



MX23L8111

8M-BIT MASK ROM(8/16 BIT OUTPUT)

FEATURES

- Bit organization
 - 1M x 8 (byte mode)
 - 512K x 16 (word mode)
- Fast access time
 - Random access: 100ns (max.)
 - Page access: 50ns (max.)
- Current
 - Operating: 20mA
 - Standby: 20uA
- Supply voltage
 - 100ns @3.0V ~ 3.6V
 - 120ns @2.7V ~ 3.6V
- Package
 - 44 pin SOP (500mil)
 - 42 pin PDIP (600mil)
 - 48 pin TSOP (type 1)
 - 44 pin TSOP (type 2)

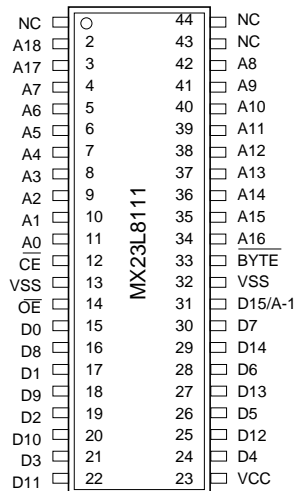
ORDER INFORMATION

Part No.	Access	Page	Package
	Time	Access Time	
MX23L8111MC-10	100ns	50ns	44 pin SOP
MX23L8111MC-12	120ns	60ns	44 pin SOP
MX23L8111PC-10	100ns	50ns	42 pin PDIP
MX23L8111PC-12	120ns	60ns	42 pin PDIP
MX23L8111TC-10	100ns	50ns	48 pin TSOP
MX23L8111TC-12	120ns	60ns	48 pin TSOP
MX23L8111RC-10	100ns	50ns	48 pin RTSOP
MX23L8111RC-12	120ns	60ns	48 pin RTSOP
MX23L8111YC-10	100ns	50ns	44 pin TSOP
MX23L8111YC-12	120ns	60ns	44 pin TSOP

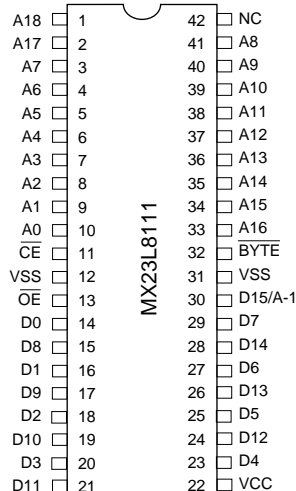
Note: 48-TSOP and 48-RTSOP support word mode only, not for byte mode.

