



MX23C1611

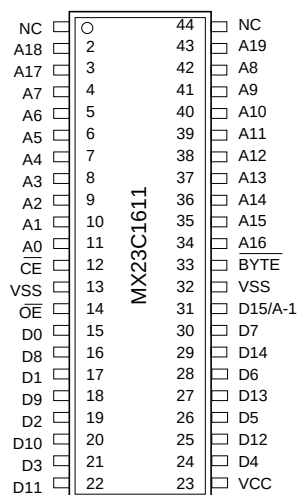
16M-BIT MASK ROM (8/16 BIT OUTPUT)

FEATURES

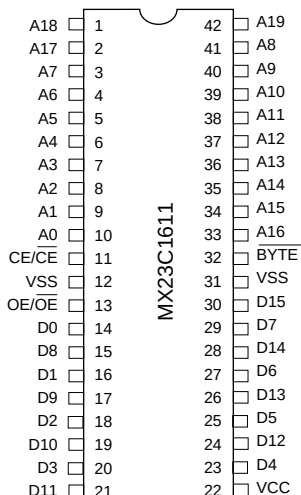
- Bit organization
 - 2M x 8 (byte mode)
 - 1M x 16 (word mode)
- Fast access time
 - Random access: 100ns (max.)
 - Page access: 50ns (max.)
- Page Size
 - 8 double words per page
- Current
 - Operating: 60mA
 - Standby: 100uA
- Supply voltage
 - 5V±10%
- Package
 - 44 pin SOP (500mil)
 - 42 pin PDIP (600mm)
 - 48 pin TSOP (20mm x 12mm)

PIN CONFIGURATION

44 SOP



42 PDIP



ORDER INFORMATION

Part No.	Access Time	Page Access Time	Package
MX23C1611MC-10	100ns	50ns	44 pin SOP
MX23C1611MC-12	120ns	60ns	44 pin SOP
MX23C1611PC-10	100ns	50ns	42 pin PDIP
MX23C1611PC-12	120ns	60ns	42 pin PDIP
MX23C1611TC-10	100ns	50ns	48 pin TSOP
MX23C1611TC-12	120ns	60ns	48 pin TSOP

