HN62442B Series — Preliminary

T-46-13-15

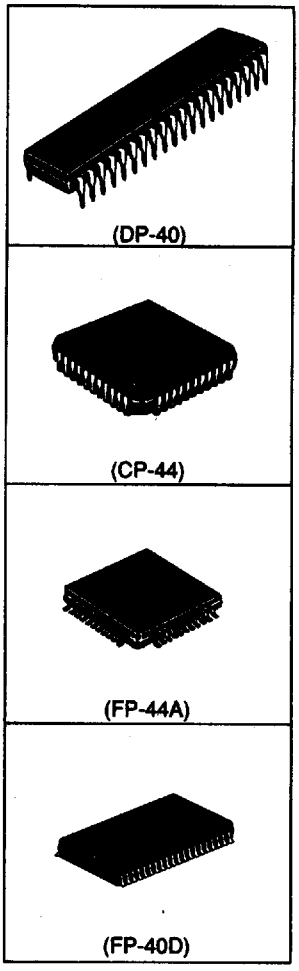
2M (128K x 16-bit) Mask ROM

■ DESCRIPTION

The Hitachi HN62442B is a 2-Megabit CMOS Mask Programmable Read Only Memory organized as 131,072 x 16-bit.

The low power consumption of this device makes it ideal for battery powered, portable systems. In addition, the high density and high speed provide enough capacity and high performance to be used as a character generator in laser printers.

Hitachi's HN62442B is offered with JEDEC-Standard pinouts in 40-pin Plastic DIP and 40-lead Plastic SOP packages. The HN62442B is also packaged in a 44-lead PLCC and a 44-lead Plastic QFP.



■ FEATURES

- Single Power Supply:
  V_{CC} = 5 V ± 10%
- High Speed Access Time:
  100 ns (max)
- Low Power Consumption:
  Active Current: 150 mW (typ)
  Standby Current: 5 µW (typ)
- Word-Wide Data Organization
- TTL-Compatible Inputs and Outputs
- Three-State Data Outputs
- Pin Arrangements:
  JEDEC Standard Word-Wide EPROM Pinout
- Packages:
  40-pin Plastic DIP
  44-lead PLCC
  44-lead Plastic QFP
  40-lead Plastic SOP

■ ORDERING INFORMATION

Type No.	Access Time	Package
HN62442BP-10	100 ns	40-pin Plastic DIP (DP-40)
HN62442BCP-10	100 ns	44-lead PLCC (CP-44)
HN62442BFP-10	100 ns	44-lead Plastic QFP (FP-44A)
HN62442BFA-10	100 ns	40-lead Plastic SOP (FP-40D)

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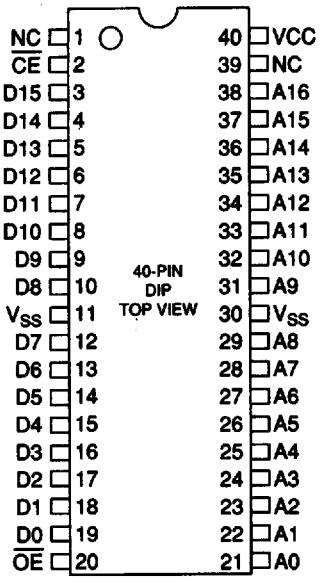
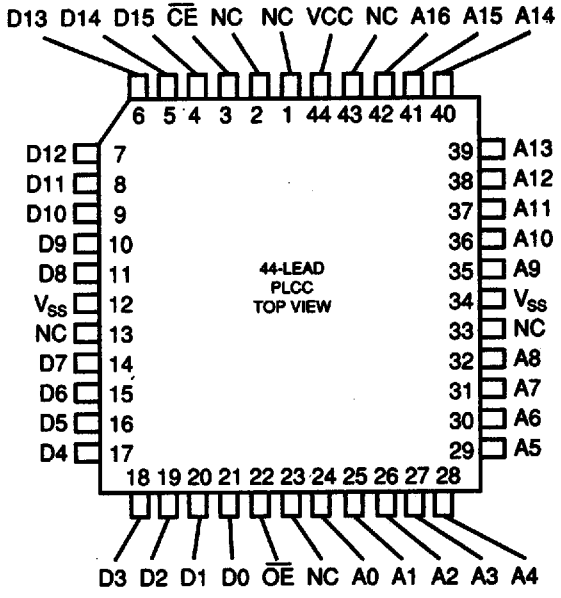
■ PIN ARRANGEMENT

