



PRELIMINARY

# MX23L12810A

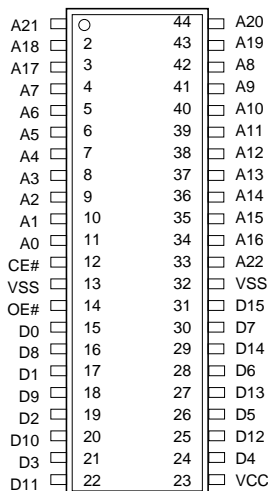
## 128M-BIT PAGE MODE MASK ROM (SOP)

### FEATURES

- Bit organization
  - 8M x 16 (word mode)
- Fast access time
  - Random access:100ns (max.)
  - Page access:25ns (max.)
- Page size
  - 8 words per page
- Current
  - Operating:25mA
  - Standby:15uA
- Supply voltage
  - 2.7V ~ 3.6V
- Package
  - 44 pin SOP (500mil), Pb-free, RoHS
- Temperature
  - 0°C ~ 70°C
- Process
  - 0.18um

### PIN CONFIGURATION

#### 44 SOP



### PIN DESCRIPTION

Symbol	Pin Function
A0~A22	Address Inputs
D0~D15	Data Outputs
CE#	Chip Enable Input
OE#	Output Enable Input
VCC	Power Supply Pin
VSS	Ground Pin
NC	No Connection

### ORDER INFORMATION

Part No.	Speed	Package	Grade	Remark
MX23L12810AMC-10G	100ns	44 pin SOP	Commercial	Pb-free
MX23L12810AMC-12G	120ns	44 pin SOP	Commercial	Pb-free



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## MODE SELECTION

CE#	OE#	D0~D15	Mode	Power
H	X	High Z	-	Stand-by
L	H	High Z	-	Active
L	L	D0~D15	Word	Active

## 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 (Ta = 0°C ~ 70°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	0.7xVCC	VCC+0.3	
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	-	25mA	f=5MHz, CE#=VIL, OE#=VIH all output open
Standby Current (CMOS)	ISTB	-	15uA	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 = 0°C ~ 70°C, VCC = 2.7V~3.6V)

Item	Symbol	23L12810A-10		23L12810A-12	
		MIN.	MAX.	MIN.	MAX.
Read Cycle Time	tRC	100ns	-	120ns	-
Address Access Time	tAA	-	100ns	-	120ns
Chip Enable Access Time	tCE	-	100ns	-	120ns
Page Access Time	tPA	-	25ns	-	25ns
Output Enable Time	tOE	-	25ns	-	25ns
Output Hold After Address	tOH	0ns	-	0ns	-
Output High Z Delay	tHZ	-	20ns	-	20ns

Note:

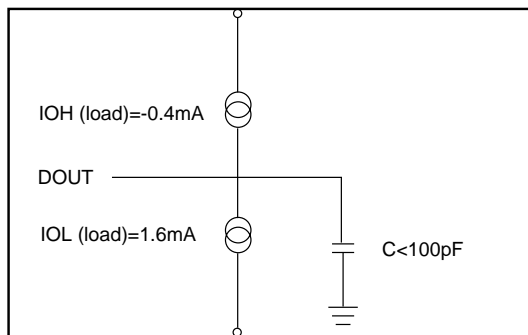
- Output high-impedance delay (tHZ) is measured from OE# or CE# going high, and this parameter guaranteed by design over the full voltage and temperature operating range - not tested.
- Operating current is measured under Non-Return to Zero (NRZ) test pattern.



