

## FEATURES

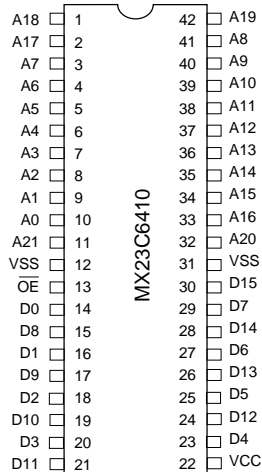
- Bit organization
  - 4M x 16 (word mode)
- Fast access time
  - Random access: 100ns (max.)
- Current
  - Operating: 70mA
- Supply voltage
  - 5V±10%
- Package
  - 42 pin PDIP (600mil)

## ORDER INFORMATION

| Part No.       | Access Time | Package     |
|----------------|-------------|-------------|
| MX23C6410PC-10 | 100ns       | 42 pin PDIP |
| MX23C6410PC-12 | 120ns       | 42 pin PDIP |
| MX23C6410PC-15 | 150ns       | 42 pin PDIP |

## PIN CONFIGURATION

42 PDIP (Word mode only & without CE pin)



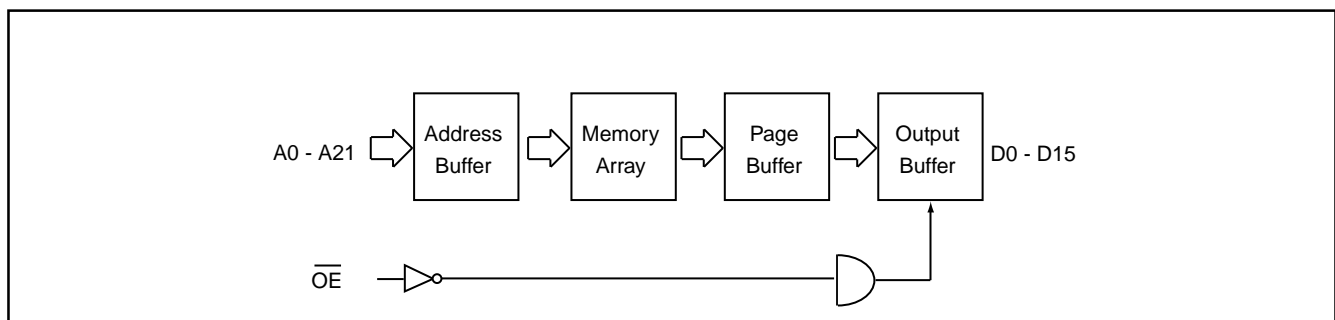
## PIN DESCRIPTION

| Symbol          | Pin Function        |
|-----------------|---------------------|
| A0~A21          | Address Inputs      |
| D0~D15          | Data Outputs        |
| $\overline{OE}$ | Output Enable Input |
| VCC             | Power Supply Pin    |
| VSS             | Ground Pin          |
| NC              | No Connection       |

## MODE SELECTION

| $\overline{OE}$ | D15/A-1 | D0~D7  | D8~D15 | Mode | Power  |
|-----------------|---------|--------|--------|------|--------|
| H               | X       | High Z | High Z | -    | Active |
| L               | Output  | D0~D7  | D8~D15 | Word | Active |

## BLOCK DIAGRAM





## ABSOLUTE MAXIMUM RATINGS

| Item                               | Symbol | Ratings                  |
|------------------------------------|--------|--------------------------|
| Voltage on any Pin Relative to VSS | VIN    | -0.8V 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 -0.8V 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 | 0.8V     |                         |
| Input Leakage Current  | ILI    | -     | 5uA      | 0V, VCC                 |
| Output Leakage Current | ILO    | -     | 5uA      | 0V, VCC                 |
| Operating Current      | ICC1   | -     | 70mA     | f=5MHz, all output open |
| Input Capacitance      | CIN    | -     | 10pF     | Ta = 25°C, f = 1MHZ     |
| Output Capacitance     | COUT   | -     | 10pF     | Ta = 25°C, f = 1MHZ     |

