
HN62V454B Series

262144-word × 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

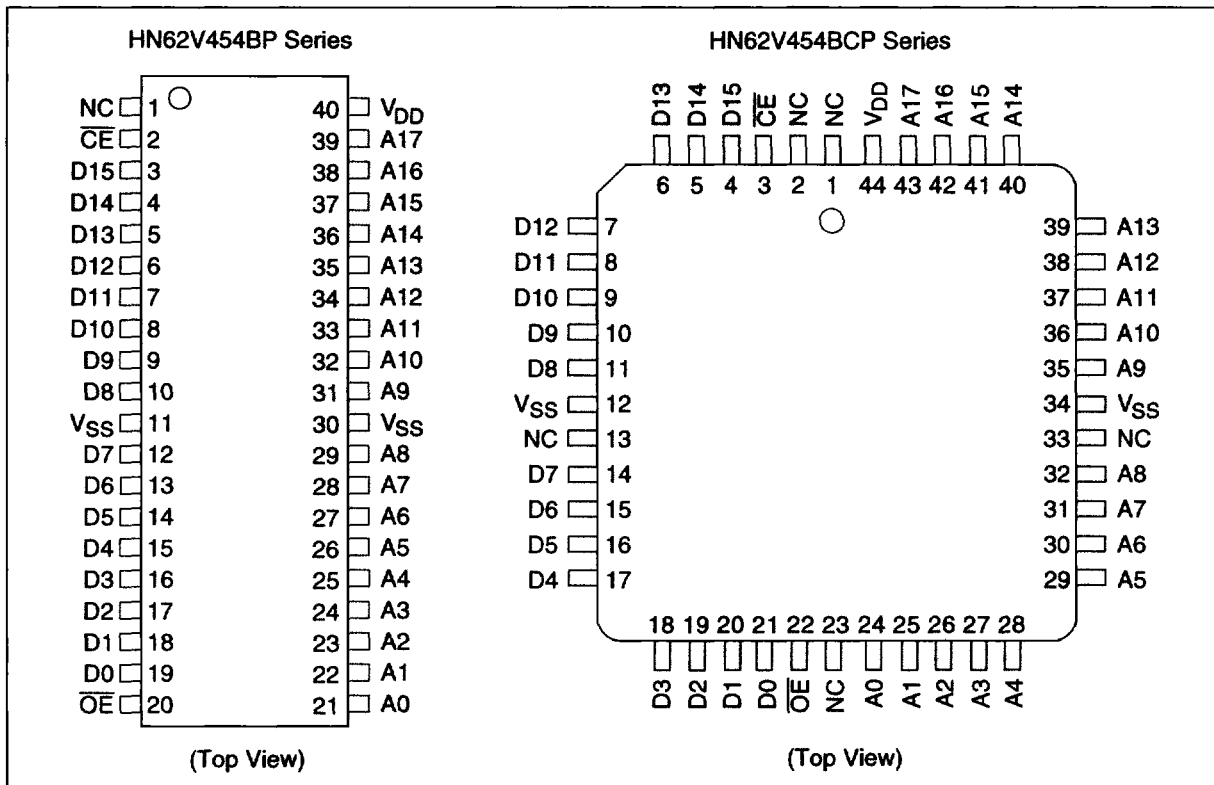
Ordering Information

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.