PIN CONFIGURATION

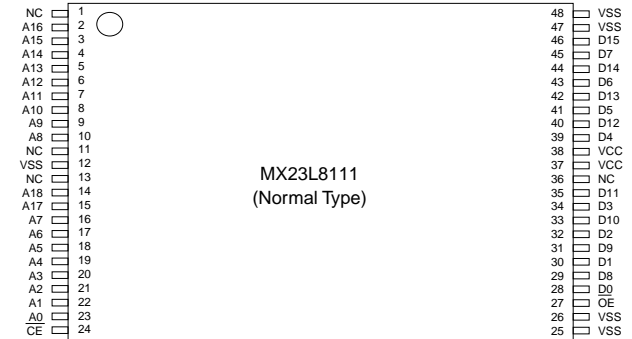
44 SOP/44TSOP



42PDIP



48 TSOP (for word mode only)



48 Reverse TSOP (for word mode only)



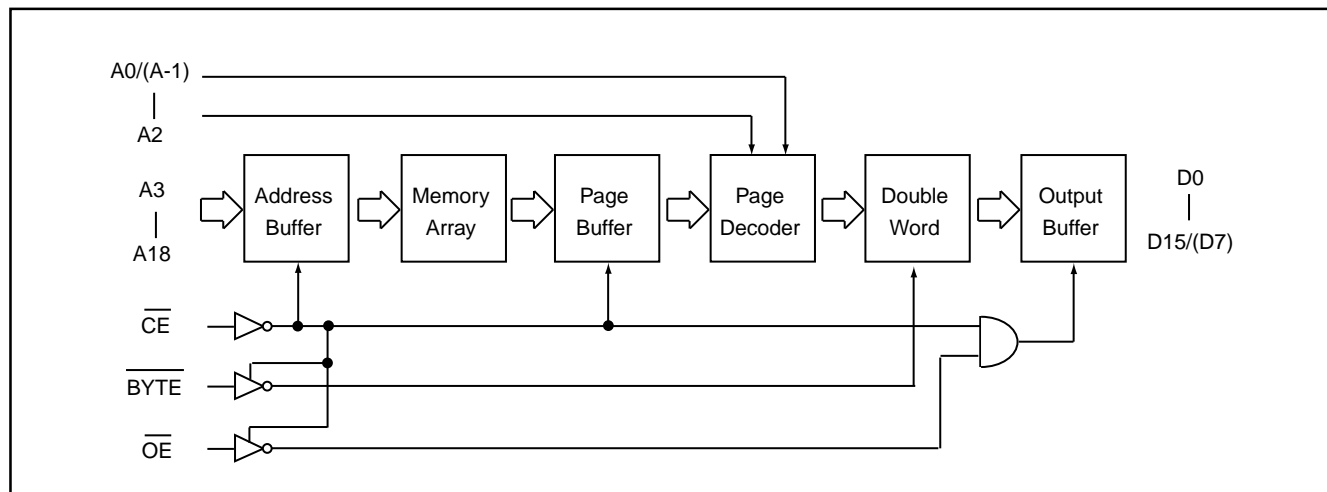
PIN DESCRIPTION

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

MODE SELECTION

\overline{CE}	\overline{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

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Ratings
Voltage on any Pin Relative to VSS	VIN	-1.3V to VCC+2.0V (Note)
Ambient Operating Temperature	Topr	0°C to 70°C
Storage Temperature	Tstg	-65°C to 125°C

Note: Minimum DC voltage on input or I/O pins is -0.5V. During voltage transitions, inputs may undershoot VSS to -1.3V for periods of up to 20ns. Maximum DC voltage on input or I/O pins is VCC+0.5V. During voltage transitions, input may overshoot VCC to VCC+2.0V for periods of up to 20ns.

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	24V	-	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	0.8V	
Input Leakage Current	ILI	-	5uA	0V, VCC
Output Leakage Current	ILO	-	5uA	0V, VCC
Operating Current	ICC1	-	20mA	f=10MHz, all output open
Standby Current (TTL)	ISTB1	-	1mA	$\overline{CE} = V_{IH}$
Standby Current (CMOS)	ISTB2	-	20uA	$\overline{CE} > V_{CC} - 0.2V$
Input Capacitance	CIN	-	10pF	$T_a = 25^\circ\text{C}$, f = 1MHZ
Output Capacitance	COUT	-	10pF	$T_a = 25^\circ\text{C}$, f = 1MHZ

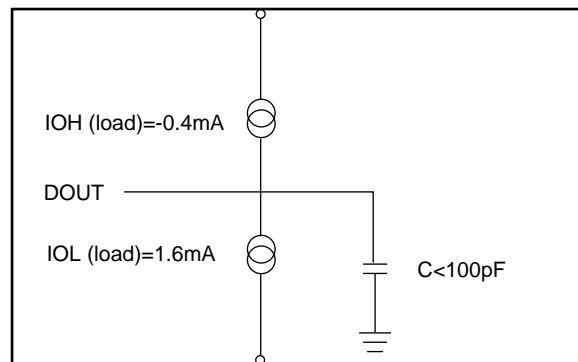
AC CHARACTERISTICS ($T_a = 0^\circ\text{C} \sim 70^\circ\text{C}$, $V_{CC} = 3.3\text{V} \pm 10\%$)

Item	Symbol	23L8111-10		23L8111-12	
		MIN.	MAX.	MIN.	MAX.
Read Cycle Time	tRC	100ns	-	120ns	-
Address Access Time	tAA	-	100ns	-	120ns
Chip Enable Access Time	tACE	-	100ns	-	120ns
Page Mode Access Time	tPA	-	50ns	-	60ns
Output Enable Time	tOE	-	50ns	-	60ns
Output Hold After Address	tOH	0ns	-	0ns	-
Output High Z Delay	tHZ	-	20ns	-	20ns