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## AC Test Conditions

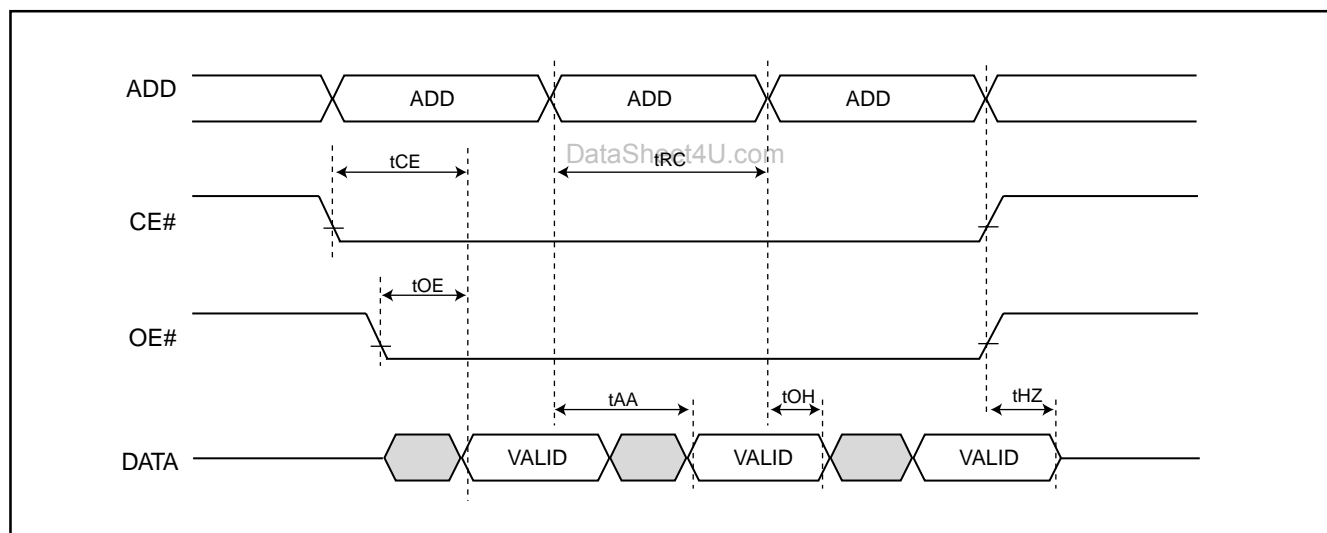
Input Pulse Levels	0.4V~ 2.4V
Input Rise and Fall Times	5ns
Input Timing Level	1.5V
Output Timing Level	1.5V
Output Load	See Figure



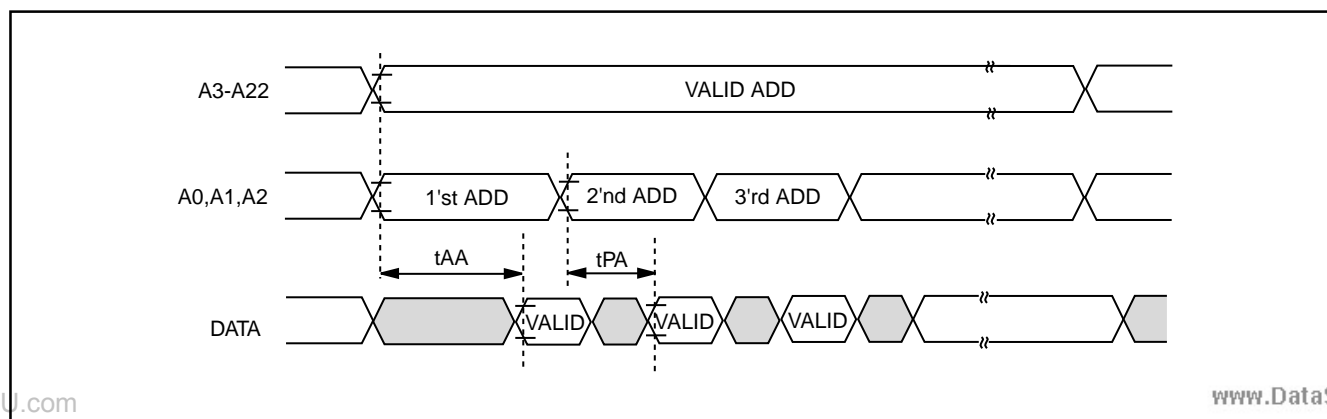
Note: No output loading is present in tester load board.  
 Active loading is used and under software programming control.  
 Output loading capacitance includes load board's and all stray capacitance.

