

HN62V454B Series

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

HITACHI

ADE-203-681 (Z)
Preliminary
Rev. 0.0
Nov. 20, 1996

Description

The HN62V454B is a 262144 words by 16 bits CMOS Mask Programmable ROM. Low voltage operating of 2.7 V (min) is the most suitable to the system handy terminal.

Features

- Low voltage operation: 2.7 V to 3.6 V
- High speed
 - Access time: 200 ns (max)
- Low power
 - Active: 72 mW (max)
 - Standby: 72 μ W (max)
- Directly LVTTL compatible
- All inputs and outputs

Ordering Information

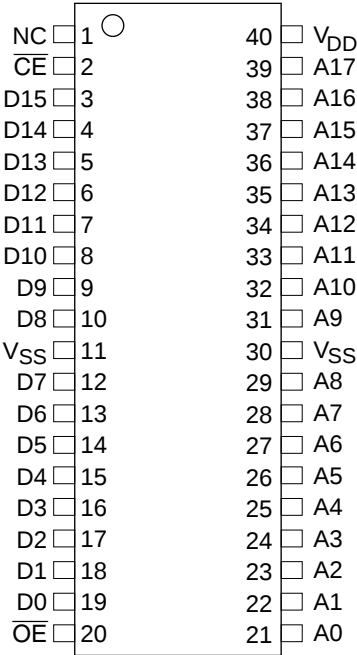
Type No.	Access time	Package
HN62V454BP-20	200 ns	600 mil 40-pin plastic DIP (DP-40)
HN62V454BCP-20	200 ns	44-pin plastic PLCC (CP-44)

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

HN62V454B Series

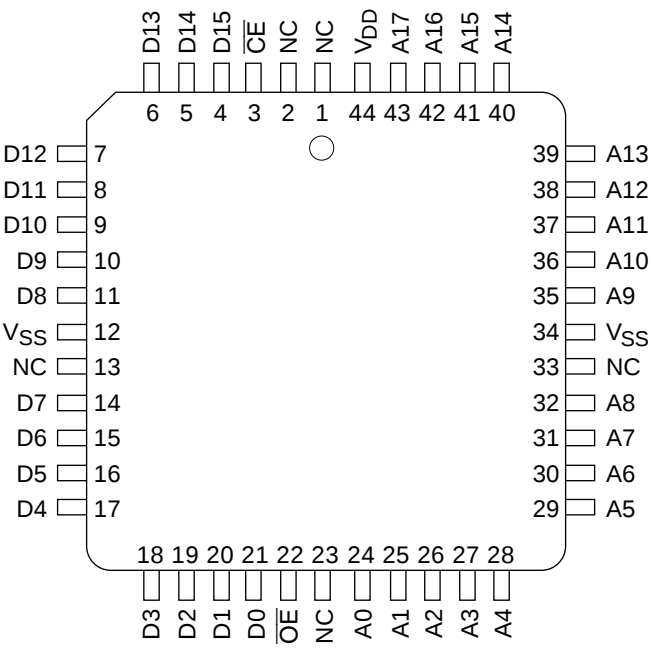
Pin Arrangement

HN62V454BP Series



(Top View)

