



MX23L51220

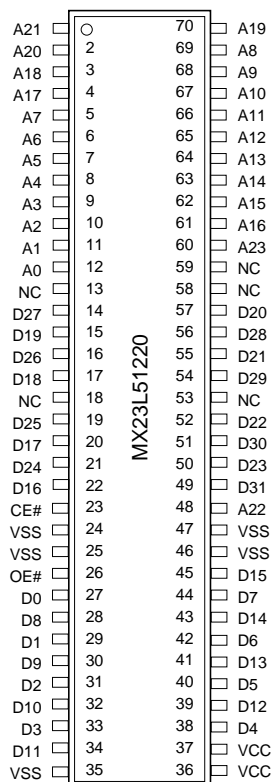
512M-BIT (16M x 32) MASKROM WITH PAGE MODE (SSOP ONLY) (for socket solution only)

FEATURES

- Bit organization
 - 16M x 32 (double word mode) only
- Fast access time
 - Random access: 90ns (max.)
 - Page access: 30ns (max.)
- Page size
 - 8 double words per page
- Current
 - Operating: 80mA (max.) @ 5MHz
 - Standby: 30uA (max.)
- Supply voltage : 3.3V ±10%
- Package
 - 70 pin SSOP
- Temperature
 - 0~70° C

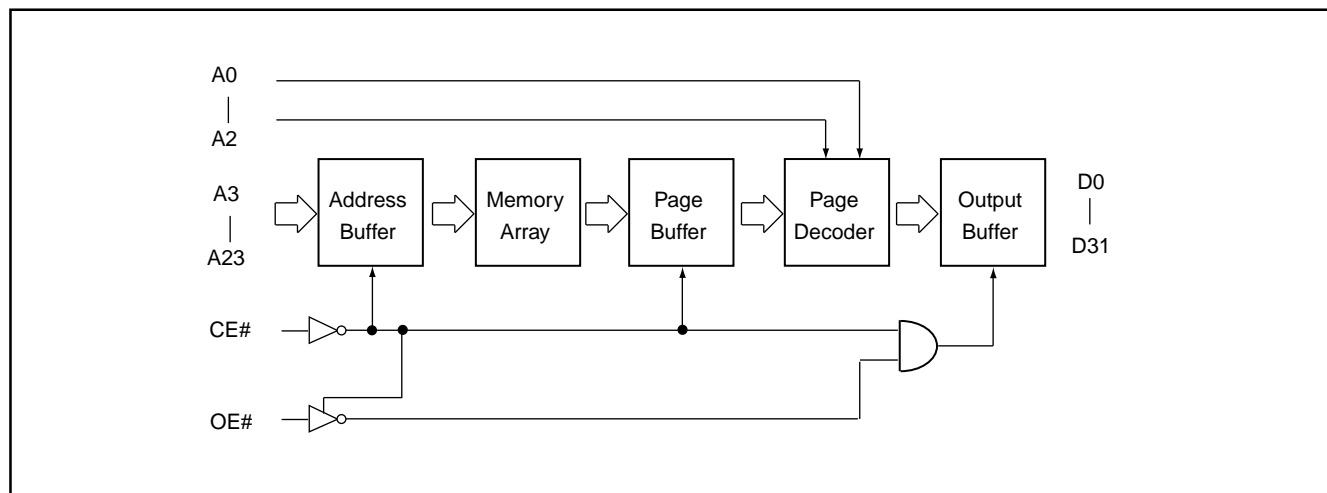
PIN CONFIGURATION

70 PIN SSOP



PIN DESCRIPTION

Symbol	Pin Function
A0~A23	Address Inputs
D0~D31	Data Outputs
CE#	Chip Enable Input
OE#	Output Enable Input
VCC	Power Supply Pin
VSS	Ground Pin
NC	No Connection (pin 18 and 53 must be floating, not connected to VCC or GND)

BLOCK DIAGRAM

MODE SELECTION

CE#	OE#	D0~D31	Mode	Power
H	X	High Z	-	Stand-by
L	H	High Z	-	Active
L	L	D0~D31	Double Word	Active

ORDER INFORMATION

Part No.	Access Time	Package
MX23L51220MC-90	90ns	70 pin SSOP
MX23L51220MC-10	100ns	70 pin SSOP