## TIMING DIAGRAM

### RANDOM READ



### PAGE READ

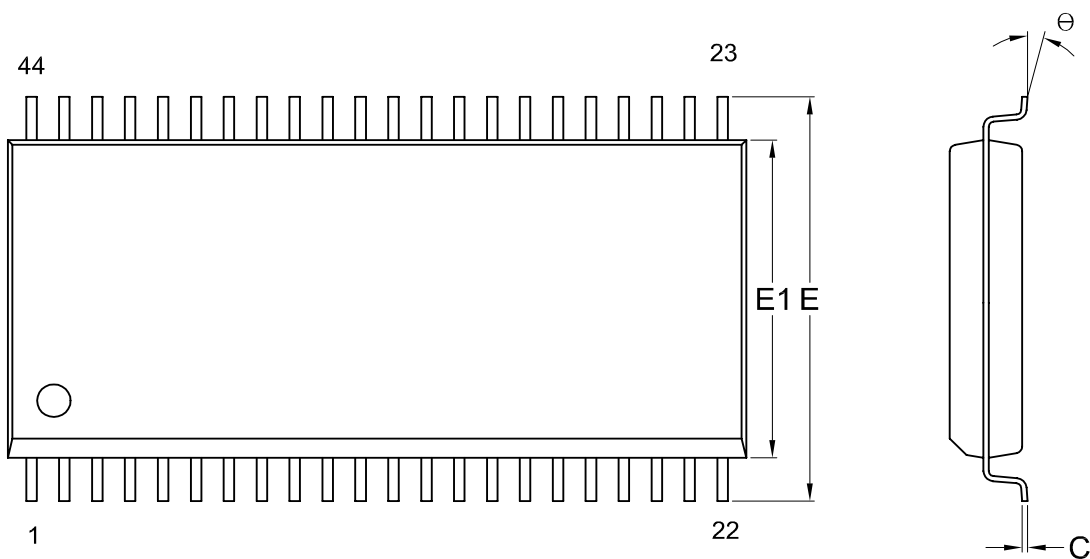




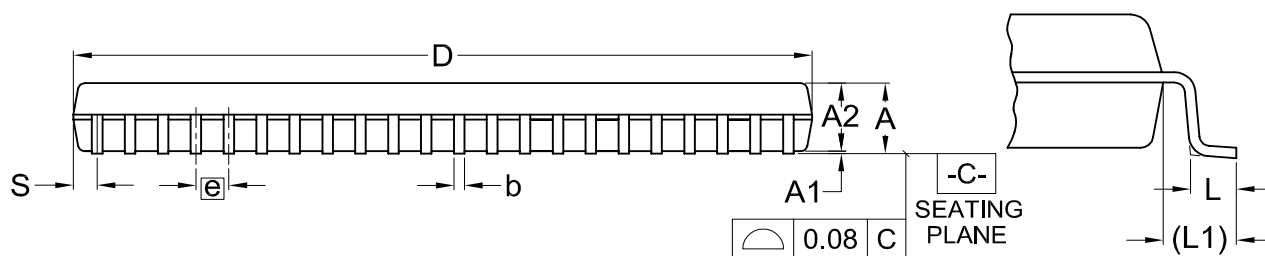
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## PACKAGE INFORMATION

Title: Package Outline for SOP 44L (500MIL)



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

SYMBOL		A	A1	A2	b	C	D	E	E1	e	L	L1	S	θ
UNIT														
mm	Min.	---	0.10	2.59	0.36	0.15	28.37	15.83	12.47		0.56	1.51	0.78	0
	Nom.	---	0.15	2.69	0.41	0.20	28.50	16.03	12.60	1.27	0.76	1.71	0.91	5
	Max.	3.00	0.20	2.80	0.51	0.25	28.63	16.23	12.73		0.96	1.91	1.04	10
Inch	Min.	---	0.004	0.102	0.014	0.006	1.117	0.623	0.491		0.022	0.059	0.031	0
	Nom.	---	0.006	0.106	0.016	0.008	1.122	0.631	0.496	0.050	0.030	0.067	0.036	5
	Max.	0.118	0.008	0.110	0.020	0.010	1.127	0.639	0.501		0.038	0.075	0.041	10

DWG.NO.	REVISION	REFERENCE			ISSUE DATE
		JEDEC	EIAJ		
6110-1405	6	MO-175			11-26-03

**REVISION HISTORY**

<b>Revision</b>	<b>Description</b>	<b>Page</b>	<b>Date</b>
0.01	1. Added Note 2 in AC Characteristics 2. Modified Input Pulse Levels from 0V~3.0V to 0.4V~2.4V	P2 P3	DEC/05/2005
0.02	1. Modified Operating Current from 20mA to 25mA 2. Added access time:100ns	P1,2 P1,2	JAN/10/2006
0.03	1. Removed access time:90ns 2. Modified random read timing	P1,2 P3	FEB/15/2006
0.04	1. Modified random read timing 2. Removed tAH in AC characteristics	P3 P2	APR/07/2006

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