

NEC

NEC Electronics Inc.

μPD23C8001E
1,048,576 x 8-Bit
Mask-Programmable CMOS ROM

T-46-13-15

Description

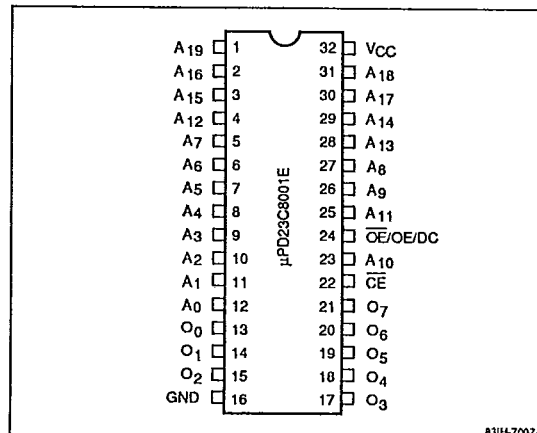
The μPD23C8001E is a 1,084,576-word by 8-bit ROM fabricated with CMOS silicon-gate technology and designed to operate from a single +5-volt power supply. The device has three-state outputs, fully TTL-compatible inputs and outputs, and is available in 32-pin plastic DIP and miniflat packaging.

Features

- 1,084,576-word by 8-bit organization
- Fast access time of 250 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
μPD23C8001ECZ	250 ns	32-pin plastic DIP
μPD23C8001EGW	250 ns	32-pin plastic miniflat

Pin Configuration**32-Pin Plastic DIP and Miniflat****Pin Identification**

Symbol	Function
A ₀ - A ₁₉	Address Inputs
O ₀ - O ₇	Data outputs
CE	Chip enable
OE/OE/DC	Output enable/don't care (Note 1)
GND	Ground
VCC	+5-volt power supply

Notes:

- (1) This pin is user-definable as active low, active high, or "don't care."

μPD23C8001E**NEC**

T-46-13-15

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.

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

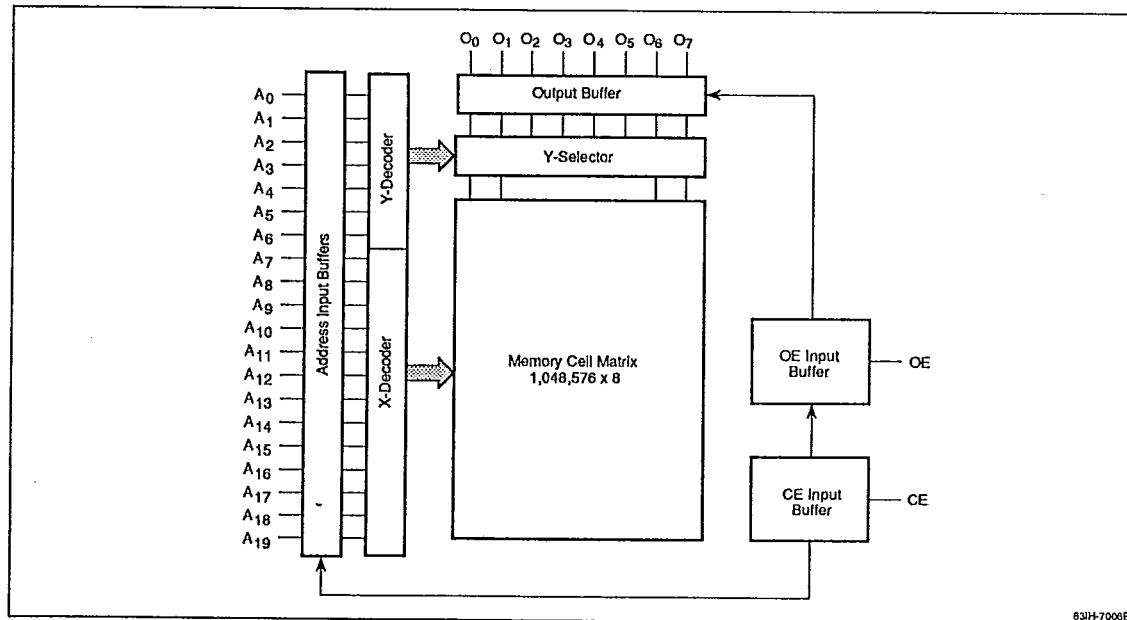
Parameter	Symbol	Min	Typ	Max	Unit
Input capacitance	C_i		15		pF
Output capacitance	C_O		15		pF

Truth Table

$\overline{CE}$	$\overline{OE}/OE/DC$	Function	Outputs
V_{IH}	Don't care	Standby	High-Z
V_{iL}	Inactive	Active	High-Z
V_{iL}	Active	Read	D_{OUT}

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

Block Diagram

NECT-46-13-15
μPD23C8001E**DC Characteristics** $T_A = -10$ to $+70^\circ\text{C}$; $V_{CC} = +5.0\text{ V} \pm 10\%$

Parameter	Symbol	Min	Max	Unit	Test Conditions
Output voltage, high	V_{OH1}	2.4		V	$I_{OH} = -400\text{ }\mu\text{A}$
	V_{OH2}	$V_{CC} - 0.5$		V	$I_{OH} = -100\text{ }\mu\text{A}$
Output voltage, low	V_{OL}		0.4	V	$I_{OL} = 2.1\text{ mA}$
Input leakage current	I_{LI}	-10	10	μA	$V_I = 0\text{ V to } V_{CC}$
Output leakage current	I_{LO}	-10	10	μA	$V_O = 0\text{ V to } V_{CC}$ (chip deselected)
Power supply current	I_{CC1}		40	mA	$\overline{CE} = V_{IL}$
	I_{CC2}		1.5	mA	$\overline{CE} = V_{IH}$
	I_{CC3}		100	μA	$\overline{CE} \geq V_{CC} - 0.2$ (standby)

AC 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
Address access time	t_{ACC}			250	ns	
Chip enable access time	t_{CE}			250	ns	
Output enable access time	t_{OE}			100	ns	
Output hold time	t_{OH}	0			ns	
Output disable time	t_{DF}	0		70	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.

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T-46-13-15

Timing Waveform