

# HN462532

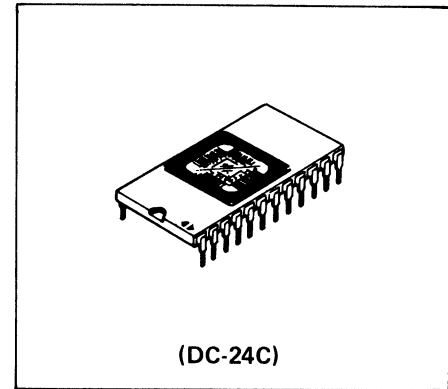
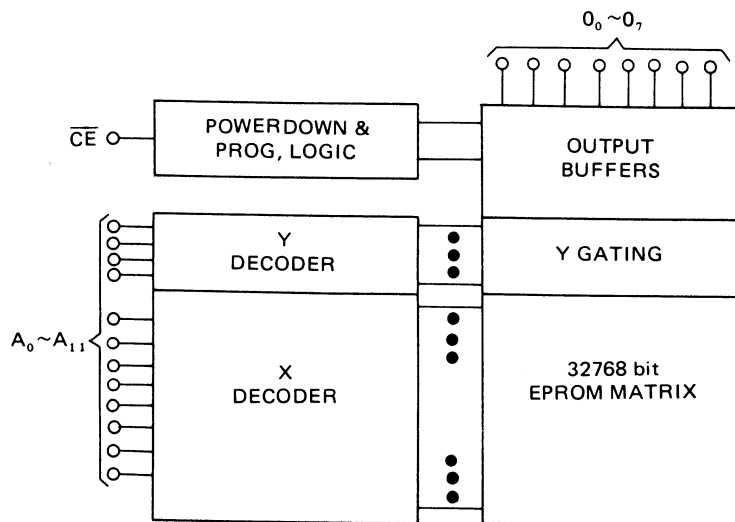
## 4096-word X 8-bit UV Erasable and Programmable Read Only Memory

The HN462532 is a 4096 word by 8 bit erasable and electrically programmable ROM. This device is packaged in a 24-pin, dual-in-line package with transparent lid. The transparent lid allows the user to expose the chip to ultraviolet light to erase the bit pattern, whereby a new pattern can then be written into the device.

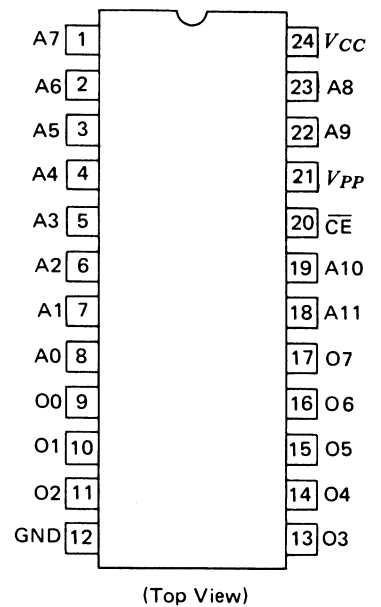
### ■ FEATURES

- Single Power Supply . . . . . +5V  $\pm$ 5%
- Simple Programming . . . . . Program Voltage: +25V D.C.  
Program with One 50ms Pulse
- Static . . . . . No Clocks Required
- Inputs and Outputs TTL Compatible During Both Read and Program Modes
- Fully Decoded On-Chip Address Decode
- Access Time . . . . . 450ns (Max.)
- Low Power Dissipation . . . . . 858mW (Max.) Active Power  
201mW (Max.) Standby Power
- Three State Output . . . . . OR-Tie Capability
- Compatible with TMS2532

### ■ BLOCK DIAGRAM



### ■ PIN ARRANGEMENT



## ■ MODE SELECTION

Mode	Pins	$\overline{CE}$ (20)	$V_{PP}$ (21)	$V_{CC}$ (24)	Outputs (9 to 11, 13 to 17)
Read		$V_{IL}$	+5	+5	Dout
Stand by		$V_{IH}$	+5	+5	High Z
Program		Pulsed $V_{IH}$ to $V_{IL}$	+25	+5	Din
Program Inhibit		$V_{IH}$	+25	+5	High Z

## ■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Value	Unit
All Input and Output Voltages*	$V_{IN}, V_{out}$	-0.3 to +7	V
V <sub>PP</sub> Voltage*	$V_{PP}$	-0.3 to +28	V
Operating Temperature Range	$T_{opr}$	0 to +70	°C
Storage Temperature Range	$T_{stg}$	-65 to +125	°C

\*with respect to GND.

