HN62454B Series

262144-word × 16-bit CMOS Mask Programmable ROM

HITACHI

ADE-203-471A(Z)
Rev. 1.1
Jun. 21, 1996

Description

The HN62454B is a 262144 words by 16 bits CMOS Mask Programmable ROM. A high speed access of 85/100 ns (max) is the most suitable to the system using a high speed micro-computer by 16 bits.

Features

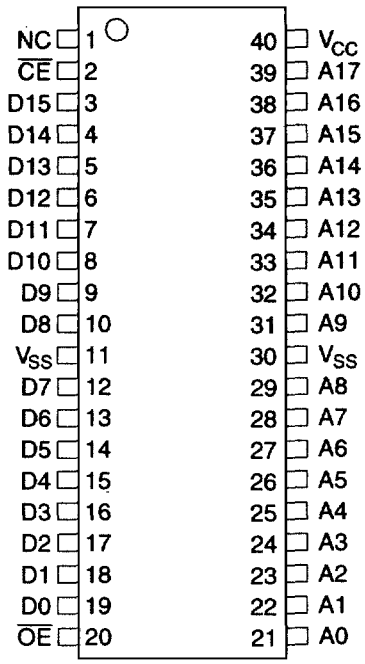
- Single 5 V supply
- High speed
  - — Access time: 85/100 ns (max)
- Low power
  - — Active: 440 mW (max)
  - — Standby: 165 µW (max)
- Directly TTL compatible
  - — All inputs and outputs
- Pin compatible with 4 Mbit EPROM (HN27C4096G/CC/CP)

Ordering Information

Type No.	Access time	Package
HN62454BP-85	85 ns	600 mil 40-pin plastic DIP (DP-40)
HN62454BP-10	100 ns	
HN62454BCP-85	85 ns	44-pin plastic PLCC (CP-44)
HN62454BCP-10	100 ns	

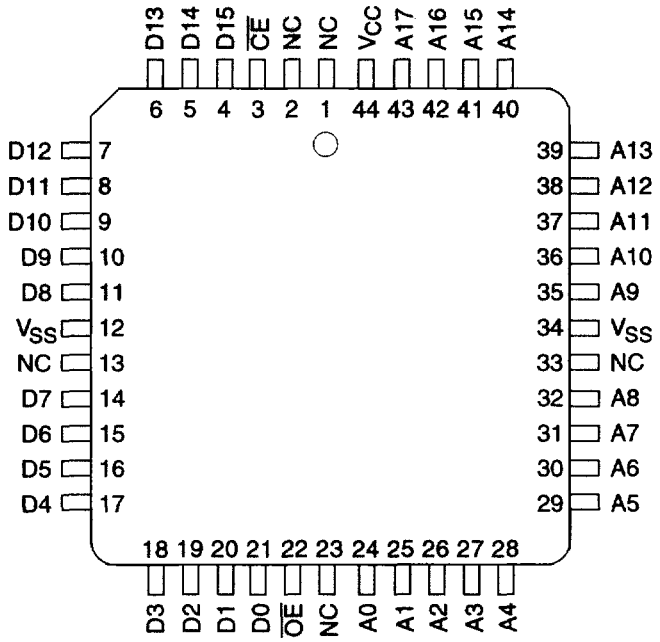
Pin Arrangement

HN62454BP Series



(Top View)

