

# HN61364P, HN61364FP

8192-word x 8-bit CMOS Mask Programmable Read Only Memory

The HN61364P/FP is a mask-programmable, byte-organized memory designed for use in bus-organized systems.

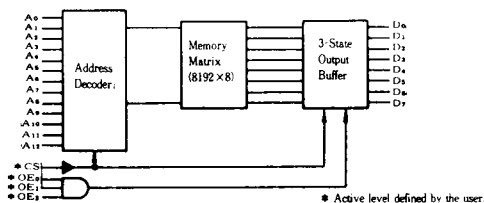
To facilitate use, the device operates from a single power supply, has compatibility with TTL, and requires no clocks or refreshing because of static operation.

The active level of the CS, OE<sub>0</sub> ~ OE<sub>2</sub> inputs and the memory content are defined by the user. The Chip Select input deselects the output and puts the chip in a powerdown mode.

## ■ FEATURES

- Fully Static Operation
- Automatic Power Down
- Single +5V Power Supply
- Three-state Data Output for OR-ties
- Mask Programmable Chip Select and Output Enable
- TTL Compatible
- Maximum Access Time; 250ns
- Low Power Standby and Low Power Operation; Standby 5μW (typ), Operation 50mW (typ)
- Pin Compatible with EPROM

## ■ BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATINGS

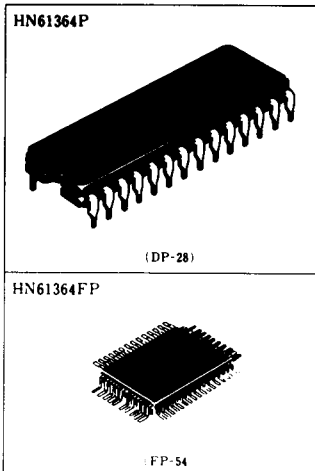
Item	Symbol	Value	Unit
Supply Voltage*	$V_{CC}$	-0.3 to +7.0	V
All Input and Output Voltage*	$V_T$	-0.3 to +7.0	V
Operating Temperature	$T_{opr}$	-20 to +75	°C
Storage Temperature	$T_{stg}$	-55 to +125	°C
Storage Temperature (under Bias)	$T_{bias}$	-20 to +85	°C

\* with respect to  $V_{SS}$

## ■ RECOMMENDED DC OPERATING CONDITIONS

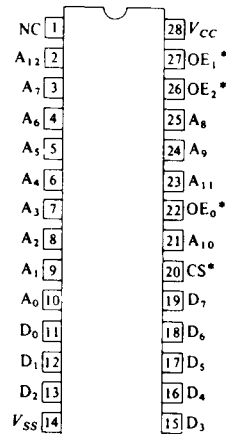
Item	Symbol	min	typ	max	Unit
Supply Voltage *	$V_{CC}$	4.5	5.0	5.5	V
Input Voltage *	$V_{IL}$	-0.3	-	0.8	V
	$V_{IH}$	2.2	-	$V_{CC}$	V
Operating Temperature	$T_{opr}$	-20	-	75	°C

\* with respect to  $V_{SS}$



## ■ PIN ARRANGEMENT

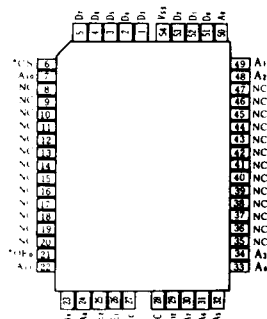
### ● HN61364P



(Top View)

\* Mask Programmable

### ● HN61364FP



(Top View)

\* Mask Programmable



■ ELECTRICAL CHARACTERISTICS ( $V_{CC} = 5V \pm 10\%$ ,  $V_{SS} = 0V$ ,  $T_a = -20$  to  $+75^\circ C$ )