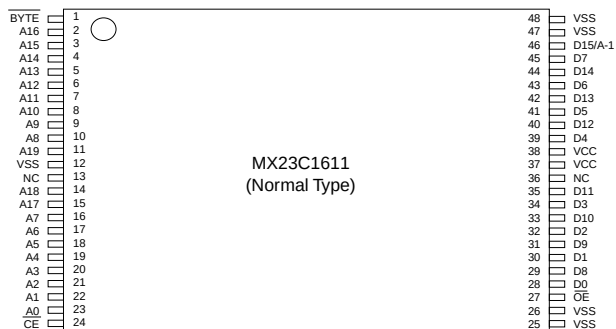
PIN DESCRIPTION

Symbol	Pin Function
A0~A19	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

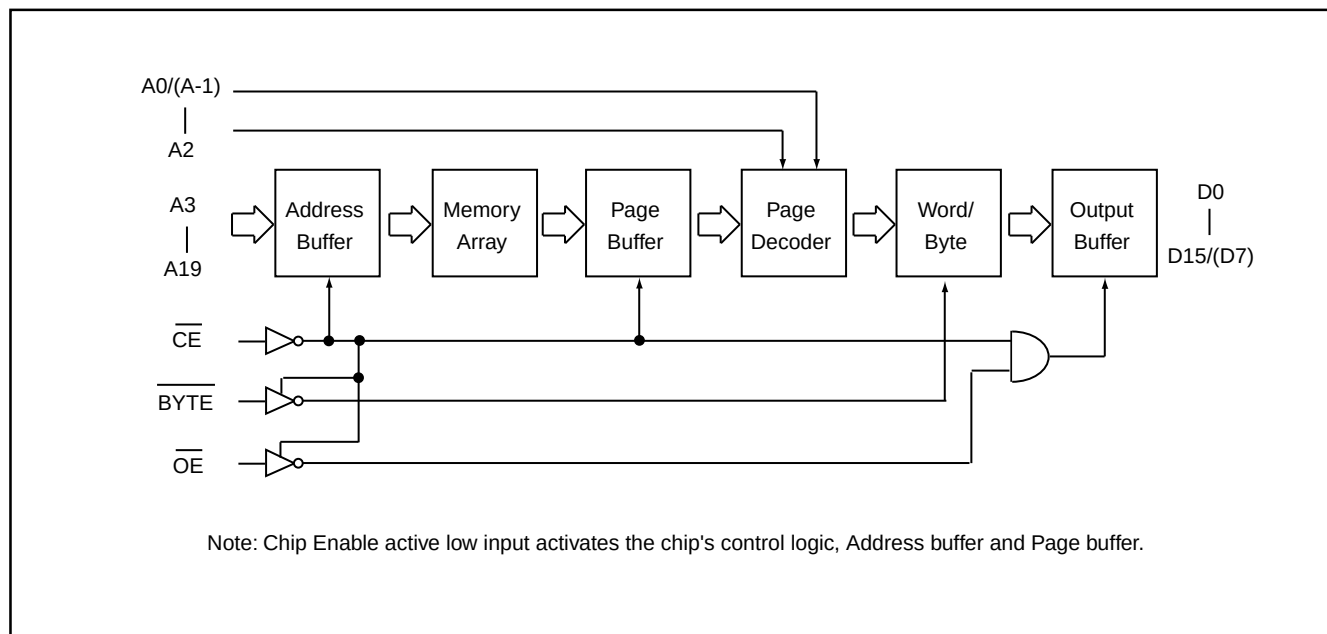
MODE SELECTION

CE	OE	Byte	D31/A-1	D0~D15	D16~D31	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

48 TSOP (Normal Type)



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	-40 °C to 85 °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 (Ta = 0 °C ~ 70 °C, VCC = 5V±10%)

Item	Symbol	MIN.	MAX.	Conditions
Output High Voltage	VOH	2.4V	-	IOH = -1.0mA
Output Low Voltage	VOL	-	0.4V	IOL = 2.1mA
Input High Voltage	VIH	2.2V	VCC+0.3V	
Input Low Voltage	VIL	-0.3V	0.2 x VCC	
Input Leakage Current	ILI	-	5uA	0V, VCC
Output Leakage Current	ILO	-	5uA	0V, VCC
Operating Current	ICC1	-	60mA	tRC = 100ns, all output open
Standby Current (TTL)	ISTB1	-	1mA	CE = VIH
Standby Current (cmos)	ISTB2	-	100uA	CE > VCC-0.2V
Input Capacitance	CIN	-	10pF	Ta = 25 °C, f = 1MHZ
Output Capacitance	COUT	-	10pF	Ta = 25 °C, f = 1MHZ

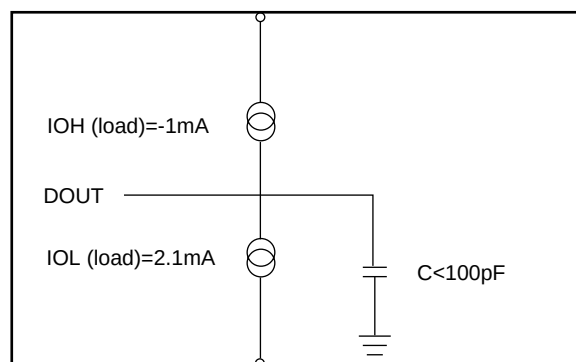
AC CHARACTERISTICS (Ta = 0 °C ~ 70 °C, VCC = 5V±10%)

Item	Symbol	23C1611-10		23C1611-12	
		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	10ns	-	10ns	-
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.

