

HN62W454B Series

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

HITACHI

ADE-203-682 (Z)
Preliminary
Rev. 0.0
Nov. 18, 1996

Description

The HN62W454B is a 262144 words by 16 bits CMOS Mask Programmable ROM. A high speed access of 120/150 ns (max) is the most suitable to the system using a high speed micro-computer by 16 bits.

Features

- Low voltage operation: $3.3\text{ V} \pm 0.3\text{ V}$
- High speed
 - Access time: 120/150 ns (max)
- Low power
 - Active: 216 mW (max)
 - Standby: 108 μ W (max)
- Directly LVTTL compatible
- All inputs and outputs

Ordering Information

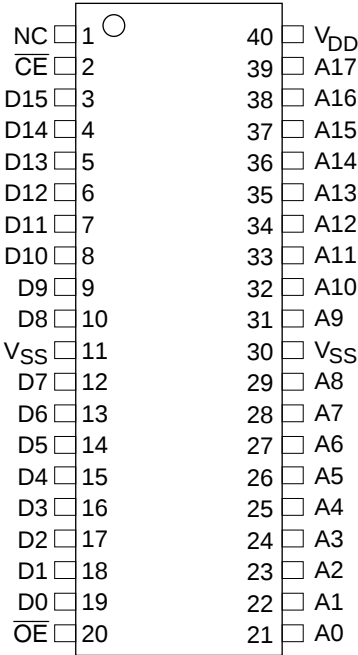
Type No.	Access time	Package
HN62W454BP-12	120 ns	600 mil 40-pin plastic DIP (DP-40)
HN62W454BP-15	150 ns	
HN62W454BCP-12	120 ns	44-pin plastic PLCC (CP-44)
HN62W454BCP-15	150 ns	

Preliminary: The specification of this device are subject to change without notice. Please contact your nearest Hitachi's Sales Dept. regarding specification.

HN62W454B Series

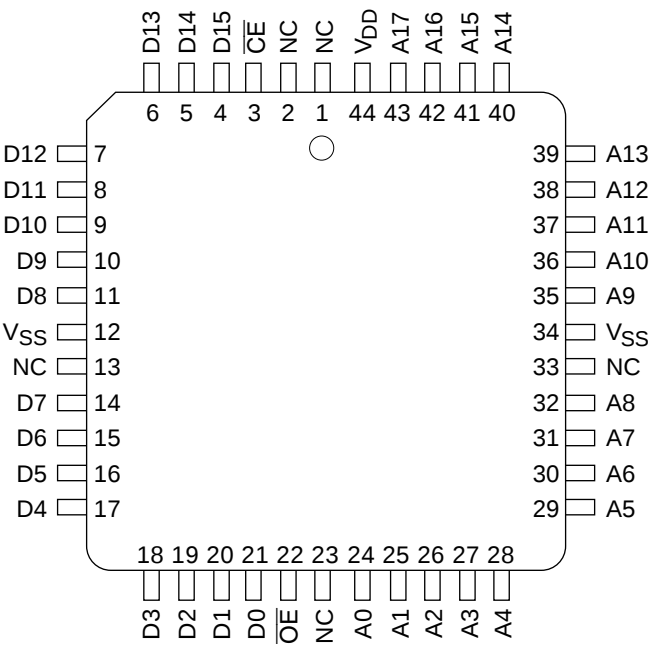
Pin Arrangement

HN62W454BP Series



(Top View)