HN62454BCP Series

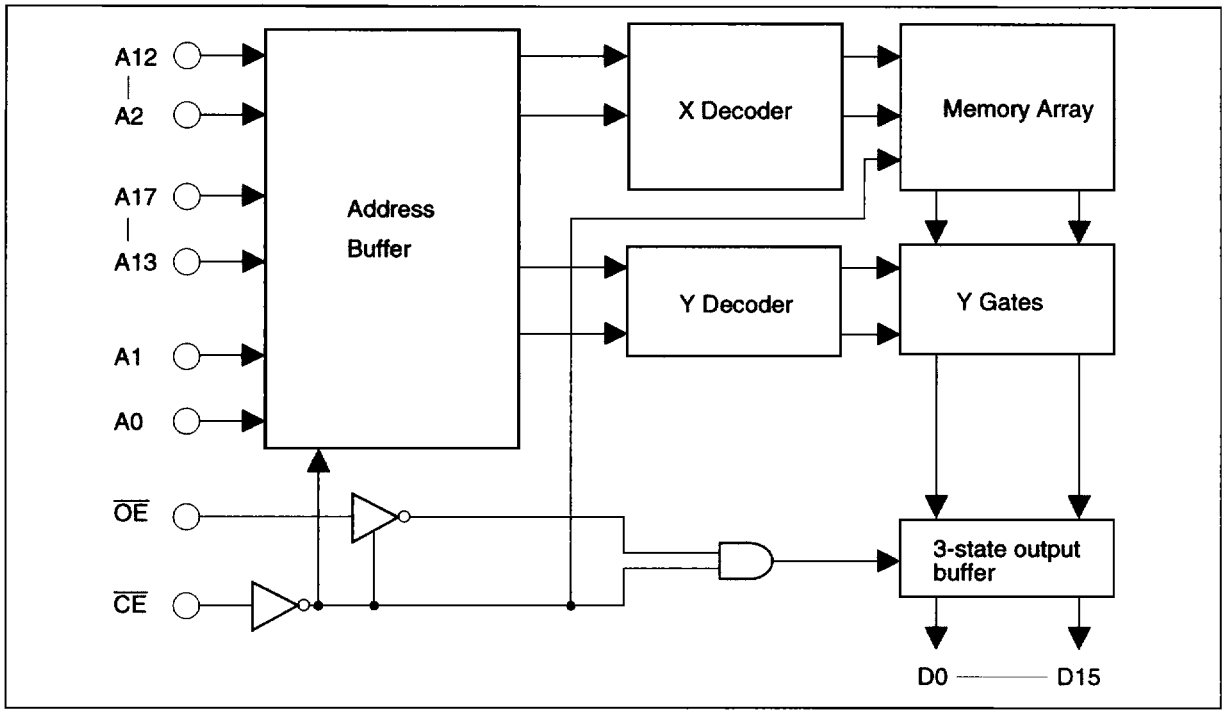


(Top View)

Pin Description

Pin name	Function
A0 to A17	Address inputs
D0 to D15	Data outputs
$\overline{CE}$	Chip enable
$\overline{OE}$	Output enable
NC	No connection
V_{cc}	Power supply
V_{ss}	Ground

Block Diagram



Mode Selection

	Pin			Address input	
Mode	**$\overline{CE}$**	**$\overline{OE}$**	**Data output**	**LSB**	**MSB**
Standby	H	×*1	High-Z*2	—	—
Output disable	L	H	High-Z	—	—
Read	L	L	Dout	A0	A17

Notes: 1. ×: Don't care.
2. High-Z: High impedance

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage*[1]	V_{CC}	–0.3 to + 7.0	V
All input and output voltage*[1]	Vin, Vout	–0.3 to V_{CC} + 0.3	V
Operating temperature range	Topr	0 to + 70	°C
Storage temperature range	Tstg	–55 to + 125	°C
Temperature under bias	Tbias	–20 to + 85	°C

Note: 1. With respect to V_{SS}.

Recommended DC Operating Conditions (Ta = 0 to + 70°C)

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.5	5.0	5.5	V
	V_{SS}	0	0	0	V
Input voltage	V_{IH}	2.2	—	V_{CC} + 0.3	V
	V_{IL}	–0.3	—	0.8	V

DC Characteristics (V_{CC} = 5.0 V ± 10%, V_{SS} = 0 V, Ta = 0 to + 70°C)

Parameter		Symbol	Min	Max	Unit	Test conditions
Supply current	Active	I_{CC}	—	80/60	mA	V_{CC} = 5.5 V, I_{DOUT} = 0 mA, t_{RC} = 85/100 ns
	Standby	I_{SB1}	—	30	µA	V_{CC} = 5.5 V, $\overline{CE} \geq V_{CC} - 0.2$ V
	Standby	I_{SB2}	—	3	mA	V_{CC} = 5.5 V, $\overline{CE} \geq$ 2.2 V
Input leakage current		$\|I_{IL}\|$	—	10	µA	Vin = 0 to V_{CC}
Output leakage current		$\|I_{OL}\|$	—	10	µA	$\overline{CE}$ = 2.2 V, Vout = 0 to V_{CC}
Output voltage		V_{OH}	2.4	—	V	I_{OH} = –400 µA
		V_{OL}	—	0.4	V	I_{OL} = 2.1 mA

Capacitance (V_{CC} = 5.0 V ± 10%, V_{SS} = 0 V, Ta = 25°C, Vin = 0 V, f = 1MHz)

Parameter	Symbol	Min	Max	Unit
Input capacitance*[1]	Cin	—	10	pF
Output capacitance*[1]	Cout	—	15	pF

Note: 1. This parameter is sampled and not 100% tested.

