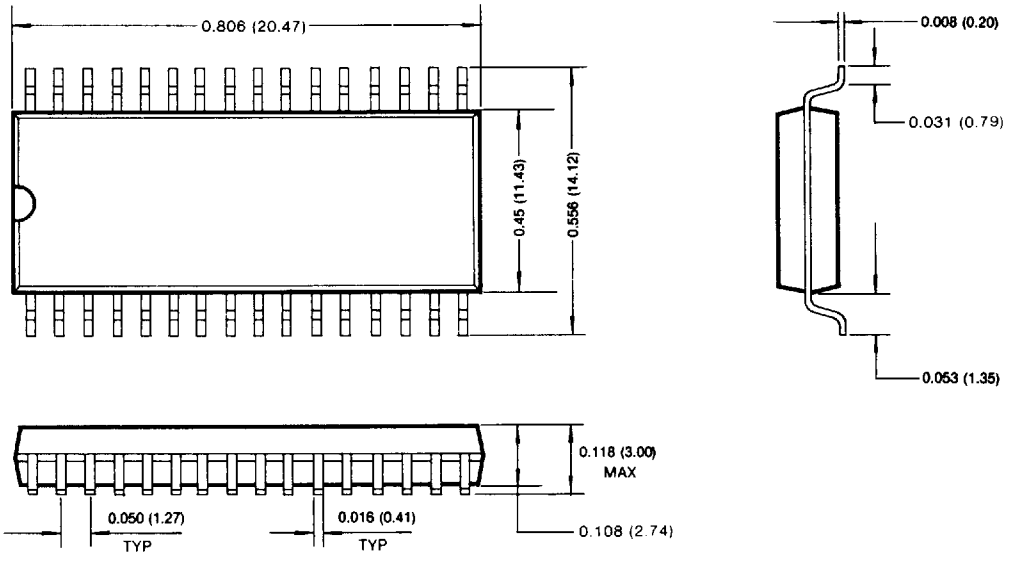
32 LEAD PLASTIC DUAL IN LINE PACKAGE (KM23C1010)



PACKAGE DIMENSIONS (Continued)

32 LEAD SMALL OUTLINE PACKAGE (KM23C1010G)

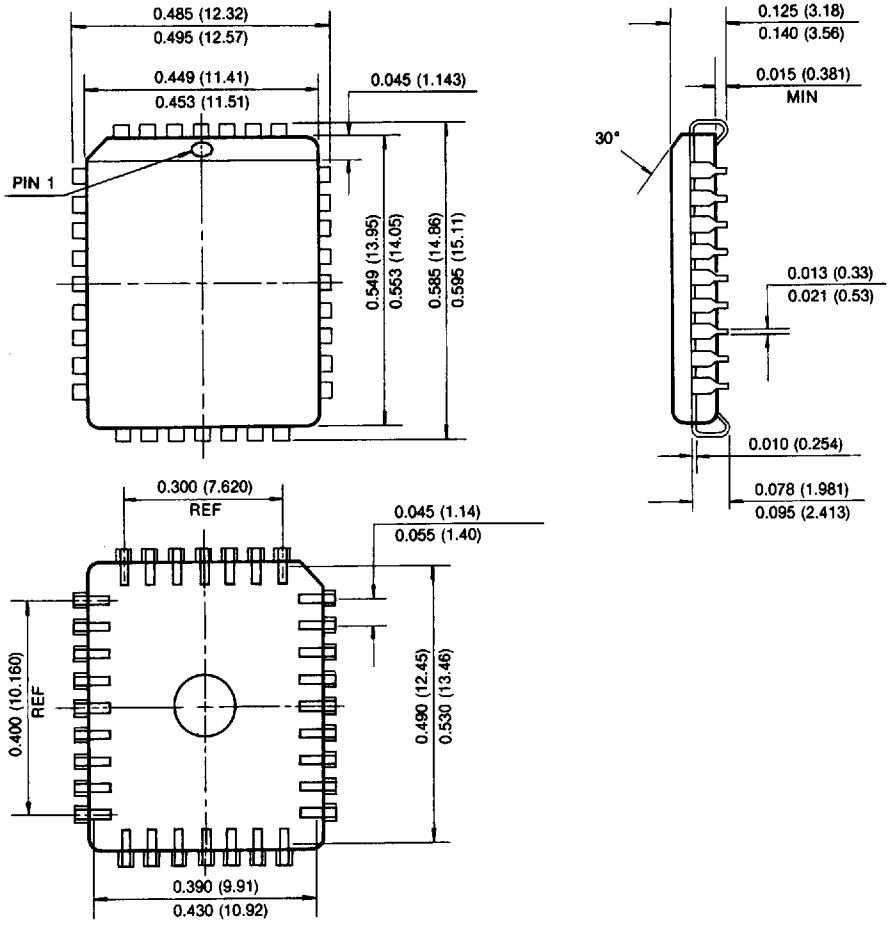
Units: Inches (millimeters)



PACKAGE DIMENSIONS

32 PIN PLASTIC LEADED CHIP CARRIER (KM23C1010J)

Units: Inches (millimeters)



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