MX23L8103

8M-BIT MASK ROM

FEATURES

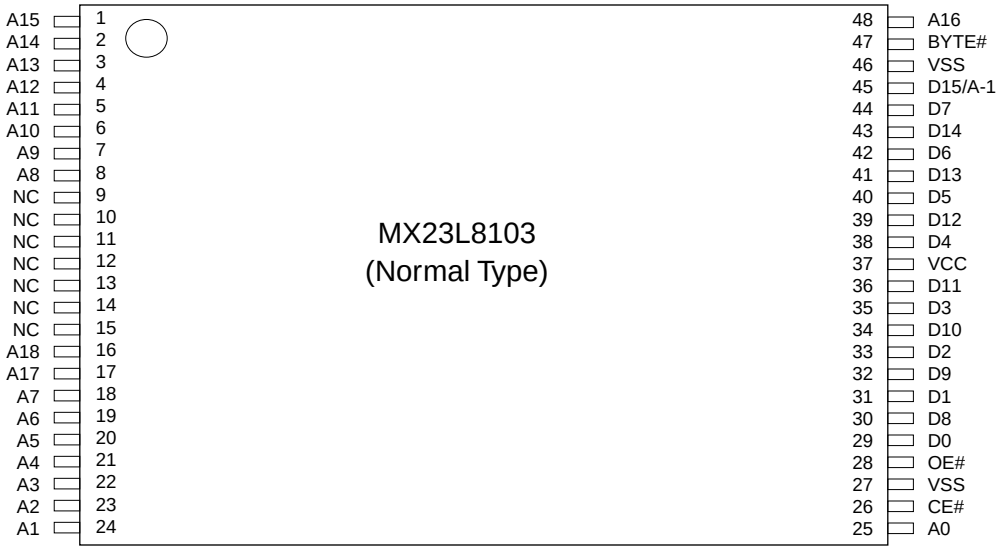
- Bit organization
  - 1M x 8 (byte mode)
  - 512K x 16 (word mode)
- Fast access time
  - Random access:70ns(max.)
- Current
  - Operating:15mA
  - Standby:5uA
- Supply voltage
  - 2.7V ~ 3.6V
- Package
  - 48 pin TSOP(12mm x 20mm)
  - 48 ball mini BGA (6mm x 8mm, ball pitch 0.8mm, ball size 0.3mm)
- Temperature
  - -40 ~ 85° C

PIN DESCRIPTION

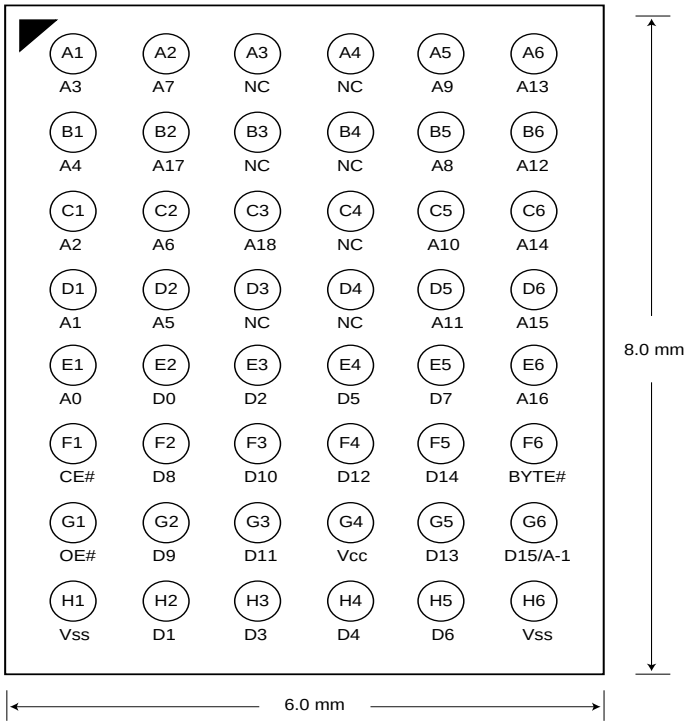
Symbol	Pin Function
A0~A18	Address Inputs
D0~D14	Data Outputs
D15/A-1	D15 (Word Mode)/ LSB Address (Byte Mode)
CE#	Chip Enable Input
OE#	Output Enable Input
Byte#	Word/ Byte Mode Selection
VCC	Power Supply Pin
VSS	Ground Pin
NC	No Connection