HN62V454BCP Series

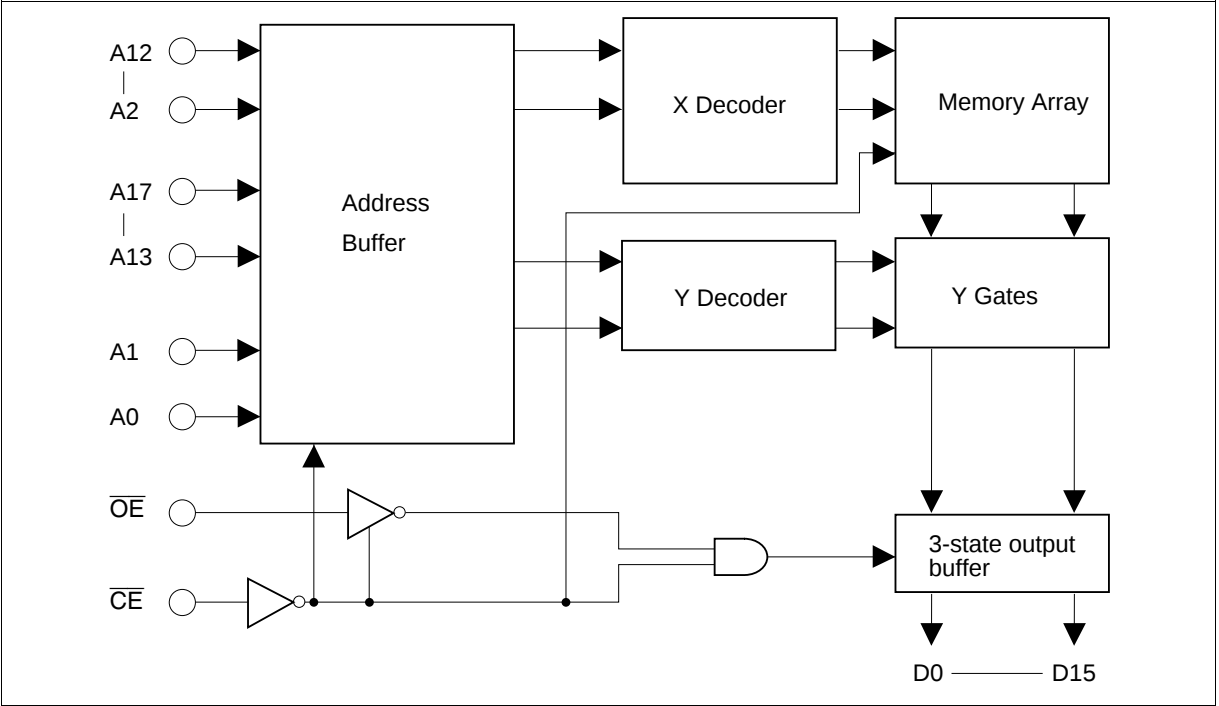


(Top View)

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}	2.7	3.0	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} = 2.7 V to 3.6 V, V_{SS} = 0 V, Ta = 0 to + 70°C)

Parameter		Symbol	Min	Max	Unit	Test conditions
Supply current	Active	I _{DD}	—	20	mA	V _{DD} = 3.6 V, I _{DOUT} = 0 mA, t _{RC} = 200 ns
	Standby	I _{SB1}	—	20	μA	V _{DD} = 3.6 V, $\overline{CE} \geq V_{DD} - 0.2\text{ V}$
	Standby	I _{SB2}	—	3	mA	V _{DD} = 3.6 V, $\overline{CE} \geq 2.2\text{ V}$
Input leakage current		I _{IL}	—	2	μA	V _{in} = 0 to V _{DD}
Output leakage current		I _{OL}	—	2	μA	$\overline{CE} = 2.2\text{ V}$, V _{out} = 0 to V _{DD}
Output voltage		V _{OH}	V _{DD} −0.2	—	V	I _{OH} = −100 μA
		V _{OL}	—	0.2	V	I _{OL} = 100 μA

Capacitance (V_{DD} = 2.7 V to 3.6 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.

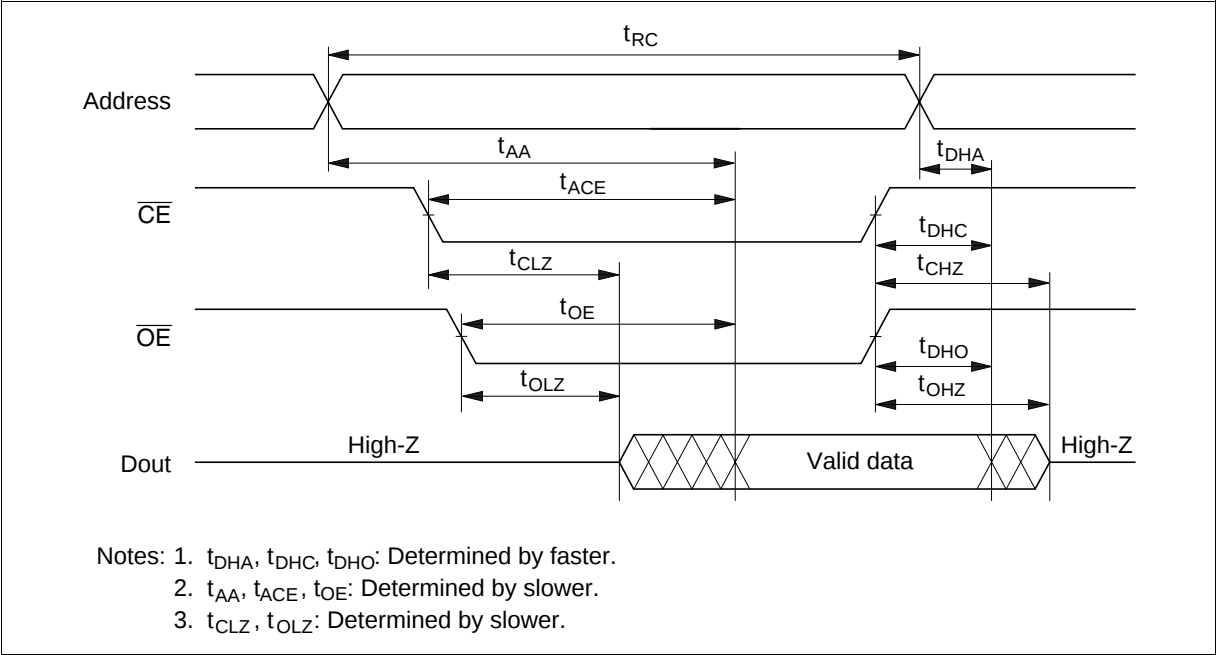
AC Characteristics (V_{DD} = 2.7 V to 3.6 V, V_{SS} = 0 V, Ta = 0 to + 70°C)

