
HN62454B Series

262144-word $\times$ 16-bit CMOS Mask Programmable ROM

HITACHI

ADE-203-471A(Z)

Rev. 1.0

May. 10, 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

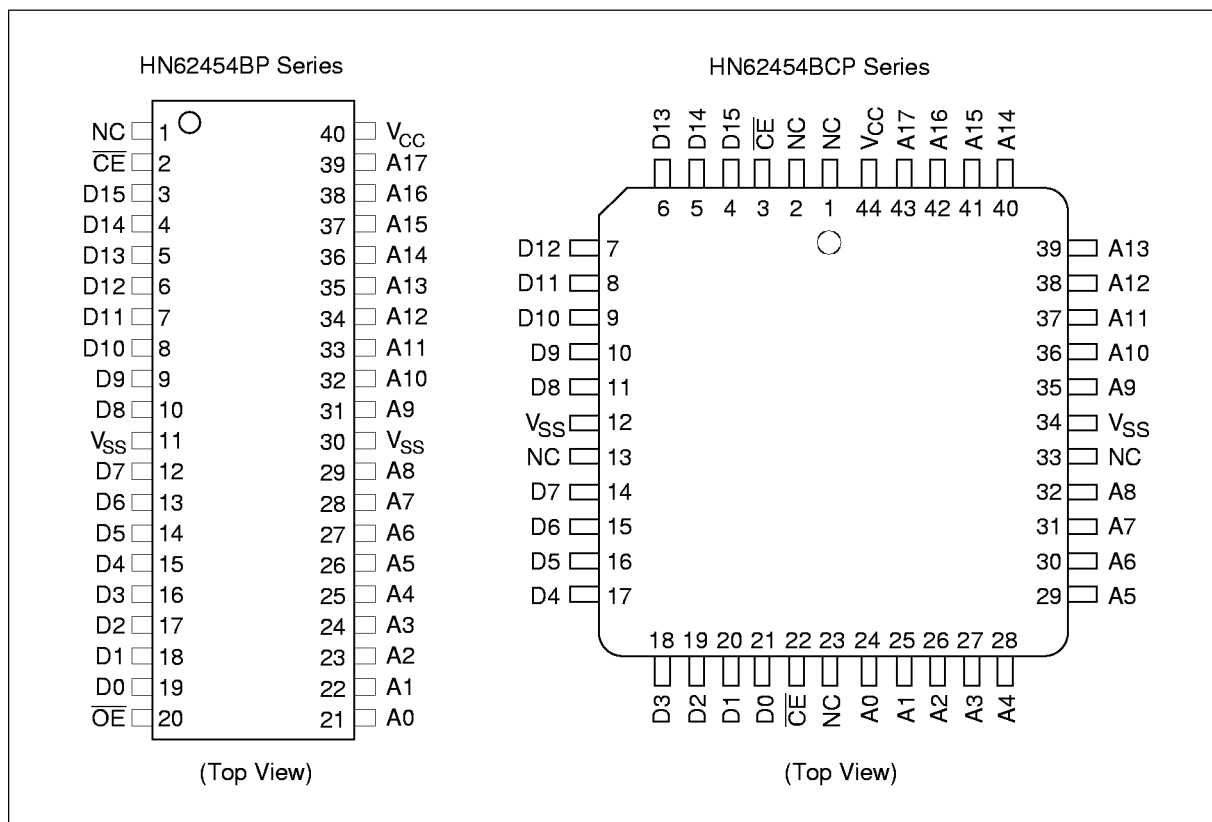
- Single 5 V supply
- High speed
 - Access time: 85/100 ns (max)
- Low power
 - Active: 440 mW (max)
 - Standby: 165 μ W (max)
- Directly TTL compatible
 - All inputs and outputs
- Pin compatible with 4 Mbit EPROM (HN27C4096G/CC/CP)