PIN CONFIGURATION

48 TSOP (Top View)



48 mini BGA (Top View, Ball Down)



ORDER INFORMATION

Part No.	Speed	Package	Grade
MX23L8103TC-70	70ns	48 pin TSOP	Commercial
MX23L8103TC-90	90ns	48 pin TSOP	Commercial
MX23L8103TC-12	120ns	48 pin TSOP	Commercial
MX23L8103TI-70	70ns	48 pin TSOP	Industrial
MX23L8103TI-90	90ns	48 pin TSOP	Industrial
MX23L8103TI-12	120ns	48 pin TSOP	Industrial
MX23L8103XI-70	70ns	48 ball mini BGA	Industrial
MX23L8103XI-90	90ns	48 ball mini BGA	Industrial
MX23L8103XI-12	120ns	48 ball mini BGA	Industrial

Note: Industrial grade temperature: -40 ~ 85° C
Commercial grade temperature: 0 ~ 70° C

MODE SELECTION

CE#	OE#	Byte#	D15/A-1	D0~D7	D8~D15	Mode	Power
H	X	X	X	High Z	High Z	-	Stand-by
L	H	X	X	High Z	High Z	-	Active
L	L	H	Output	D0~D7	D8~D15	Word	Active
L	L	L	Input	D0~D7	High Z	Byte	Active

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Ratings
Supply Voltage Relative to VSS	VCC	-0.3V to 4.3V
Voltage on any Pin Relative to VSS	VIN	-0.3V to 3.9V
Ambient Operating Temperature	Topr	-40° C to 85° C
Storage Temperature	Tstg	-65° C to 125° C

DC CHARACTERISTICS (Ta = -40° C ~ 85° C, VCC = 2.7V~3.6V)

Item	Symbol	MIN.	MAX.	Conditions
Output High Voltage	VOH	2.4V	-	IOH = -400uA
Output Low Voltage	VOL	-	0.4V	IOL = 1.6mA
Input High Voltage	VIH	2.1V	VCC+0.3V	
Input Low Voltage	VIL	-0.3V	0.8V	
Input Leakage Current	ILI	-	5uA	0V, VCC
Output Leakage Current	ILO	-	5uA	0V, VCC
Operating Current	ICC	-	15mA	f=5MHz, CE#=VIL, OE#=VIH all output open
Standby Current (CMOS)	ISTB	-	5uA	CE#>VCC-0.2V
Input Capacitance	CIN	-	10pF	Ta = 25° C, f = 1MHZ
Output Capacitance	COUT	-	10pF	Ta = 25° C, f = 1MHZ

AC CHARACTERISTICS (Ta = -40° C ~ 85° C, VCC = 2.7V~3.6V)

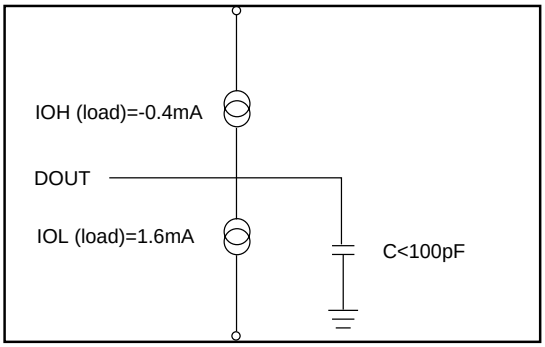
Item	Symbol	23L8103-70		23L8103-90		23L8103-12	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Read Cycle Time	tRC	70ns	-	90ns	-	120ns	-
Address Access Time	tAA	-	70ns	-	90ns	-	120ns
Chip Enable Access Time	tACE	-	70ns	-	90ns	-	120ns
Output Enable Time	tOE	-	30ns	-	35ns	-	50ns
Output Hold After Address	tOH	0ns	-	0ns	-	0ns	-
Output High Z Delay	tHZ	-	20ns	-	20ns	-	20ns

Note:Output high-impedance delay (tHZ) is measured from OE# or CE# going high, and this parameter guaranteed by design over the full voltage and temperature operating range - not tested.

