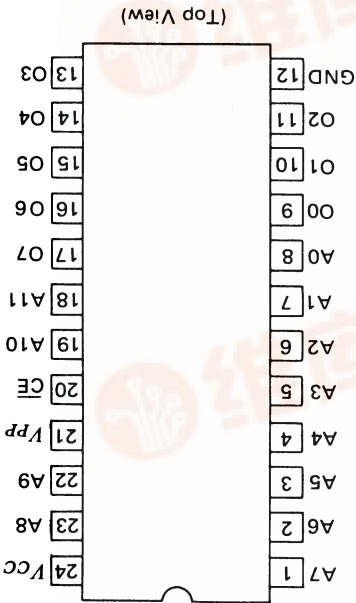


■ BLOCK DIAGRAM

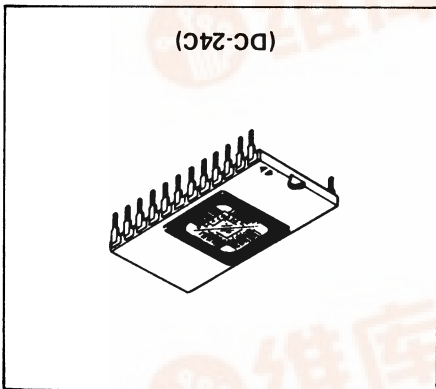
- Compatible with TMS2532
- Three State Output . . . . . OR-Tie Capability
- Low Power Dissipation . . . . . 858mW (Max.) Active Power
- Access Time . . . . . 450ns (Max.)
- Fully Decoded On-Chip Address Decode
- Inputs and Outputs TTL Compatible During Both Read and Program Modes
- Static . . . . .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

■ FEATURES

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.



■ PIN ARRANGEMENT



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



| Mode            | CE  | V <sub>PP</sub> | V <sub>CC</sub> | Outputs |
|-----------------|---|-----------------|-----------------|---------|
| Read            | V <sub>IL</sub>                           | +5              | +5              | Dout    |
| Stand by        | V <sub>IH</sub>                           | +5              | +5              | High Z  |
| Program         | Pulsed V <sub>IH</sub> to V <sub>IL</sub> | +25             | +5              | Din     |
| Program Inhibit | V <sub>IH</sub>                           | +25             | +5              | High Z  |

ABSOLUTE MAXIMUM RATINGS

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

\*with respect to GND.

READ OPERATION

D.C. AND OPERATING CHARACTERISTICS (T<sub>a</sub> = 0 to +70°C, V<sub>CC</sub> = 5V ±5%, V<sub>PP</sub> = V<sub>CC</sub> ±0.6V)

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

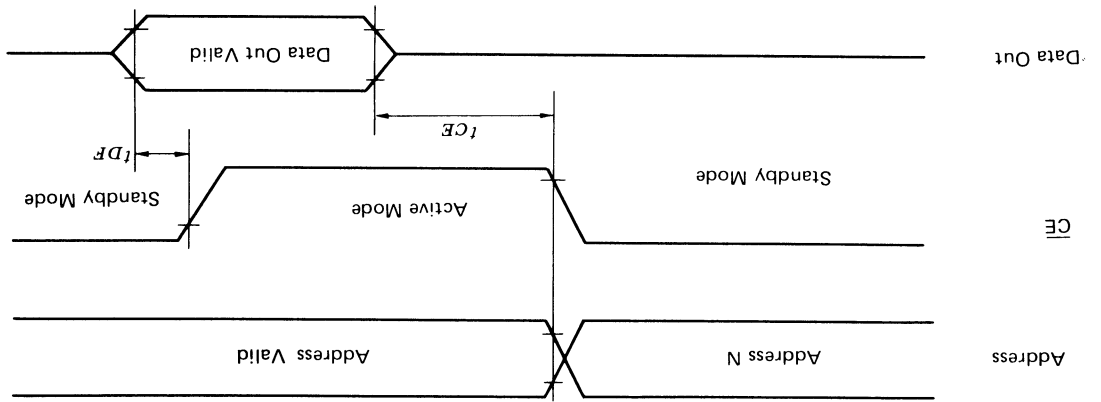
Notes: V<sub>CC</sub> must be applied simultaneously or before V<sub>PP</sub> and removed simultaneously or after V<sub>PP</sub>.

AC CHARACTERISTICS (T<sub>a</sub> = 0 to +70°C, V<sub>CC</sub> = 5V ±5%, V<sub>PP</sub> = V<sub>CC</sub> ±0.6V)

| Parameter               | Symbol           | Test Conditions      | min. | typ. | max. | Unit |
|-------------------------|------------------|----------------------|------|------|------|------|
| Address to Output Delay | t <sub>ACC</sub> | CE = V <sub>IL</sub> | -    | -    | 450  | ns   |
| CE to Output Delay      | t <sub>CE</sub>  |                      | -    | -    | 450  | ns   |
| CE High to Output Float | t <sub>DF</sub>  |                      | 0    | -    | 100  | ns   |
| Address to Output Hold  | t <sub>OH</sub>  | CE = V <sub>IL</sub> | 0    | -    | -    | ns   |

● SWITCHING CHARACTERISTICS

Test Conditions  
 Input Pulse Levels: 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



● 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         | $\mu\text{A}$ |
| VPP Supply Current During Programming | $I_{PP2}$ | $CE = V_{IL}$                         | —    | —    | 30         | mA            |
| VCC 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

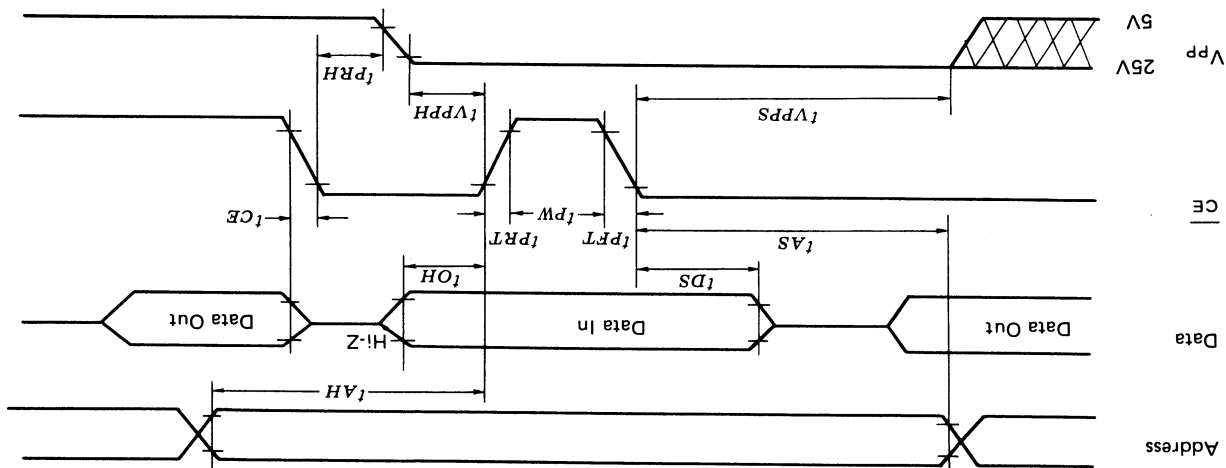
Test Conditions

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

Erasure of HN462532 is performed by exposure to ultraviolet light with a wavelength of 2537Å, 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 15W·sec/cm<sup>2</sup>.