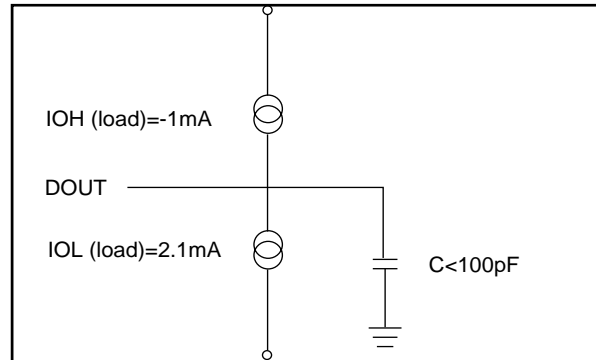
## AC CHARACTERISTICS (Ta = 0°C ~ 70°C, VCC = 5V±10%)

| Item                      | Symbol | 23C6410-10 |       | 23C6410-12 |       | 23C6410-15 |       |
|---------------------------|--------|------------|-------|------------|-------|------------|-------|
|                           |        | MIN.       | MAX.  | MIN.       | MAX.  | MIN.       | MAX.  |
| Read Cycle Time           | tRC    | 100ns      | -     | 120ns      | -     | 150ns      | -     |
| Address Access Time       | tAA    | -          | 100ns | -          | 120ns | -          | 150ns |
| Output Enable Time        | tOE    | -          | 50ns  | -          | 60ns  | -          | 70ns  |
| 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 going high, and this parameter guaranteed by design over the full voltage and temperature operating range - not tested.

## AC Test Conditions

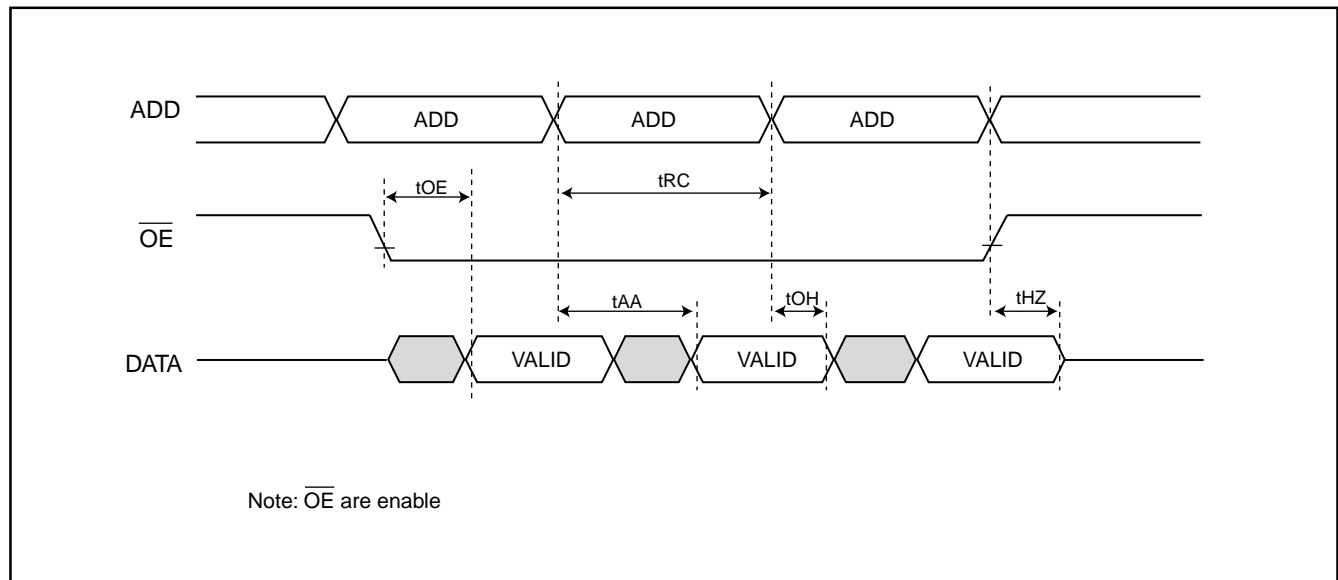
|                           |               |
|---------------------------|---------------|
| Input Pulse Levels        | 0.4V~ 2.4V    |
| Input Rise and Fall Times | 10ns          |
| Input Timing Level        | 1.4V          |
| Output Timing Level       | 0.8V and 2.0V |
| Output Load               | 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.