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	

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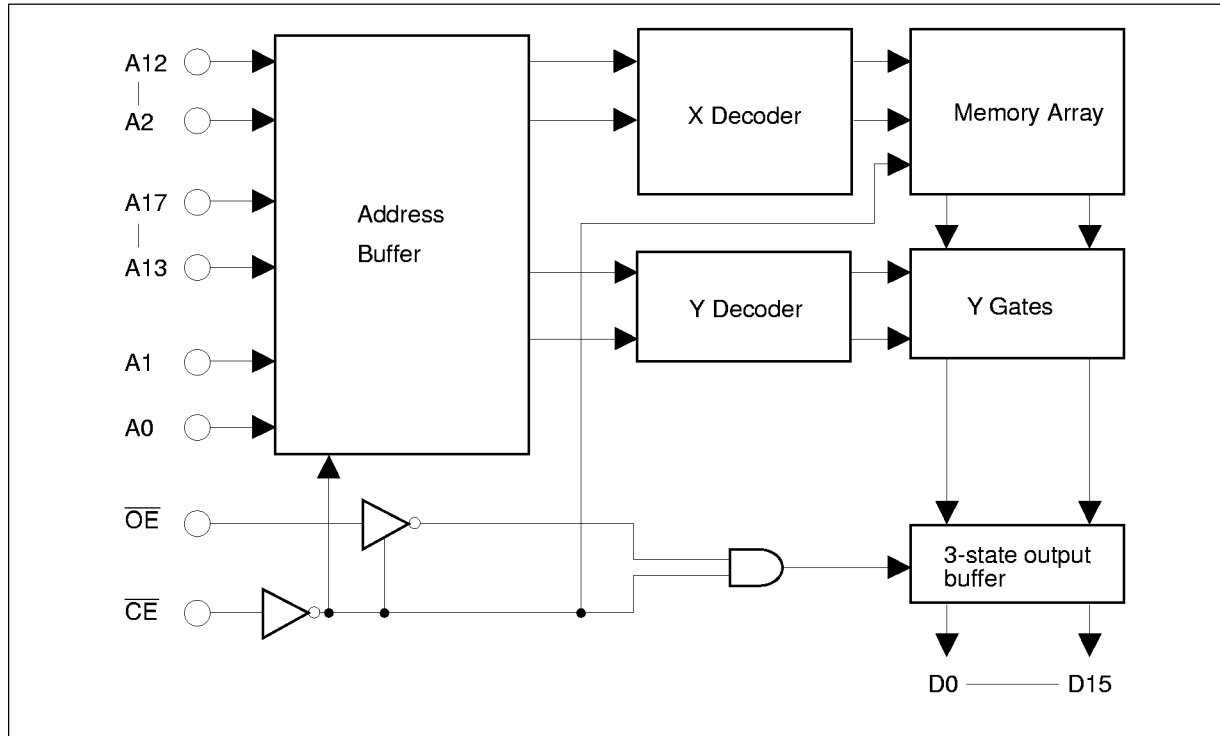
Pin Arrangement



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

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

Notes: 1. $\times$: Don't care.
 2. High-Z: High impedance

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Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage*1	V_{CC}	-0.3 to + 7.0	V
All input and output voltage*1	V_{in}, V_{out}	-0.3 to $V_{CC} + 0.3$	V
Operating temperature range	T_{opr}	0 to + 70	°C
Storage temperature range	T_{stg}	-55 to + 125	°C
Temperature under bias	T_{bias}	-20 to + 85	°C

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

Recommended DC Operating Conditions ($T_a = 0$ 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 ($V_{CC} = 5.0\text{ V} \pm 10\%$, $V_{SS} = 0\text{ V}$, $T_a = 0$ to + 70°C)

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

Capacitance ($V_{CC} = 5.0\text{ V} \pm 10\%$, $V_{SS} = 0\text{ V}$, $T_a = 25^\circ\text{C}$, $V_{in} = 0\text{ V}$, $f = 1\text{ MHz}$)

Parameter	Symbol	Min	Max	Unit
Input capacitance*1	C_{in}	—	10	pF
Output capacitance*1	C_{out}	—	15	pF

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

AC Characteristics ($V_{CC} = 5.0 \text{ V} \pm 10\%$, $V_{SS} = 0 \text{ V}$, $T_a = 0 \text{ to } +70^\circ\text{C}$)