- Output load: C_L = 50 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	HN62V454B-20		Unit	Note
		Min	Max		
Read cycle time	t _{RC}	200	—	ns	
Address access	t _{AA}	—	200	ns	
$\overline{\text{CE}}$ access time	t _{ACE}	—	200	ns	
$\overline{\text{OE}}$ access time	t _{OE}	—	70	ns	
Output hold time from address change	t _{DHA}	0	—	ns	
Output hold time from $\overline{\text{CE}}$	t _{DHC}	0	—	ns	
Output hold time from $\overline{\text{OE}}$	t _{DHO}	0	—	ns	
$\overline{\text{CE}}$ to output in high-Z	t _{CHZ}	—	70	ns	1
$\overline{\text{OE}}$ to output in high-Z	t _{OHZ}	—	70	ns	1
$\overline{\text{CE}}$ to output in low-Z	t _{CLZ}	5	—	ns	
$\overline{\text{OE}}$ to output in low-Z	t _{OLZ}	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.

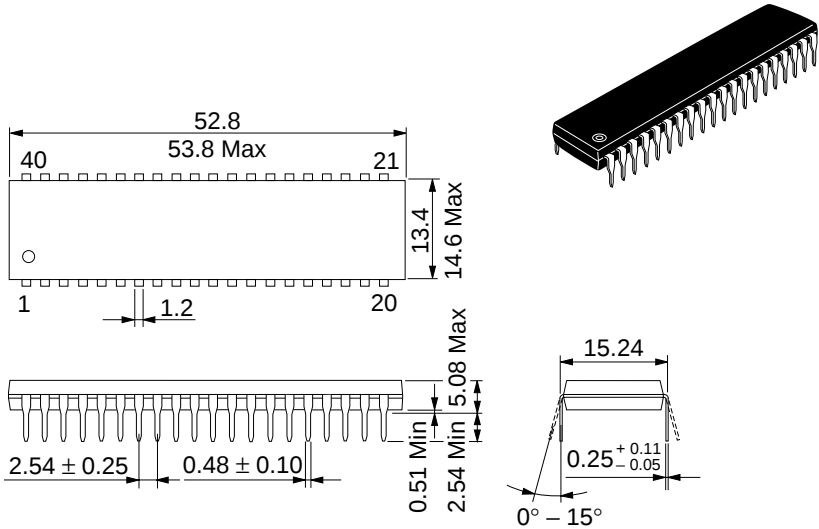
Timing Waveform



Package Dimensions

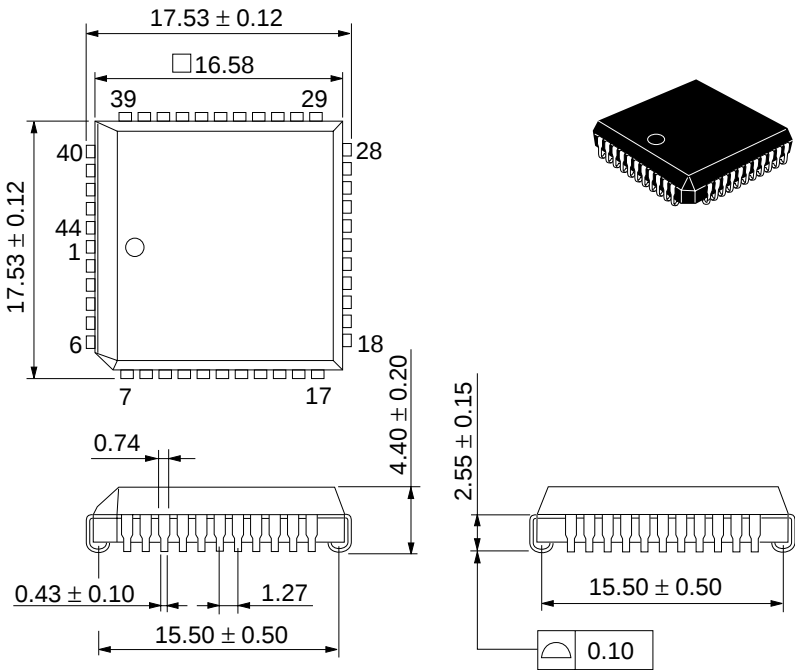
HN62V454BP Series (DP-40)

Unit: mm



HN62V454BCP Series (CP-44)

Unit: mm



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HITACHI

Hitachi, Ltd.

Semiconductor & IC Div.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100, Japan
Tel: Tokyo (03) 3270-2111
Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd.
Semiconductor & IC Div.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1835
U S A
Tel: 415-589-8300
Fax: 415-583-4207

Hitachi Europe GmbH
Electronic Components Group
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30 00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 0628-585000
Fax: 0628-778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 0104
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071

Revision Record

Rev.	Date	Contents of Modification	Drawn by	Approved by
0.0	Nov. 20, 1996	Initial issue		