## ■ READ OPERATION

### ● D.C. AND OPERATING CHARACTERISTICS ( $T_a = 0$ to +70°C, $V_{CC} = 5V \pm 5\%$ , $V_{PP} = V_{CC} \pm 0.6V$ )

Parameter	Symbol	Test Conditions	min.	typ.	max.	Unit
Input Leakage Current	$I_{LI}$	$V_{in} = 5.25V$	-	-	10	μA
Output Leakage Current	$I_{LO}$	$V_{out} = 5.25V / 0.4V$	-	-	10	μA
V <sub>PP</sub> Current	$I_{PP1}$	$V_{PP} = 5.85V$	-	-	12	mA
V <sub>CC</sub> Current (Standby)	$I_{CC1}$	$\overline{CE} = V_{IH}$	-	-	25	mA
V <sub>CC</sub> Current (Active)	$I_{CC2}$	$\overline{CE} = V_{IL}$	-	-	150	mA
Input Low Voltage	$V_{IL}$		-0.1	-	0.8	V
Input High Voltage	$V_{IH}$		2.0	-	$V_{CC}+1$	V
Output Low Voltage	$V_{OL}$	$I_{OL} = 2.1mA$	-	-	0.4	V
Output High Voltage	$V_{OH}$	$I_{OH} = -400\mu A$	2.4	-	-	V

Notes: V<sub>CC</sub> must be applied simultaneously or before V<sub>PP</sub> and removed simultaneously or after V<sub>PP</sub>.

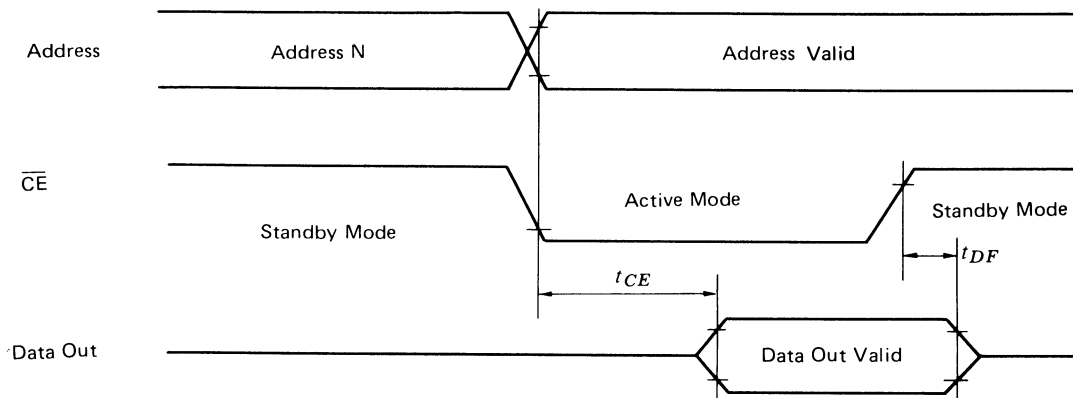
### ● AC CHARACTERISTICS ( $T_a = 0$ to +70°C, $V_{CC} = 5V \pm 5\%$ , $V_{PP} = V_{CC} \pm 0.6V$ )

Parameter	Symbol	Test Conditions	min.	typ.	max.	Unit
Address to Output Delay	$t_{ACC}$	$\overline{CE} = V_{IL}$	-	-	450	ns
$\overline{CE}$ to Output Delay	$t_{CE}$		-	-	450	ns
$\overline{CE}$ High to Output Float	$t_{DF}$		0	-	100	ns
Address to Output Hold	$t_{OH}$	$\overline{CE} = V_{IL}$	0	-	-	ns

## ● SWITCHING CHARACTERISTICS

### Test Conditions

Input Pulse Levels:	0.8V to 2.2V
Input Rise and Fall Times:	≤20ns
Output Load:	1TTL Gate + 100pF
Reference Level for Measuring Timing:	Inputs; 1V and 2V, Outputs; 0.8V and 2V



## ● CAPACITANCE ( $T_a = 25^\circ\text{C}, f = 1\text{ MHz}$ )

Parameter	Symbol	Test Conditions	min.	typ.	max.	Unit
Input Capacitance	$C_{in}$	$V_{in} = 0\text{V}$	—	—	6	pF
Output Capacitance	$C_{out}$	$V_{out} = 0\text{V}$	—	—	12	pF

## ■ PROGRAMMING OPERATION

### ● DC PROGRAMMING CHARACTERISTICS ( $T_a = 25^\circ\text{C} \pm 5^\circ\text{C}, V_{CC} = 5\text{V} \pm 5\%, V_{PP} = 25\text{V} \pm 1\text{V}$ )