AC Test Conditions

Input Pulse Levels	0V~ 3.0V
Input Rise and Fall Times	5ns
Input Timing Level	1.5V
Output Timing Level	1.5V
Output Load	See Figure

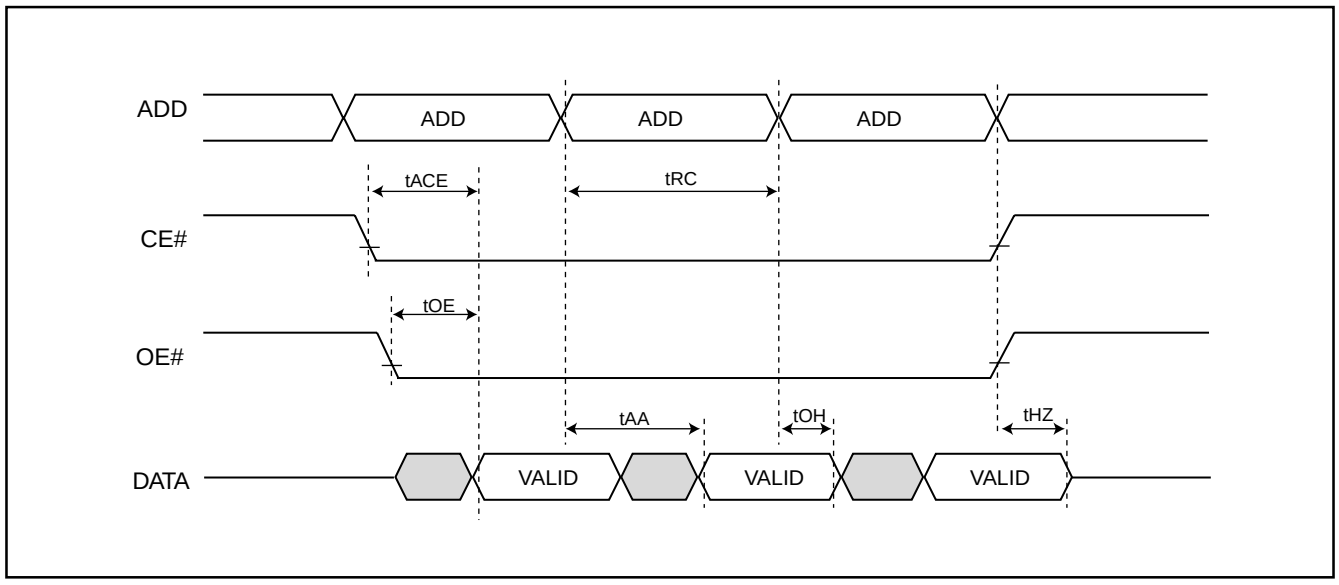
Note: 30pF output load capacitance for 70 and 90ns speed grade
100pF output load capacitance for 120ns speed grade



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.