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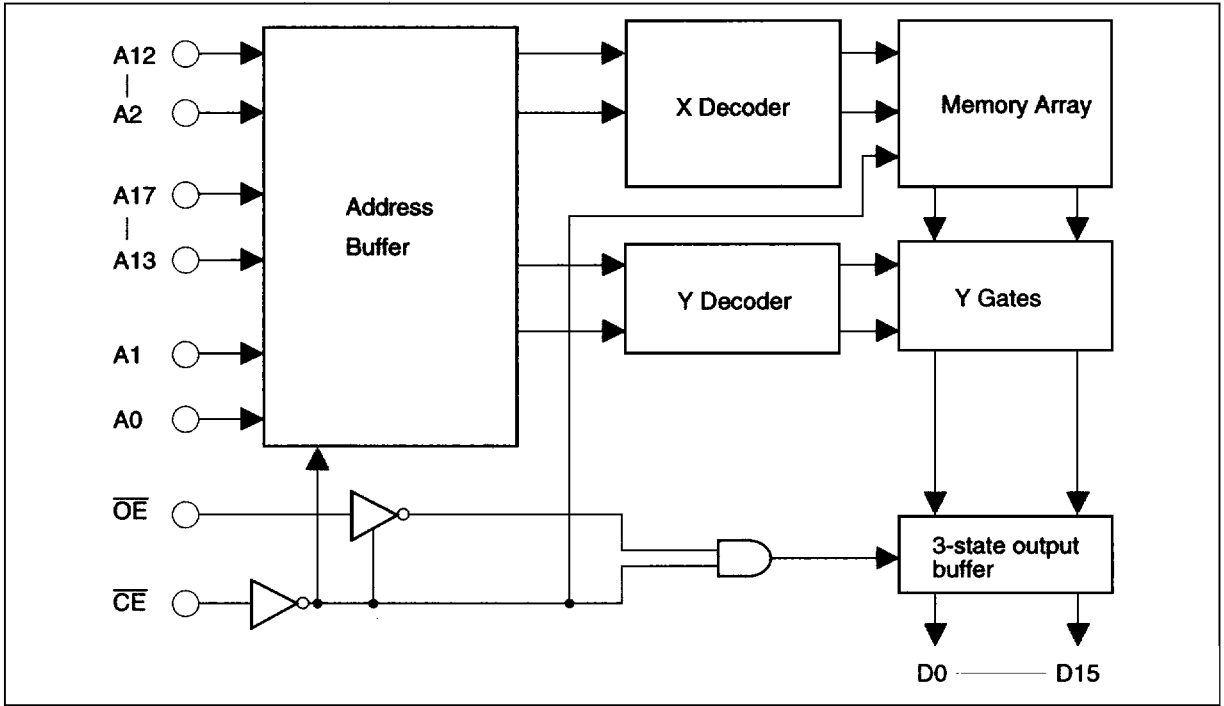
Pin Arrangement



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 _{DD}	Power supply
V _{SS}	Ground

Block Diagram



Mode Selection

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

Notes: 1. x: Don't care.

2. High-Z: High impedance

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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	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_{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, $T_a = 0$ 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, $\overline{CE} \geq V_{DD} - 0.2$ V
	Standby	I_{SB2}	—	3	mA	$V_{DD} = 3.6$ V, $\overline{CE} \geq 2.2$ V
Input leakage current		$ I_{IL} $	—	2	μA	$V_{in} = 0$ to V_{DD}
Output leakage current		$ I_{OL} $	—	2	μA	$\overline{CE} = 2.2$ 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, $T_a = 25$ °C, $V_{in} = 0$ V, $f = 1$ 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 ($V_{DD} = 2.7\text{ V to }3.6\text{ V}$, $V_{SS} = 0\text{ V}$, $T_a = 0\text{ to }+70^\circ\text{C}$)

- Output load: $C_L = 50\text{ pF}$ (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{CE} access time	t_{ACE}	—	200	ns	
\overline{OE} access time	t_{OE}	—	70	ns	
Output hold time from address change	t_{DHA}	0	—	ns	
Output hold time from \overline{CE}	t_{DHC}	0	—	ns	
Output hold time from \overline{OE}	t_{DHO}	0	—	ns	
\overline{CE} to output in high-Z	t_{CHZ}	—	70	ns	1
\overline{OE} to output in high-Z	t_{OHZ}	—	70	ns	1
\overline{CE} to output in low-Z	t_{CLZ}	5	—	ns	
\overline{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

