HN462532, HN462532G, HN462532P

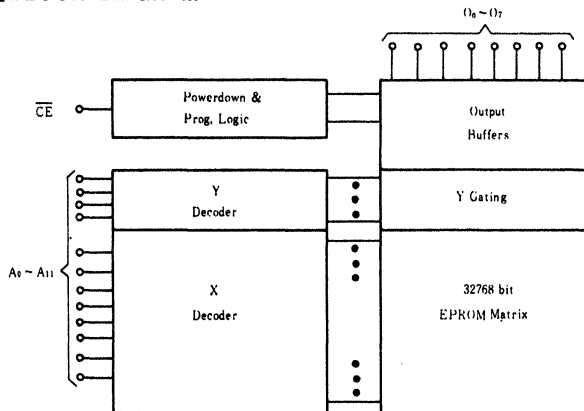## 4096-word × 8-bit U. V. Erasable and Programmable Read Only Memory

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.

The HN462532P is a 4096 word by 8 bit, one time programmable ROM. This device is packaged in a 24-pin, dual-in-line plastic package.

■ FEATURES

- Single Power Supply ...... +5V ±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
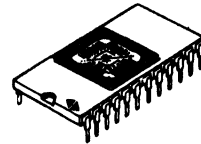- Three Stste Output .... OR-Tie Capability
- Compatible with TMS2532

HN462532
(DC-24C)
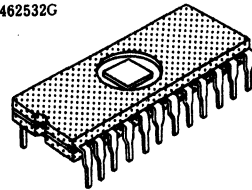
HN462532G
(DG-24B)

HN462532P
(DP-24)

■ BLOCK DIAGRAM
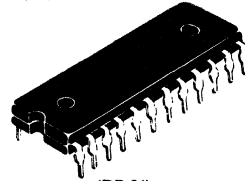
■ PIN ARRANGEMENT

(Top View)

■ 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

● HITACHI
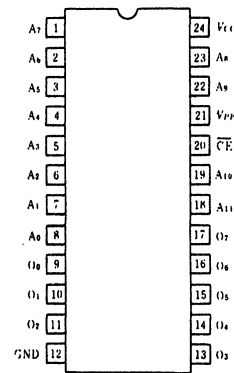
■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Value	Unit
All Input and Output Voltages*	V_T	-0.3 to $+7$	V
V_{PP} 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

● DC AND OPERATING CHARACTERISTICS ($Ta=0$ to $+70$°C, $V_{CC}=5$V$\pm5\%$, $V_{PP}=V_{CC}\pm0.6$V)

Parameter	Symbol	Test Condition	min	typ	max	Unit
Input Leakage Current	I_{LI}	$V_{in}=5.25$V	—	—	10	μA
Output Leakage Current	I_{LO}	$V_{out}=5.25$V$/0.4$V	—	—	10	μA
V_{PP} Current	I_{PP1}	$V_{PP}=5.85$V	—	—	12	mA
V_{CC} Current (Standby)	I_{CC1}	$\overline{CE}=V_{IH}$	—	—	25	mA
V_{CC} 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}	$I_{OL}=2.1$mA	—	—	0.4	V
Output High Voltage	V_{OH}	$I_{OH}=-400\mu$A	2.4	—	—	V

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

### ● AC CHARACTERISTICS ($Ta=0$ to $+70$°C, $V_{CC}=5$V$\pm5\%$, $V_{PP}=V_{CC}\pm0.6$V)

Parameter	Symbol	Test Condition	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

* : t_{DF} defines the time at which the output achieves the open circuit condition and is not referenced to output voltage levels.