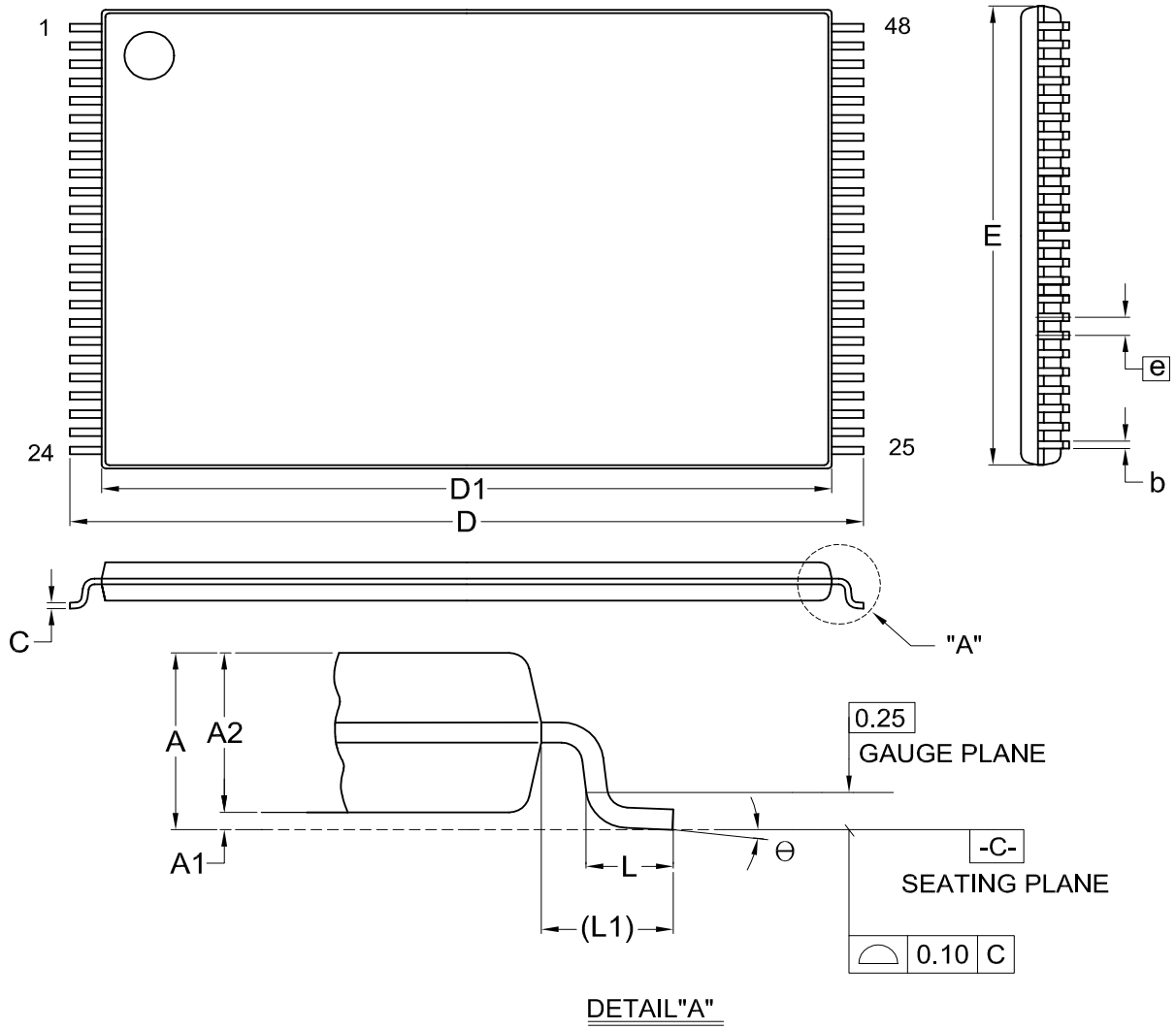
TIMING DIAGRAM

RANDOM READ



PACKAGE INFORMATION

Title: Package Outline for TSOP(I) 48L (12X20mm)NORMAL FORM



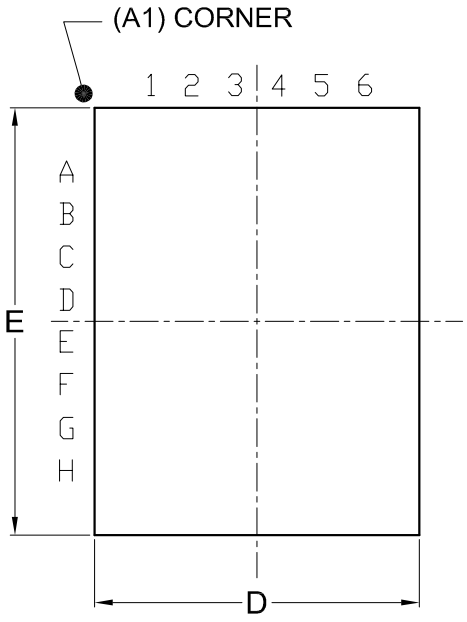
Dimensions (inch dimensions are derived from the original mm dimensions)

SYMBOL / UNIT		A	A1	A2	b	C	D	D1	E	e	L	L1	Θ
mm	Min.	---	0.05	0.95	0.17	0.10	19.80	18.30	11.90		0.50	0.70	0
	Nom.	---	0.10	1.00	0.20	0.13	20.00	18.40	12.00	0.50	0.60	0.80	5
	Max.	1.20	0.15	1.05	0.27	0.21	20.20	18.50	12.10		0.70	0.90	8
Inch	Min.	---	0.002	0.037	0.007	0.004	0.780	0.720	0.469		0.020	0.028	0
	Nom.	---	0.004	0.039	0.008	0.005	0.787	0.724	0.472	0.020	0.024	0.031	5
	Max.	0.047	0.006	0.041	0.011	0.008	0.795	0.728	0.476		0.028	0.035	8