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Ratings
Voltage on any Pin Relative to VSS	VIN	-0.3V to 3.9V
Ambient Operating Temperature	Topr	0°C to 70°C
Storage Temperature	Tstg	-65°C to 125°C

DC CHARACTERISTICS ($T_a = 0^\circ\text{C} \sim 70^\circ\text{C}$, $V_{CC} = 3.3\text{V} \pm 10\%$)

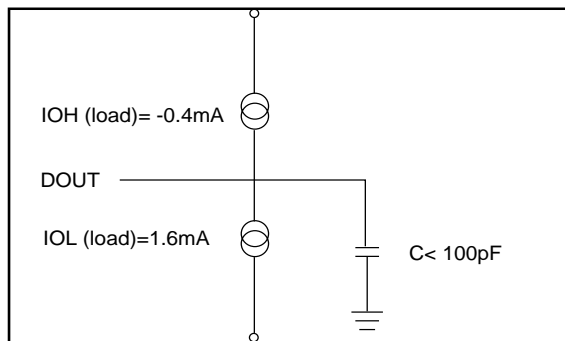
Item	Symbol	MIN.	MAX.	Conditions
Output High Voltage	VOH	2.4V	-	IOH = -0.4mA
Output Low Voltage	VOL	-	0.4V	IOL = 1.6mA
Input High Voltage	VIH	2.2V	VCC+0.3V	
Input Low Voltage	VIL	-0.3V	0.2xVCC	
Input Leakage Current	ILI	-	10uA	0V, VCC
Output Leakage Current	ILO	-	10uA	0V, VCC
Operating Current	ICC	-	80mA	f=5MHz, all output open CE#=VIL(Chip Enable) OE#=VIH(Output Disabled)
Standby Current (TTL)	ISTB1	-	1mA	CE# = VIH
Standby Current (CMOS)	ISTB2	-	30uA	CE# > VCC-0.2V
Input Capacitance	CIN	-	20pF	Ta = 25°C, f = 1MHZ
Output Capacitance	COUT	-	10pF	Ta = 25°C, f = 1MHZ

AC CHARACTERISTICS ($T_a = 0^\circ\text{C} \sim 70^\circ\text{C}$, $V_{CC} = 3.3\text{V} \pm 10\%$)

Item	Symbol	23L51220-90		23L51220-10	
		MIN.	MAX.	MIN.	MAX.
Read Cycle Time	tRC	90ns	-	100ns	-
Address Access Time	tAA	-	90ns	-	100ns
Chip Enable Access Time	tCE	-	90ns	-	100ns
Page Mode Access Time	tPA	-	30ns	-	30ns
Output Enable Time	tOE	-	30ns	-	30ns
Output Hold After Address	tOH	0ns	-	0ns	-
Output High Z Delay	tHZ	-	20ns	-	20ns