Parameter	Symbol	Test Conditions	min.	typ.	max.	Unit
Input Leakage Current	$I_{LI}$	$V_{in} = 5.25\text{V} / 0.4\text{V}$	—	—	10	$\mu\text{A}$
$V_{PP}$ Supply Current During Programming	$I_{PP2}$	$\overline{CE} = V_{IL}$	—	—	30	mA
$V_{CC}$ Supply Current	$I_{CC}$		—	—	150	mA
Input Low Level	$V_{IL}$		-0.1	—	0.8	V
Input High Level	$V_{IH}$		2.0	—	$V_{CC} + 1$	V

● **AC PROGRAMMING CHARACTERISTICS** ( $T_a = 25^\circ\text{C} \pm 5^\circ\text{C}$ ,  $V_{CC} = 5\text{V} \pm 5\%$ ,  $V_{PP} = 25\text{V} \pm 1\text{V}$ )

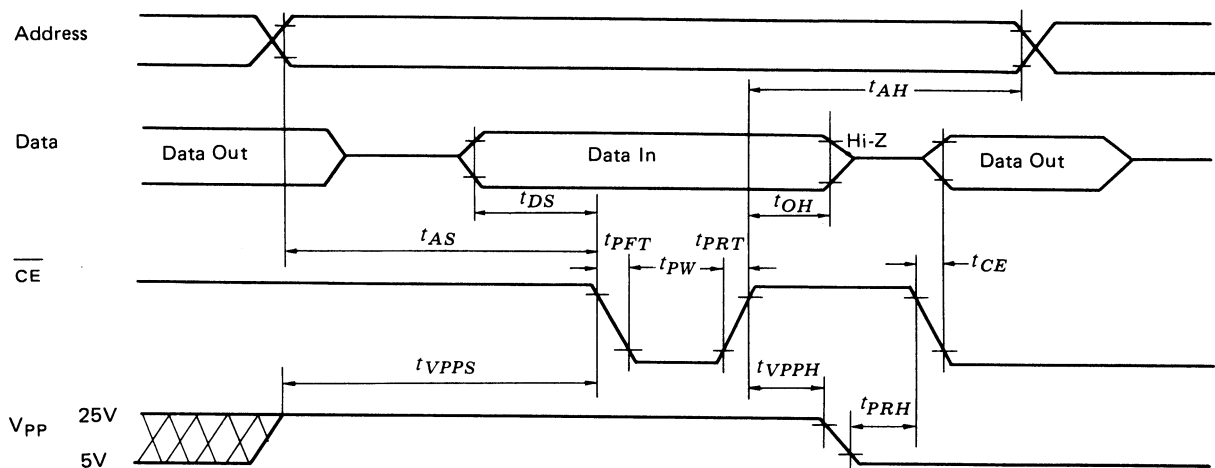
Parameter	Symbol	Test Conditions	min.	typ.	max.	Unit
Address Setup Time	$t_{AS}$		2	—	—	$\mu\text{s}$
Data Setup Time	$t_{DS}$		2	—	—	$\mu\text{s}$
Address Hold Time	$t_{AH}$		2	—	—	$\mu\text{s}$
Data Hold Time	$t_{DH}$		2	—	—	$\mu\text{s}$
Setup Time from $V_{PP}$	$t_{VPPS}$		0	—	—	ns
Program Pulse Hold Time	$t_{PRH}$		0	—	—	ns
$V_{PP}$ Hold Time	$t_{VPPH}$		0	—	—	ns
Program Pulse Width	$t_{PW}$		45	50	55	ms
Program Pulse Time	$t_{PRT}$		5	—	—	ns
Program Pulse Time	$t_{PFT}$		5	—	—	ns

Note:  $V_{CC}$  must be applied simultaneously or before  $V_{PP}$  and removed simultaneously or after  $V_{PP}$ .

● **SWITCHING CHARACTERISTICS**

Test Conditions

Input Pulse Level: 0.8V to 2.2V  
 Input Rise and Fall Times:  $\leq 20\text{ns}$   
 Output Load: 1TTL Gate + 100pF  
 Reference Level for Measuring Timing: Inputs; 1V and 2V,  
 Outputs; 0.8V and 2V



● **ERASE**

Erase of HN462532 is performed by exposure to ultraviolet light with a wavelength of  $2537\text{\AA}$ , and all the output data are changed to "1" after this erasure procedure.

The minimum integrated dose (i.e., UV intensity x exposure time) for erasure is  $15\text{W} \cdot \text{sec}/\text{cm}^2$ .