● SWITCHING CHARACTERISTICS

Test Conditions

Input Pulse Levels:	0.8V to 2.2V
Input Rise and Fall Times:	$\leqslant 20$ ns
Output Load:	1TTL Gate + 100pF
Reference Level for Measuring Timing:	Inputs; 1V and 2V,
	Outputs; 0.8V and 2V
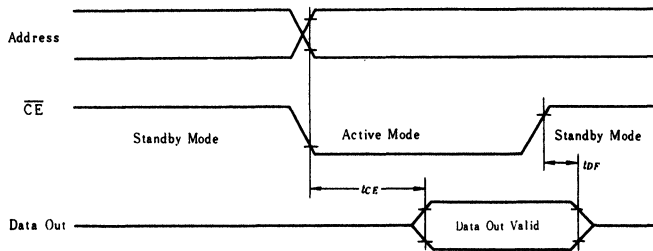
● CAPACITANCE ($Ta=25$°C, $f=1$MHz)

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

◎ HITACHI

■ PROGRAMMING OPERATION

● DC PROGRAMMING CHARACTERISTICS ($Ta = 25°C \pm 5°C$, $V_{CC} = 5V \pm 5\%$, $V_{PP} = 25V \pm 1V$)

Parameter	Symbol	Test Condition	min	typ	max	Unit
Input Leakage Current	I_{LI}	$V_{in} = 5.25V / 0.4V$	—	—	10	μA
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 ($Ta = 25°C \pm 5°C$, $V_{CC} = 5V \pm 5\%$, $V_{PP} = 25V \pm 1V$)

Parameter	Symbol	Test Condition	min	typ	max	Unit
Address Setup Time	t_{AS}		2	—	—	μs
Data Setup Time	t_{DS}		2	—	—	μs
Address Hold Time	t_{AH}		2	—	—	μs
Data Hold Time	t_{DH}		2	—	—	μs
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 ns
Output Load:	1 TTL Gate + 100pF
Reference Level for Measuring Timing:	Inputs; 1V and 2V,
	Outputs; 0.8V and 2V
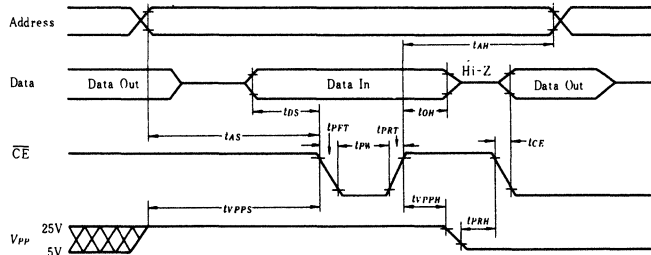
● ERASE

Erasure of HN462532 is performed by exposure to ultra-violet light with a wavelength of 2537Å, and all the output data are changed to "1" after this erasure procedure.
The minimum integrated close (i.e., UV intensity x exposure time) for erasure is 15W · sec/cm² .

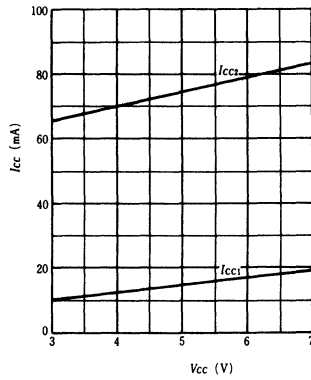NOTE THAT THE HN462543P CANNOT BE ERASED.

⊚ HITACHI

ACCESS TIME vs. SUPPLY VOLTAGE
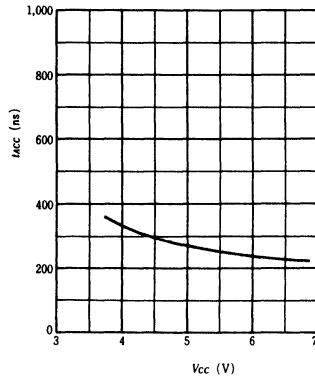
ACCESS TIME vs. AMBIENT TEMPERATURE
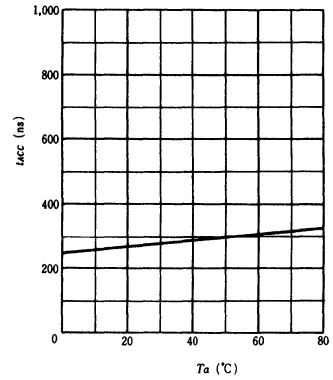
SUPPLY CURRENT vs. SUPPLY VOLTAGE

SUPPLY CURRENT vs. AMBIENT TEMPERATURE

@ HITACHI

313