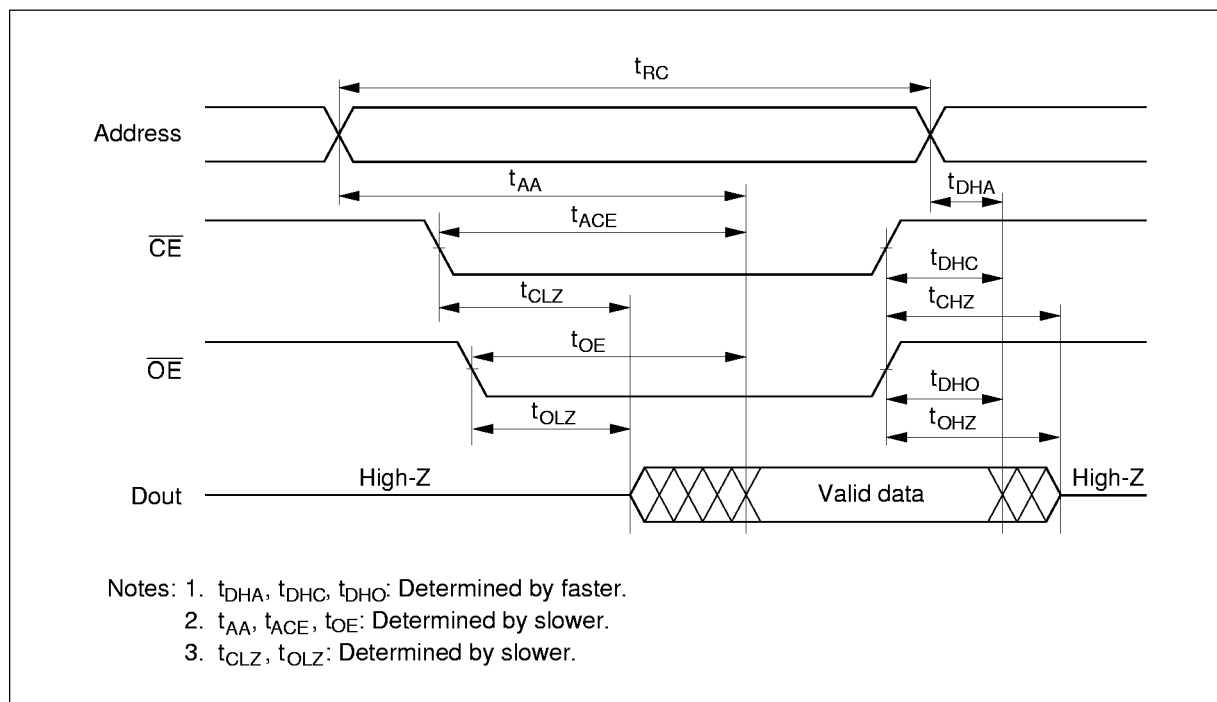
- Output load: 1TTL + $C_L = 100 \text{ pF}$ (including jig)
- Input pulse level: 0.45 to 2.8 V
- Input and output timing reference levels: 1.5 V
- Input rise and fall time: 5 ns

Parameter	Symbol	HN62454B-85		HN62454B-10		Unit	Note
		Min	Max	Min	Max		
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.

