

## Description

The  $\mu$ PD27C256A is a 262,144-bit ultraviolet erasable and electrically programmable read-only memory fabricated with double-polysilicon CMOS technology. The device is organized as 32K words by 8 bits and operates from a single +5-volt power supply.

The  $\mu$ PD27C256A has a single-location programming feature, three-state outputs, fully TTL-compatible inputs and outputs, and a program voltage ( $V_{PP}$ ) of 12.5 volts.

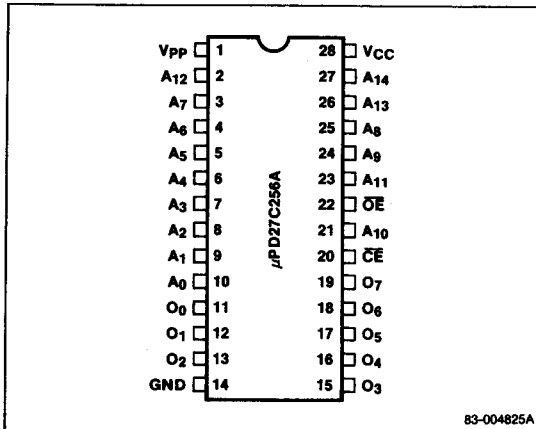
The  $\mu$ PD27C256A is available in a cerdip package with a quartz window as an ultraviolet (UV) erasable EPROM.

## Features

- 32K-word by 8-bit organization
- Ultraviolet erasable and electrically programmable
- Single location programming
- High-speed programming
- Low power dissipation
  - 165 mW (active)
  - 550  $\mu$ W (standby)
- TTL-compatible I/O for reading and programming
- Single +5-volt power supply
- JEDEC vendor identification
- Double-polysilicon CMOS technology
- 28-pin cerdip packaging

## Pin Configuration

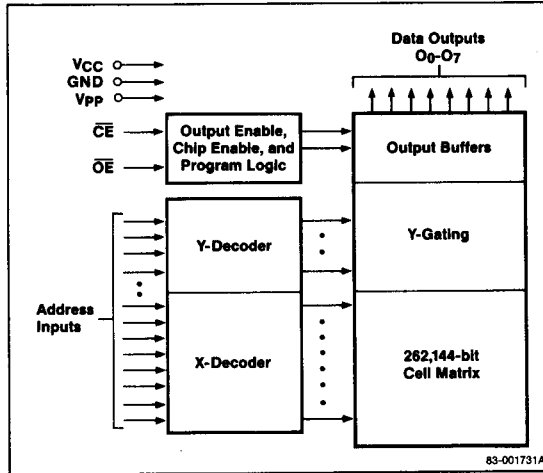
### 28-Pin Cerdip



## Pin Identification

Symbol	Function
A <sub>0</sub> -A <sub>14</sub>	Address inputs
O <sub>0</sub> -O <sub>7</sub>	Data outputs
CE	Chip enable
OE	Output enable
GND	Ground
V <sub>CC</sub>	+5-volt power supply
V <sub>pp</sub>	Program voltage

**Block Diagram**



**Absolute Maximum Ratings**

Power supply voltage, $V_{CC}$	-0.6 to +7.0 V
Input voltage, $V_{IN}$ (Note 1)	-0.6 V to $V_{CC} + 0.6$ V
Output voltage, $V_{OUT}$	-0.6 V to $V_{CC} + 0.6$ V
Operating temperature, $T_{OPR}$	-25 to 85°C
Storage temperature, $T_{STG}$	-65 to 125°C
Program voltage, $V_{pp}$	-0.6 to +13.0 V
ID read voltage on pin 24, $V_{ID}$	-0.6 to +13.5 V

**Note:**

(1)  $V_{IN} = -3.0$  V min for 20 ns pulse.

**Comment:** 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 (Note 1)

Parameter	Symbol	Limits			Unit	Test Conditions
		Min	Typ	Max		
Input capacitance	$C_{IN}$	4	6		pF	$V_{IN} = 0$ V
Output capacitance	$C_{OUT}$	8	12		pF	$V_{OUT} = 0$ V

**Notes:**

(1) This parameter is sampled and not 100% tested.

**DC Characteristics**

$T_A = 0$  to +70°C;  $V_{CC} = +5.0$  V  $\pm 10\%$ ;  $V_{PP} = V_{CC}$

Parameter	Symbol	Limits			Unit	Test Conditions
		Min	Typ	Max		
<b>Read and Standby Modes</b>						
Output voltage, high	$V_{OH}$	2.4			V	$I_{OH} = -400$ $\mu\text{A}$
Output voltage, low	$V_{OL}$			0.45	V	$I_{OL} = 2.1$ mA
Input voltage, high	$V_{IH}$	2.0	$V_{CC} + 0.3$		V	
Input voltage, low	$V_{IL}$	-0.3	0.8		V	
Output leakage current	$I_{LO}$			10	$\mu\text{A}$	$\overline{OE} = V_{IH}$ ; $V_{OUT} = 0$ V to $V_{CC}$
Input leakage current	$I_{LI}$			10	$\mu\text{A}$	$V_{IN} = 0$ V to $V_{CC}$
Operating supply current	$I_{CCA1}$			30	mA	$\overline{CE} = V_{IL}$ ; $V_{IN} = V_{IH}$
Operating supply current	$I_{CCA2}$			30	mA	$f = 5$ MHz; $I_{OUT} = 0$ mA
Standby supply current	$I_{SB1}$			1	mA	$\overline{CE} = V_{IH}$
	$I_{SB2}$			1	100 $\mu\text{A}$	$\overline{CE} = V_{CC}$
Program voltage current	$I_{PP1}$			1	100 $\mu\text{A}$	$V_{pp} = V_{CC}$

**DC Characteristics (cont)**

$T_A = 25 \pm 5^\circ\text{C}$ ;  $V_{CC} = +6 \pm 0.25$  V;  $V_{PP} = +12.5 \pm 0.3$  V

Parameter	Symbol	Limits			Unit	Test Conditions
		Min	Typ	Max		
<b>Program, Program Verify, and Program Inhibit Modes</b>						
Output voltage, high	$V_{OH}$	2.4			V	$I_{OH} = -400$ $\mu\text{A}$
Output voltage, low	$V_{OL}$			0.45	V	$I_{OL} = 2.1$ mA
Input voltage, high	$V_{IH}$	2.0	$V_{CC} + 0.3$		V	
Input voltage, low	$V_{IL}$	-0.3	0.8		V	
ID read voltage	$V_{ID}$	11.5	12.5		V	
Input leakage current	$I_{LI}$			10	$\mu\text{A}$	$V_{IN} = V_{IL}$ or $V_{IH}$
Operating supply current	$I_{CC}$			30	mA	
Program voltage current	$I_{PP2}$			30	mA	$\overline{CE} = V_{IL}$ ; $\overline{OE} = V_{IH}$