HN62W454BCP Series

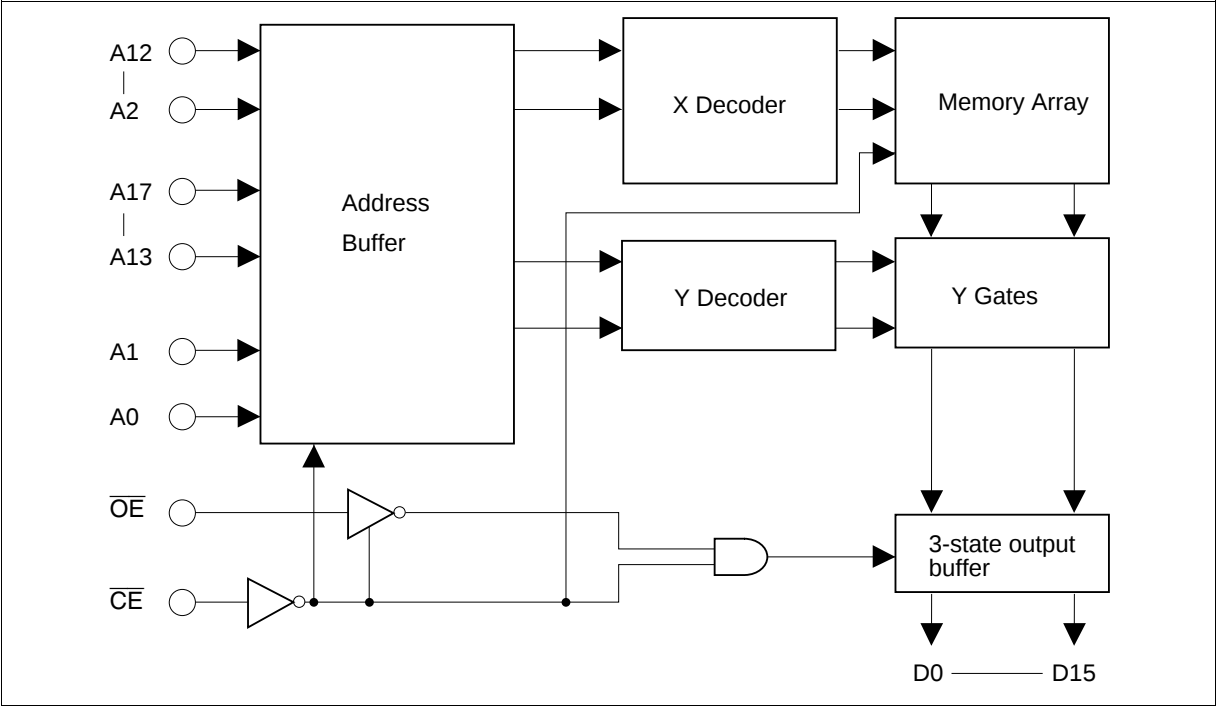


(Top View)

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_{DD}	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 ^{*2}	—	—
Read	L	L	Dout	A0	A17

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

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage ^{*1}	V _{DD}	−0.3 to + 5.5	V
All input and output voltage ^{*1}	V _{in} , V _{out}	−0.3 to V _{DD} + 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 _{DD}	3.0	3.3	3.6	V
	V _{SS}	0	0	0	V
Input voltage	V _{IH}	2.2	—	V _{DD} + 0.3	V
	V _{IL}	−0.3	—	0.8	V

DC Characteristics (V_{DD} = 3.3 V ± 0.3 V, V_{SS} = 0 V, Ta = 0 to + 70°C)

Parameter		Symbol	Min	Max	Unit	Test conditions
Supply current	Active	I _{DD}	—	60/50	mA	V _{DD} = 3.6 V, I _{DOUT} = 0 mA, t _{RC} = 120/150 ns
	Standby	I _{SB1}	—	30	μA	V _{DD} = 3.6 V, $\overline{CE} \geq V_{DD} - 0.2$ V
	Standby	I _{SB2}	—	3	mA	V _{DD} = 3.6 V, $\overline{CE} \geq 2.2$ V
Input leakage current		I _{IL}	—	10	μA	V _{in} = 0 to V _{DD}
Output leakage current		I _{OL}	—	10	μA	$\overline{CE} = 2.2$ V, V _{out} = 0 to V _{DD}
Output voltage		V _{OH}	2.4	—	V	I _{OH} = −2.0 mA
		V _{OL}	—	0.4	V	I _{OL} = 2.0 mA

Capacitance (V_{DD} = 3.3 V ± 0.3 V, V_{SS} = 0 V, Ta = 25°C, V_{in} = 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.

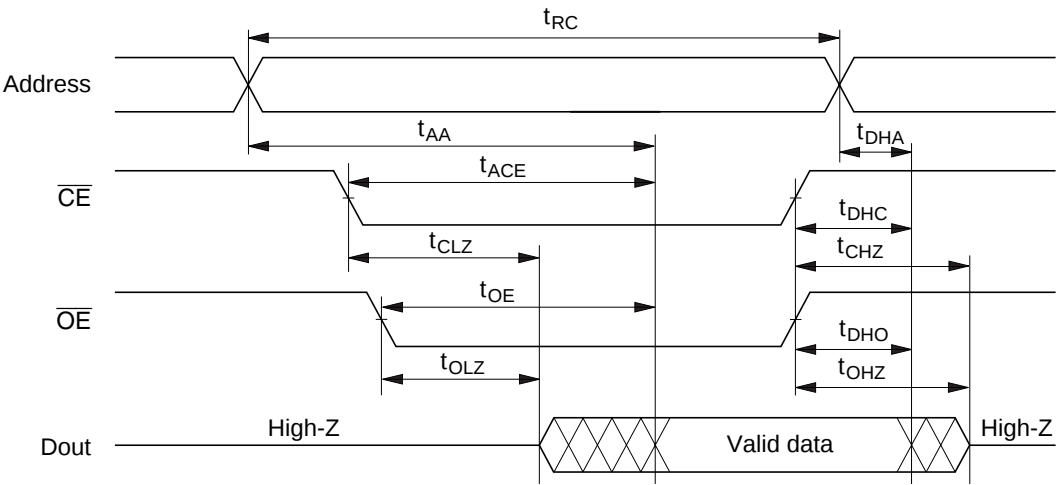
AC Characteristics (V_{DD} = 3.3 V ± 0.3 V, V_{SS} = 0 V, Ta = 0 to + 70°C)