Item	Symbol	Test Condition	min	typ**	max	Unit
Input High-level Voltage	$V_{IH}$		2.2	-	$V_{CC}$	V
Input Low-level Voltage	$V_{IL}$		-0.3	-	0.8	V
Output High-level Voltage	$V_{OH}$	$I_{OH} = -205\mu A$	2.4	-	-	V
Output Low-level Voltage	$V_{OL}$	$I_{OL} = 3.2mA$	-	-	-	V
Input Leakage Current	$I_{LI}$	$V_{in} = 0$ to $5.5V$	-	-	0.4	$\mu A$
Output High-level Leakage Current	$I_{LOH}$	$V_{out} = 2.4V$ , $CS = 0.8V$ , $\overline{CS} = 2.2V$	-	-	10	$\mu A$
Output Low-level Leakage Current	$I_{LOL}$	$V_{out} = 0.4V$ , $CS = 0.8V$ , $\overline{CS} = 2.2V$	-	-	10	$\mu A$
Supply Current	Active	$V_{CC} = 5.5V$ , $I_{out} = 0mA$ , $t_{RC} = \text{min}$ , $\text{duty} = 100\%$	-	10	25	mA
	Standby					
Input Capacitance	$C_{in}^{***}$	$V_{CC} = 5.5V$ , $\overline{CS} \geq V_{CC} - 0.2V$ , $CS \leq 0.2V$	-	1	30	$\mu A$
Output Capacitance	$C_{out}^{***}$	$V_{in} = 0V$ , $f = 1MHz$ , $T_a = 25^\circ C$	-	-	10	pF
			-	-	15	pF

\* Steady state current \*\*  $V_{CC} = 5V$ ,  $T_a = 25^\circ C$

\*\*\* This parameter is sampled and not 100% tested.

■ AC CHARACTERISTICS (READ CYCLE)

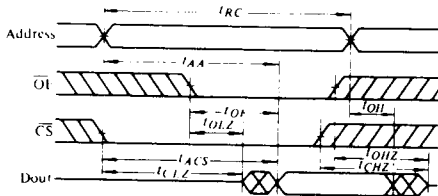
( $V_{CC} = 5V \pm 10\%$ ,  $V_{SS} = 0V$ ,  $T_a = -20$  to  $+75^\circ C$ ,  $t_r = t_f = 20ns$ )

Item	Symbol	min	max	Unit
Read Cycle Time	$t_{RC}$	250	-	ns
Address Access Time	$t_{AA}$	-	250	ns
Chip Select Access Time	$t_{ACS}$	-	250	ns
Chip Selection to Output in Low Z	$t_{CLZ}$	10	-	ns
Output Enable to Output Valid	$t_{OE}$	-	100	ns
Output Enable to Output in Low Z	$t_{OLZ}$	10	-	ns
Chip Deselection to Output in High Z	$t_{CHZ}^*$	0	100	ns
Output Disable to Output in High Z	$t_{OHZ}^*$	0	100	ns
Output Hold from Address Change	$t_{OH}$	10	-	ns

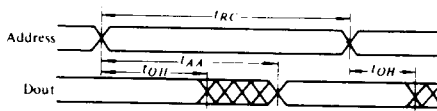
\*  $t_{CHZ}$  and  $t_{OHZ}$  defines the time at which the output achieves the open circuit condition and is not referenced to output voltage levels.

■ TIMING WAVEFORM

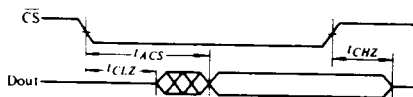
● Read Cycle (1)



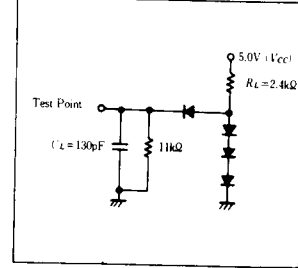
● Read Cycle (2) Notes 1, 3



● Read Cycle (3) Notes 2, 3



● AC TEST LOAD



- Notes) 1.  $t_r = t_f = 20ns$
- 2.  $C_L$  includes jig capacitance.
- 3. All diodes are 1S2074Ⓢ.

NOTES:

1. Device is continuously selected.
2. Address Valid prior to or coincident with  $\overline{CS}$  transition low.
3.  $OE = V_{IL}$
4. Input pulse level: 0.8 to 2.4V
5. Input and output reference level: 1.5V