AC Test Conditions

Input Pulse Levels	0.4V~ 2.4V
Input Rise and Fall Times	10ns
Input Timing Level	1.5V
Output Timing Level	0.8V and 2.0V
Output Load	See Figure



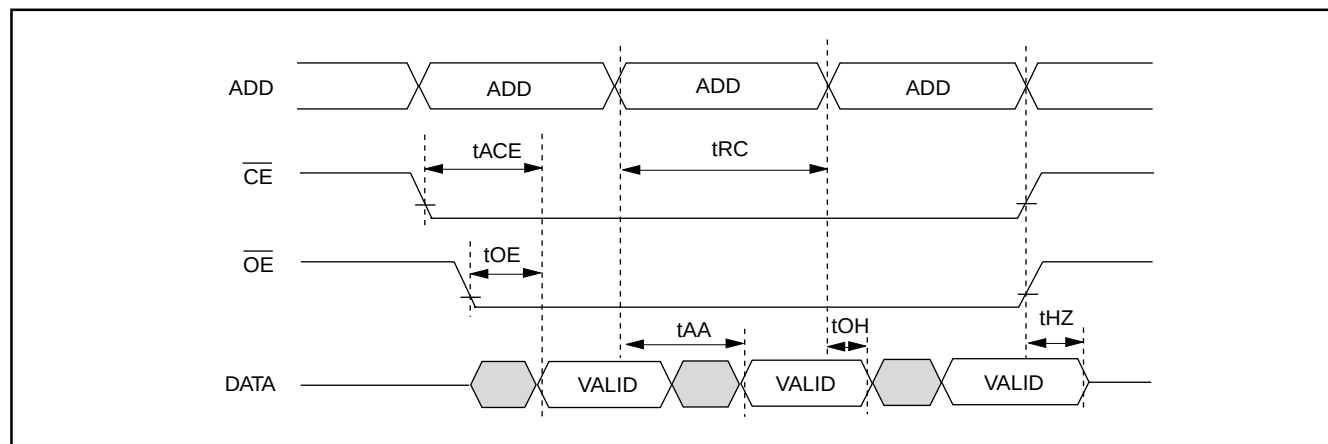
Note: No output loading is present in tester load board.

Active loading is used and under software programming control.

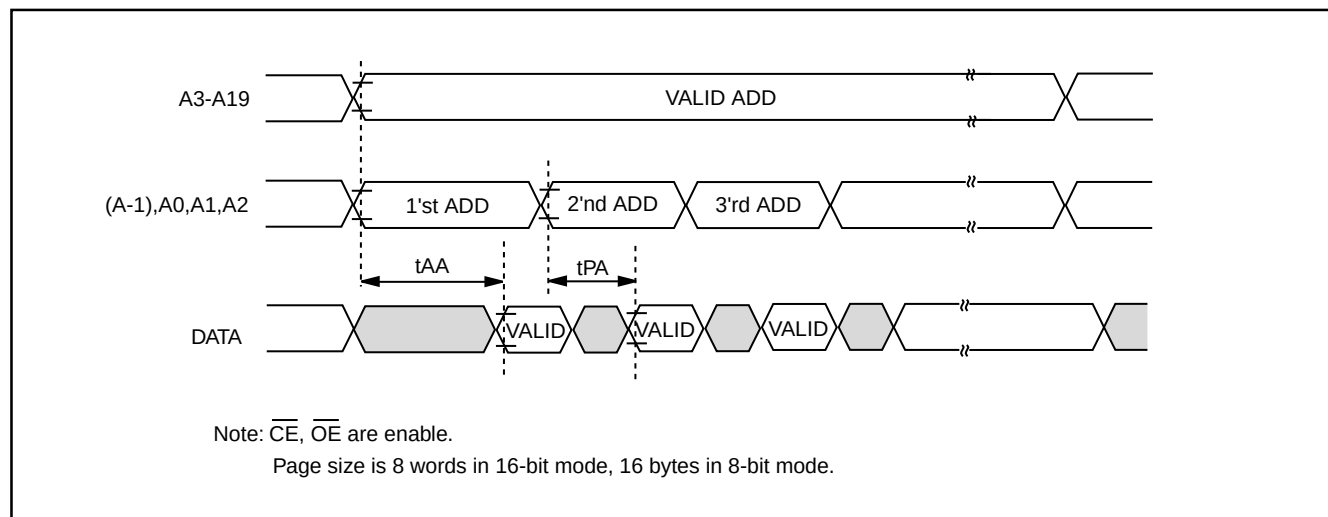
Output loading capacitance includes load board's and all stray capacitance.