AC Test Conditions

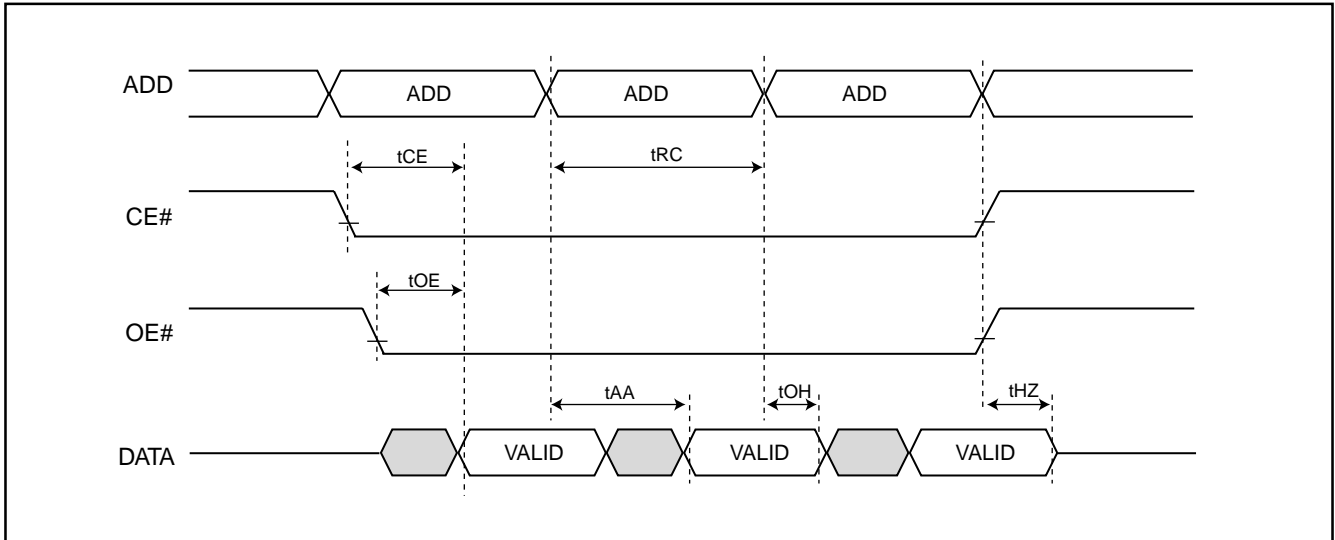
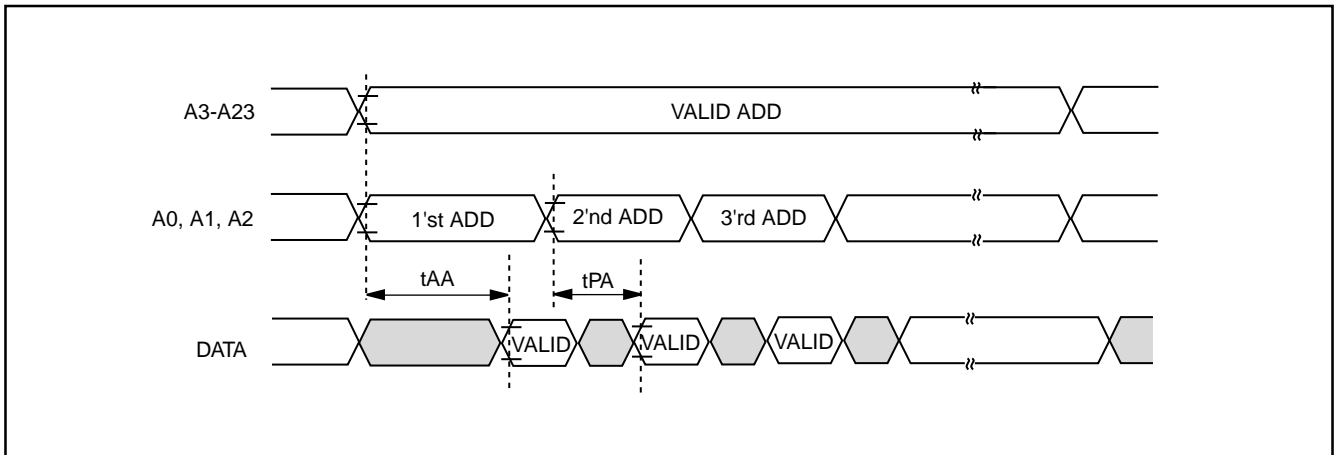
Input Pulse Levels	0.4V~ 2.8V
Input Rise and Fall Times	10ns
Input Timing Level	1.5V
Output Timing Level	1.5V
Output Load	See Figure

