

## Description

The μPD23C1001E is a 131,072-word by 8-bit static ROM fabricated with CMOS silicon-gate technology and designed to operate from a single +5-volt power supply. The device has three-state outputs and fully TTL-compatible inputs and outputs, and is packaged in a 600-mil, 32-pin plastic DIP.

## Features

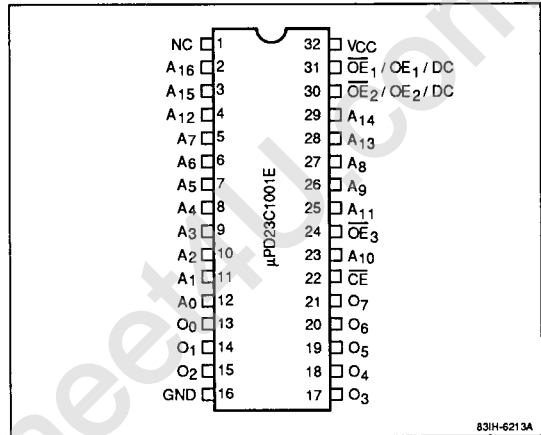
- 131,072-word by 8-bit organization
- Fast access time of 200 ns maximum
- TTL-compatible inputs and outputs
- Three-state outputs
- Single +5-volt power supply
- CMOS process technology
- Fully static operation
- Low power dissipation
  - 220 mW (active)
  - 550 μW (standby)

## Ordering Information

Part Number	Access Time (max)	Package
μPD23C1001EC	200 ns	32-pin plastic DIP

## Pin Configuration

### 32-Pin Plastic DIP



## Pin Identification

Symbol	Function
A <sub>0</sub> - A <sub>16</sub>	Address inputs
O <sub>0</sub> - O <sub>7</sub>	Data outputs
CE	Chip enable
OE <sub>1</sub> /OE <sub>1</sub> /DC	Output enable 1 (Note 1)
OE <sub>2</sub> /OE <sub>2</sub> /DC	Output enable 2 (Note 1)
OE <sub>3</sub>	Output enable 3
GND	Ground
VCC	+5-volt power supply
NC	No connection

### Notes:

- (1) This pin is user-definable as active low, active high, or "don't care" (in the cases of OE<sub>1</sub>/OE<sub>1</sub>/DC and OE<sub>2</sub>/OE<sub>2</sub>/DC).

**Absolute Maximum Ratings**

Supply voltage, $V_{CC}$	-0.3 to +7.0 V
Input voltage, $V_I$	-0.3 V to $V_{CC} + 0.3$ V
Output voltage, $V_O$	-0.3 V to $V_{CC} + 0.3$ V
Operating temperature, $T_{OPR}$	-10 to +70°C
Storage temperature, $T_{STG}$	-65 to +150°C

Exposure to Absolute Maximum Ratings for extended periods may affect device reliability; exceeding the ratings could cause permanent damage. The device should be operated within the limits specified under DC and AC Characteristics.

**Recommended Operating Conditions**

Parameter	Symbol	Min	Typ	Max	Unit
Input voltage, high	$V_{IH}$	2.2		$V_{CC} + 0.3$	V
Input voltage, low	$V_{IL}$	-0.3		0.8	V
Supply voltage	$V_{CC}$	4.5	5.0	5.5	V
Ambient temperature	$T_A$	-10		70	°C

**Capacitance**

$T_A = 25^\circ\text{C}; f = 1 \text{ MHz}$

Parameter	Symbol	Min	Typ	Max	Unit
Input capacitance	$C_I$		15		pF
Output capacitance	$C_O$		15		pF