TIMING DIAGRAM

RANDOM READ



PAGE READ

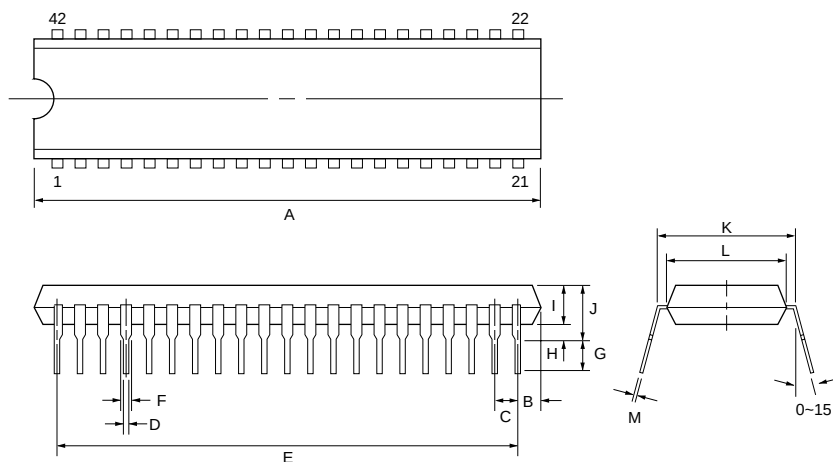


PACKAGE INFORMATION

42-PIN PLASTIC DIP(600 mil)

ITEM	MILLIMETERS	INCHES
A	52.54 max.	2.070 max.
B	0.76 [REF]	.030 [REF]
C	2.54 [TP]	.100 [TP]
D	.46 [Typ.]	.018 [Typ.]
E	50.76	2.000
F	1.27 [Typ.]	.050 [Typ.]
G	3.30 ± .25	.130 ± .010
H	.51 [REF]	.020 [REF]
I	3.94 ± .25	.155 ± .010
J	5.33 max.	.210 max.
K	15.22 ± .25	.600 ± .010
L	13.97 ± .25	.550 ± .010
M	.25 [Typ.]	.010 [Typ.]

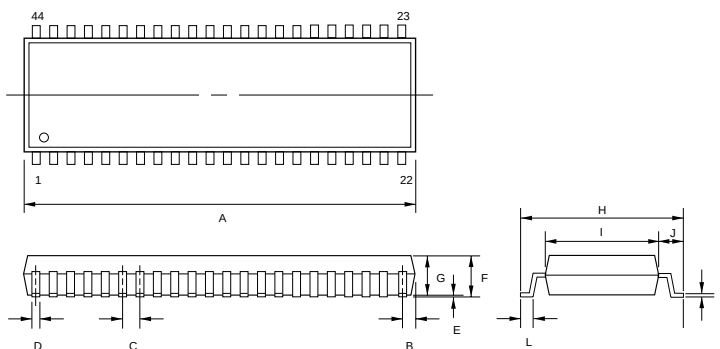
NOTE: Each lead centerline is located within .25 mm[.01 inch] of its true position [TP] at maximum material condition.



44-PIN PLASTIC SOP

ITEM	MILLIMETERS	INCHES
A	28.70 max.	1.130 max.
B	1.10 [REF]	.043 [REF]
C	1.27 [TP]	.050 [TP]
D	.40 ± .10 [Typ.]	.016 ± .004 [Typ.]
E	.010 min.	.004 min.
F	3.00 max.	.118 max.
G	2.80 ± .13	.110 ± .005
H	16.04 ± .30	.631 ± .012
I	12.60	.496
J	1.72	.068
K	.15 ± .10 [Typ.]	.006 ± .004 [Typ.]
L	.80 ± .20	.031 ± .008

NOTE: Each lead centerline is located within .25 mm[.01 inch] of its true position [TP] at maximum material condition.





Revision History

Revision	Description	Page	Date
1.8	tACE--->1000ns changes to tACE--->100ns	P3	JUL/20/1998
1.9	AC Characteristics: tOH 10ns --> 0ns	P3	FEB/01/1999



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