- Output load: 1TTL + C_L = 100 pF (including jig)
- Input pulse level: 0.4 to 2.4 V
- Input and output timing reference levels: 1.4 V
- Input rise and fall time: 5 ns

Parameter	Symbol	HN62W454B-12		HN62W454B-15		Unit	Note
		Min	Max	Min	Max		
Read cycle time	t _{RC}	120	—	150	—	ns	
Address access	t _{AA}	—	120	—	150	ns	
$\overline{\text{CE}}$ access time	t _{ACE}	—	120	—	150	ns	
$\overline{\text{OE}}$ access time	t _{OE}	—	60	—	70	ns	
Output hold time from address change	t _{DHA}	0	—	0	—	ns	
Output hold time from $\overline{\text{CE}}$	t _{DHC}	0	—	0	—	ns	
Output hold time from $\overline{\text{OE}}$	t _{DHO}	0	—	0	—	ns	
$\overline{\text{CE}}$ to output in high-Z	t _{CHZ}	—	50	—	60	ns	1
$\overline{\text{OE}}$ to output in high-Z	t _{OHZ}	—	50	—	60	ns	1
$\overline{\text{CE}}$ to output in low-Z	t _{CLZ}	5	—	5	—	ns	
$\overline{\text{OE}}$ 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

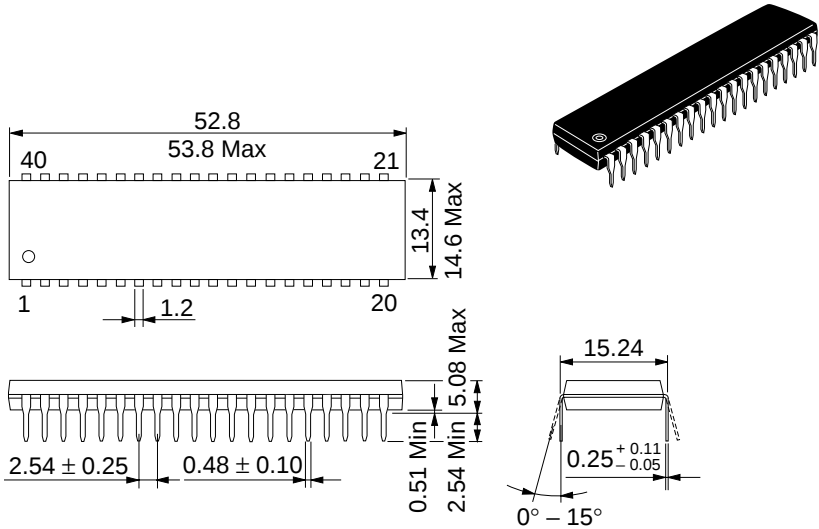


- Notes: 1. t_{DHA} , t_{DHC} , t_{DHO} : Determined by faster.
2. t_{AA} , t_{ACE} , t_{OE} : Determined by slower.
3. t_{CLZ} , t_{OLZ} : Determined by slower.

Package Dimensions

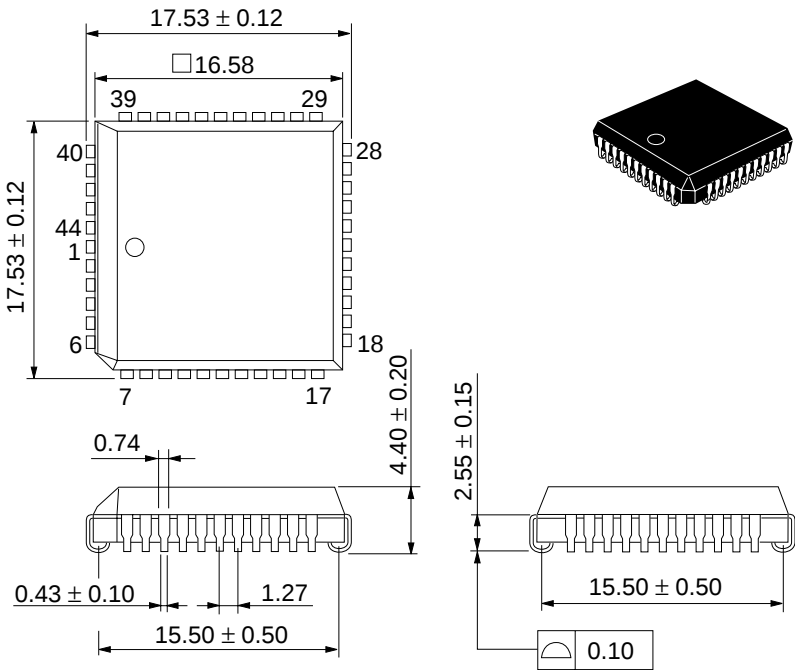
HN62W454BP Series (DP-40)

Unit: mm



HN62W454BCP Series (CP-44)

Unit: mm



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Revision Record

Rev.	Date	Contents of Modification	Drawn by	Approved by
0.0	Nov. 18, 1996	Initial issue		