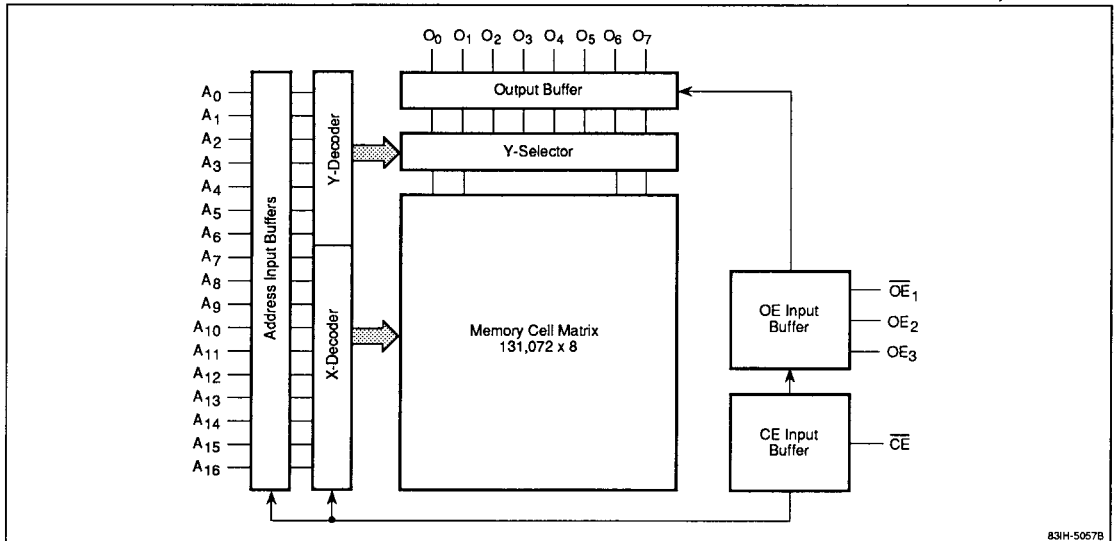
**Truth Table**

$\overline{CE}$	$\overline{OE}_1/\overline{OE}_1/DC$	$\overline{OE}_2/\overline{OE}_2/DC$	$\overline{OE}_3$	Outputs	Function
$V_{IH}$	X	X	X	High-Z	Standby
$V_{IL}$	I	X	X	High-Z	Active
$V_{IL}$	X	I	X	High-Z	Active
$V_{IL}$	X	X	$V_{IH}$	High-Z	Active
$V_{IL}$	A	A	$V_{IL}$	$D_{OUT}$	Read

**Notes:**

- (1) I = Inactive
- (2) A = Active
- (3) X = "don't care"

**Block Diagram**



831H-5057B

### DC Characteristics

$T_A = -10$  to  $+70^\circ\text{C}$ ;  $V_{CC} = +5.0\text{ V} \pm 10\%$

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Output voltage, high	$V_{OH}$	2.4			V	$I_{OH} = -400\ \mu\text{A}$
Output voltage, low	$V_{OL}$			0.4	V	$I_{OL} = +2.5\ \text{mA}$
Input leakage current	$I_{LI}$	-10		10	$\mu\text{A}$	$V_I = 0\ \text{V}$ to $V_{CC}$
Output leakage current	$I_{LO}$	-10		10	$\mu\text{A}$	$V_O = 0\ \text{V}$ to $V_{CC}$ ; outputs disabled
Power supply current	$I_{CC1}$			40	mA	$\overline{CE} = V_{IL}$ (active)
	$I_{CC2}$			1.5	mA	$\overline{CE} = V_{IH}$ (standby)
	$I_{CC3}$			100	$\mu\text{A}$	$\overline{CE} \geq V_{CC} - 0.2\ \text{V}$ (standby)

### AC Characteristics

$T_A = -10$  to  $+70^\circ\text{C}$ ;  $V_{CC} = +5.0\text{ V} \pm 10\%$  (Note 1)

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Address access time	$t_{ACC}$			200	ns	
Chip enable access time	$t_{CE}$			200	ns	
Output enable access time	$t_{OE}$			100	ns	
Output hold time	$t_{OH}$	0			ns	
Output disable time	$t_{DF}$	0		60	ns	

#### Notes:

- (1) Input voltage rise and fall times = 20 ns; Input and output timing reference levels = 0.8 and 2.0 V; output load = 1 TTL + 100 pF.

**Timing Waveform**