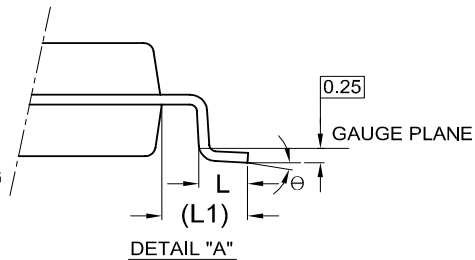
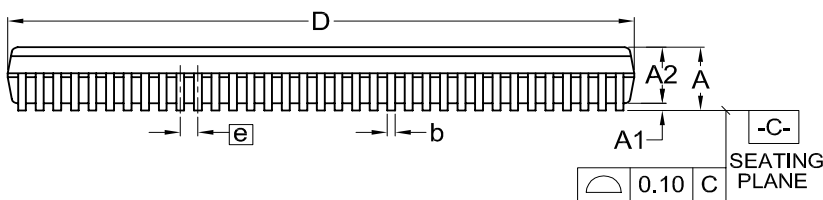
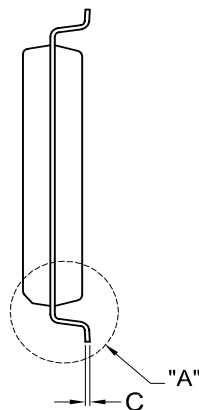
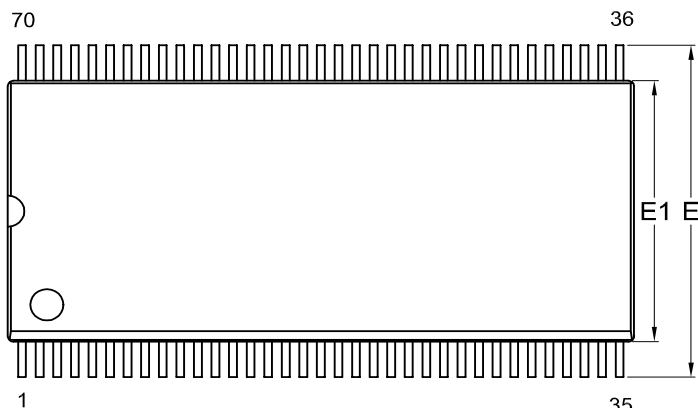


Note: No output loading is present in tester load board.

Active loading is used and under software programming control.

Output loading capacitance includes load board's and all stray capacitance.

TIMING DIAGRAM
RANDOM READ

PAGE READ


PACKAGE INFORMATION
Title: Package Outline for SSOP 70L (500MIL)


Dimensions (inch dimensions are derived from the original mm dimensions)

SYMBOL		A	A1	A2	b	C	D	E	E1	e	L	L1	θ
UNIT													
mm	Min.	---	0.10	2.56	0.30	0.17	28.37	15.73	12.47		0.61	1.51	0
	Nom.	---	0.15	2.69	0.35	0.20	28.50	16.03	12.60	0.80	0.81	1.71	5
	Max.	3.05	0.23	2.82	0.40	0.25	28.63	16.33	12.73		1.01	1.91	10
Inch	Min.	---	0.004	0.101	0.012	0.007	1.117	0.619	0.491		0.024	0.060	0
	Nom.	---	0.006	0.106	0.014	0.008	1.122	0.631	0.496	0.031	0.032	0.068	5
	Max.	0.120	0.009	0.111	0.016	0.010	1.127	0.643	0.501		0.040	0.075	10

DWG.NO.	REVISION	REFERENCE			ISSUE DATE
		JEDEC	EIAJ		
6110-1503	5				11-26-'03

REVISION HISTORY

Revision No.	Description	Page	Date
1.1	Modify supply voltage-- 3.3V \pm 5% for temporary period, 3.3V \pm 10% after new product available	P1,2,3	JUL/11/2003
1.2	1. Removed "Preliminary" on page 1 2. Operating : 60mA(max.) --> 80mA(max.) 3. Input pulse levels : 0.4V~2.4V --> 0.4V~2.8V	P1 P1,3 P3	FEB/25/2004
1.3	1. Added "for socket solution only" on page 1	P1	SEP/02/2004



MX23L51220

MACRONIX INTERNATIONAL CO., LTD.

Headquarters:

TEL:+886-3-578-6688

FAX:+886-3-563-2888

Europe Office :

TEL:+32-2-456-8020

FAX:+32-2-456-8021

Hong Kong Office :

TEL:+86-755-834-335-79

FAX:+86-755-834-380-78

Japan Office :

Kawasaki Office :

TEL:+81-44-246-9100

FAX:+81-44-246-9105

Osaka Office :

TEL:+81-6-4807-5460

FAX:+81-6-4807-5461

Singapore Office :

TEL:+65-6346-5505

FAX:+65-6348-8096

Taipei Office :

TEL:+886-2-2509-3300

FAX:+886-2-2509-2200

MACRONIX AMERICA, INC.

TEL:+1-408-262-8887

FAX:+1-408-262-8810

<http://www.macronix.com>