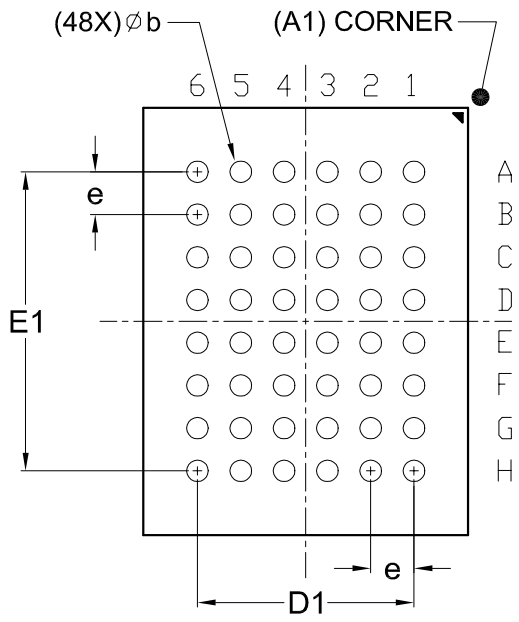
DWG.NO.	REVISION	REFERENCE			ISSUE DATE
		JEDEC	EIAJ		
6110-1607	7	MO-142			12-01-'03

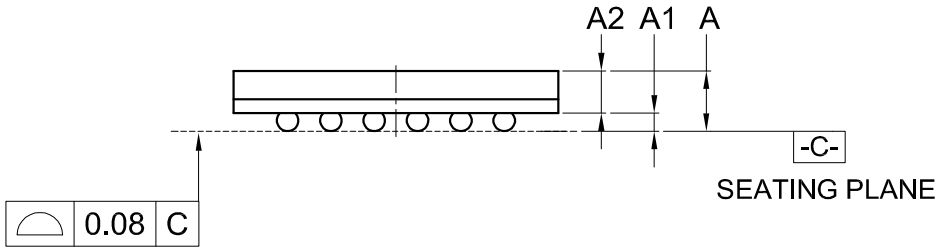
Title: **Package Outline for CSP 48BALL(6X8X1.2MM,BALL PITCH 0.8MM,BALL DIAMETER 0.3MM)**

TOP VIEW



BOTTOM VIEW





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

SYMBOL / UNIT		A	A1	A2	b	D	D1	E	E1	e
mm	Min.	---	0.18	0.65	0.27	5.90		7.90		
	Nom.	---	0.23	—	0.30	6.00	4.00	8.00	5.60	0.80
	Max.	1.20	0.28	—	0.37	6.10		8.10		
Inch	Min.	—	0.007	0.026	0.011	0.232		0.311		
	Nom.	—	0.009	---	0.012	0.236	0.157	0.315	0.220	0.031
	Max.	0.047	0.011	---	0.015	0.240		0.319		

DWG.NO.	REVISION	REFERENCE			ISSUE DATE
		JEDEC	EIAJ		
6110-4201	4	MO-210			12-12-'03

REVISION HISTORY

Revision No.	Description	Page	Date
1.1	Add Package 48-ball mini BGA 8mm x 13mm-->8mm x 9mm	P1, 2	MAY/31/2000
1.2	1.Modify Pin Configuration-- 48 mini BGA	P1,2	JUL/06/2001
	2.Added 48-Ball mini BGA--Package Information	P6	
	3.Modify DC Characteristics--VIH:2.2V-->2.1V	P3	
1.3	1.Added Order Information	P2	JUL/16/2001
	2.Add Tempetature:-40~85° C	P1	
1.4	Add CE#=VIL, OE#=VIH in DC Characteristics's ICC	P3	SEP/28/2001
1.5	Add Supply Voltage Relative to VSS : -0.3V to 4.3V	P3	SEP/10/2002
1.6	Modify Package Information	P5~6	NOV/22/2002
1.7	1. Add commercial grade in order information	P2	MAY/03/2004

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