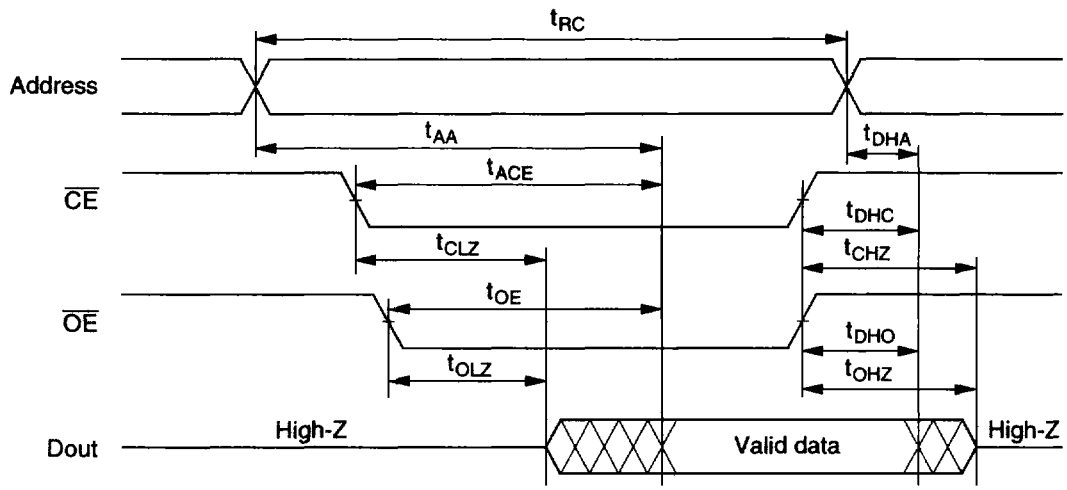
AC Characteristics (V_{CC} = 5.0 V ± 10%, V_{SS} = 0 V, Ta = 0 to + 70°C)

- Output load: 1TTL + C_L = 100 pF (including jig)
- Input pulse level: 0.45 to 2.8 V
- Input and output timing reference levels: 1.5 V
- Input rise and fall time: 5 ns

		HN62454B-85		HN62454B-10			
Parameter	**Symbol**	**Min**	**Max**	**Min**	**Max**	**Unit**	**Note**
Read cycle time	t_{RC}	85	—	100	—	ns	
Address access	t_{AA}	—	85	—	100	ns	
$\overline{CE}$ access time	t_{ACE}	—	85	—	100	ns	
$\overline{OE}$ access time	t_{OE}	—	40	—	40	ns	
Output hold time from address change	t_{DHA}	5	—	5	—	ns	
Output hold time from $\overline{CE}$	t_{DHC}	0	—	0	—	ns	
Output hold time from $\overline{OE}$	t_{DHO}	0	—	0	—	ns	
$\overline{CE}$ to output in high-Z	t_{CHZ}	—	30	—	30	ns	1
$\overline{OE}$ to output in high-Z	t_{OHZ}	—	30	—	30	ns	1
$\overline{CE}$ to output in low-Z	t_{CLZ}	5	—	5	—	ns	
$\overline{OE}$ to output in low-Z	t_{OLZ}	5	—	5	—	ns	

Note: 1. t_{CHZ} and t_{OHZ} are defined as the time at which the output achieves the open circuit conditions and are not referred to output voltage levels.

Timing Waveform



Notes: 1. t_{DHA}, t_{DHC}, t_{DHO}: Determined by faster.
2. t_{AA}, t_{ACE}, t_{OE}: Determined by slower.
3. t_{CLZ}, t_{OLZ}: Determined by slower.