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Timing Waveform

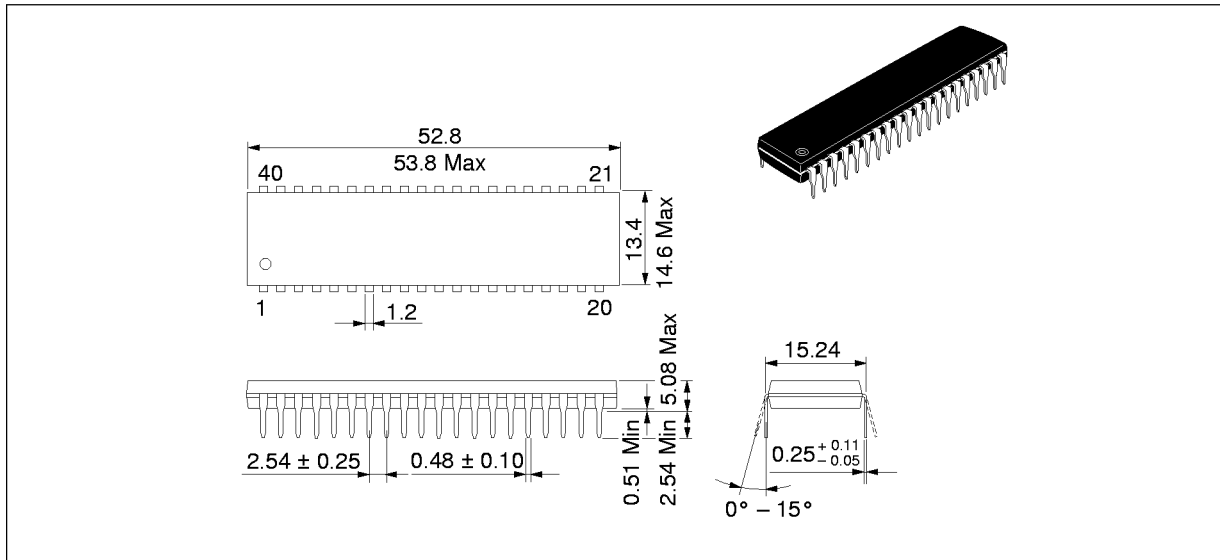


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Package Dimensions

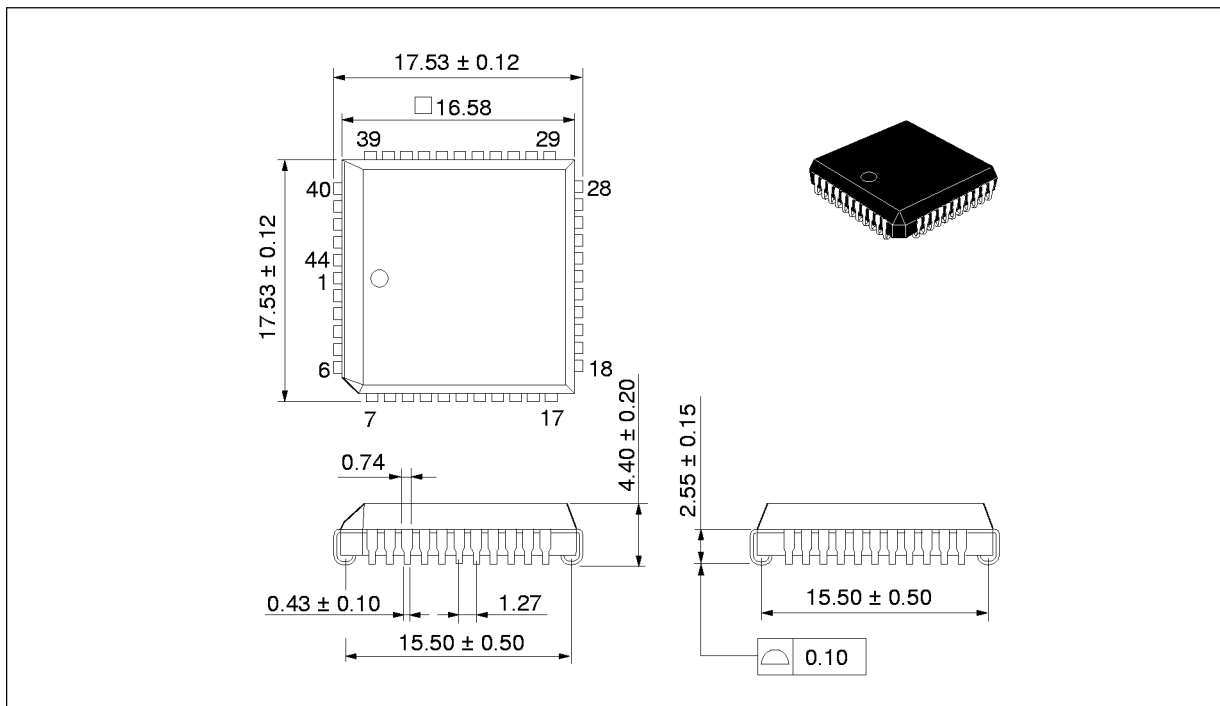
HN62454BP Series (DP-40)

Unit: mm



HN62454BCP Series (CP-44)

Unit: mm



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Revision Record

Rev.	Date	Contents of Modification	Drawn by	Approved by
0.0	Oct. 25, 1995	Initial issue	M. Shirai	H. Morimuchi
1.0	May. 10, 1996	Change of format AC Characteristics Input level : 2.4 V to 2.8 V t_{OE} (max) : 35 ns to 40 ns		