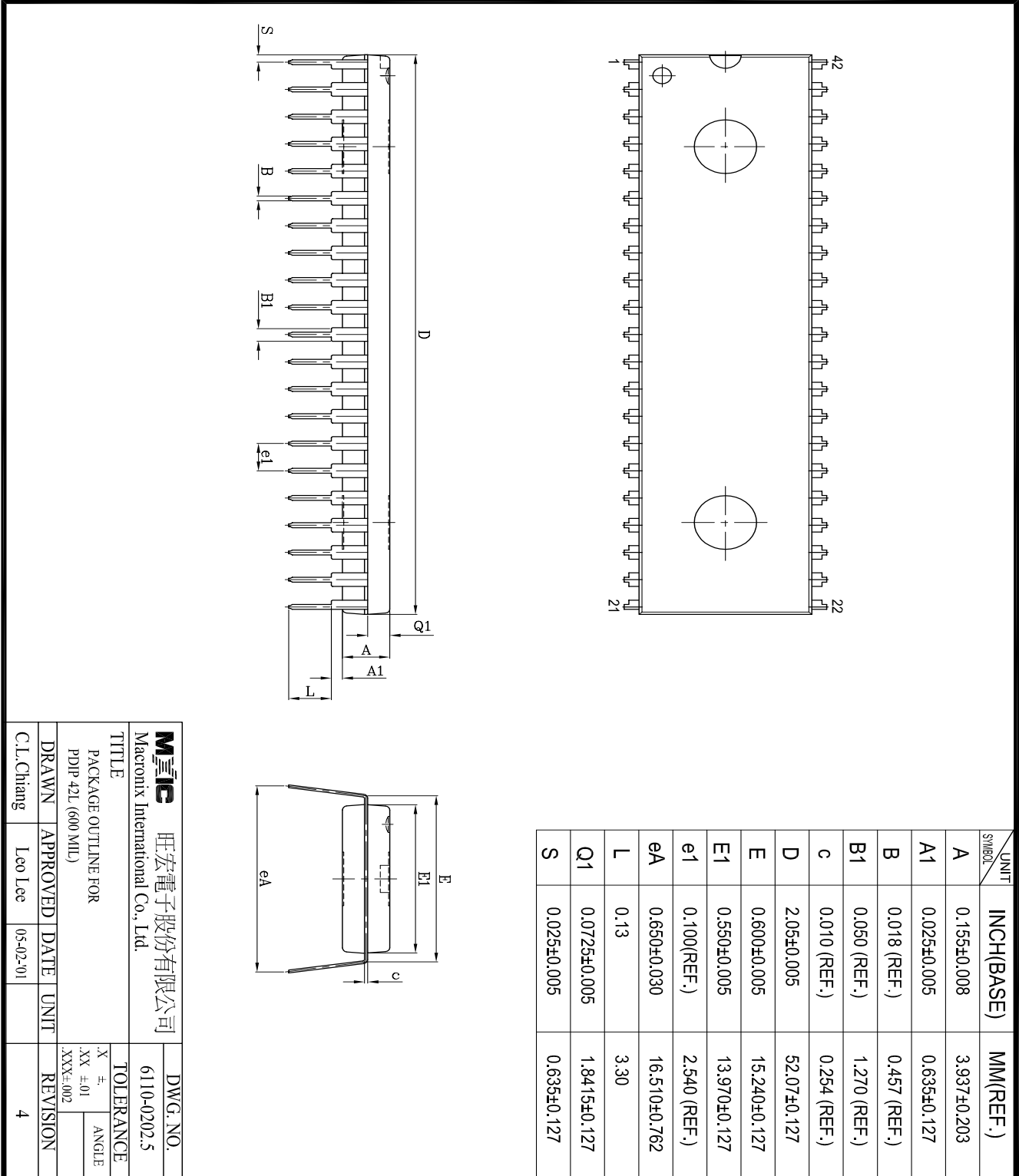
## TIMING DIAGRAM

### RANDOM READ



## PACKAGE INFORMATION

### 42-PIN PLASTIC DIP(600 mil)



|   |                        |                         |      |
|---|------------------------|-------------------------|------|
| <b>旺宏電子股份有限公司</b><br>Macronix International Co., Ltd. |                        | DWG. NO.<br>6110-0202.5 |      |
| TITLE<br>PACKAGE OUTLINE FOR<br>PDIP 42L (600 MIL)    |                        |                         |      |
| TOLERANCE<br>.X ±.01<br>.XX ±.01<br>.XXX±.002         | ANGLE<br>REVISION<br>4 |                         |      |
| DRAWN<br>C.L.Chang                                    | APPROVED<br>Leo Lee    | DATE<br>05-02-01        | UNIT |



**REVISION HISTORY**

| <b>Revision No.</b> | <b>Description</b>  | <b>Page</b> | <b>Date</b> |
|---------------------|---|-------------|-------------|
| 1.1                 | The VCC Range of 100ns speed grade was changed, 5V ± 5%--> 5V ± 10% | P1          | JUL/27/2001 |



**MX23C6410**

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