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

AC Test Conditions

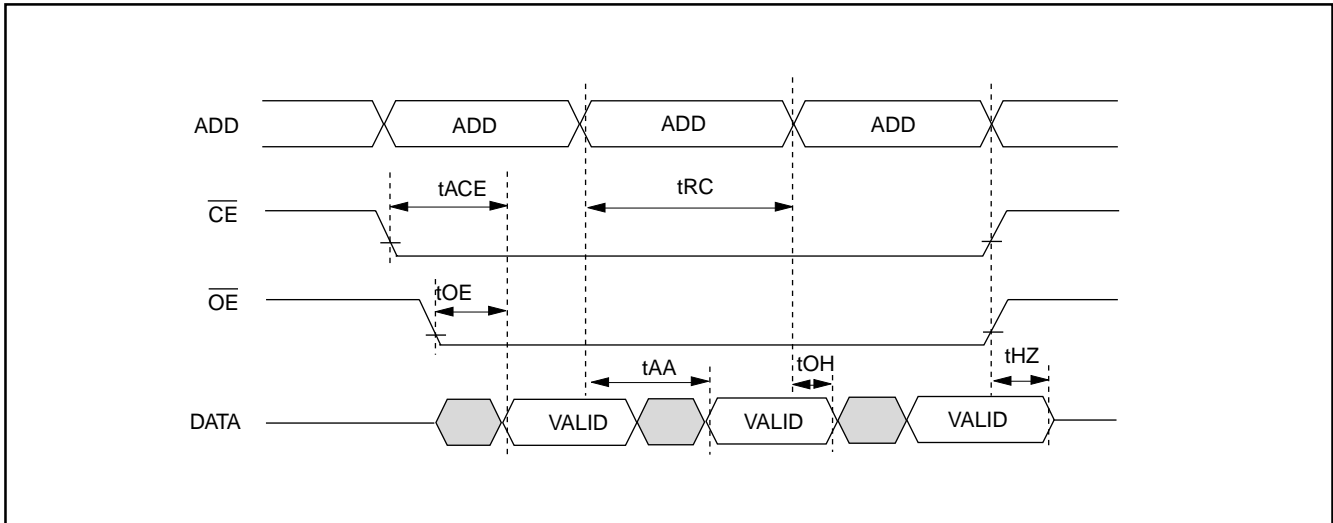
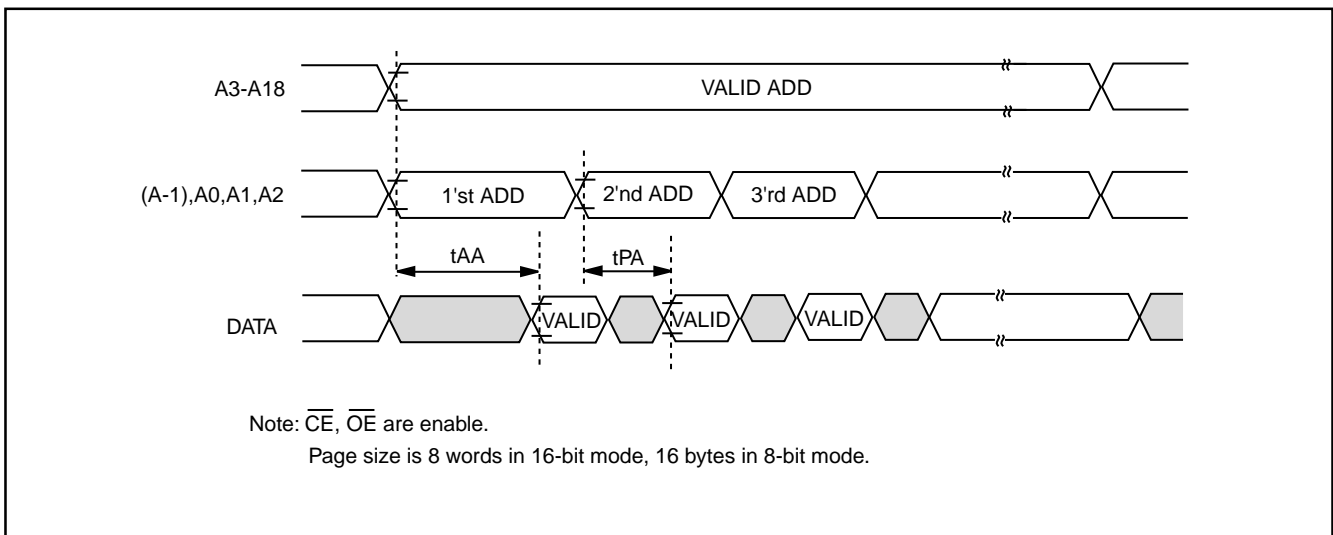
Input Pulse Levels	0.4V~2.4V
Input Rise and Fall Times	10ns
Input Timing Level	1.4V
Output Timing Level	1.4V
Output Load	See Figure



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




REVISION HISTORY

Revision	Description	Page	Date
1.8	Add new 44pin TSOP(type2)		Jul/17/1998
1.9	Output hold after address (tOH) spec is revised as 0ns(min.) 120ns speed grade's voltage range is revised as 2.7V~3.6V	P3 P1	JAN/22/1999



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