HN62442BP Series



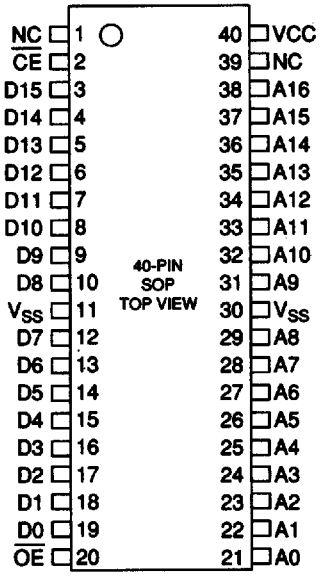
(PinD40.HN62442B)

HN62442BCP Series



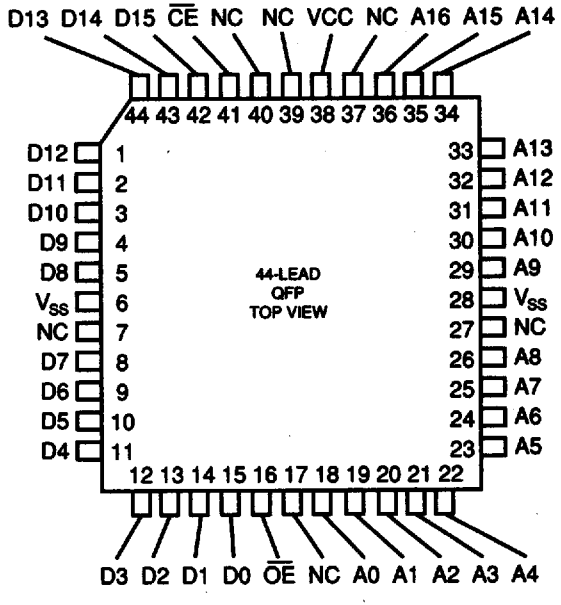
(PinQ44.HN62442B)

HN62442BFA Series



(PinT240.HN62442B)

HN62442BFP Series



(PinQ44.HN62442B1)

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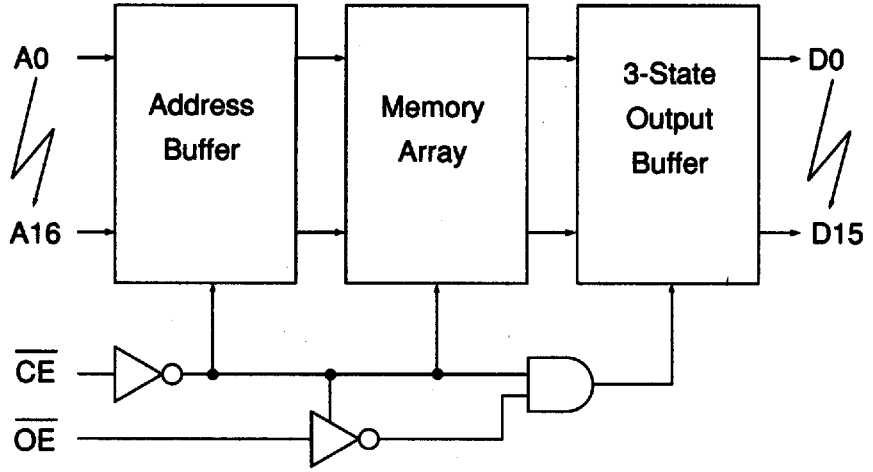
■ PIN DESCRIPTION

Pin Name	Function
A_0 - A_{16}	Address
D_0 - D_{15}	Output
$\overline{CE}$	Chip Enable
$\overline{OE}$	Output Enable
V_{CC}	Power Supply
V_{SS}	Ground
NC	No Connection

■ BLOCK DIAGRAM



(BD.HN62442B)

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■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Value	Unit
Supply Voltage [1]	V_{CC}	-0.3 to +7.0	V
All Input and Output Voltage [1]	V_T	-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. Relative to V_{SS}.

■ CAPACITANCE

(V_{CC} = 5V ± 10%, V_{SS} = 0V, T_a = 25°C, V_{IN} = 0V, f = 1MHz)

Item	Symbol	Min.	Typ.	Max.	Unit
Input Capacitance[1]	C_{IN}	-	-	15	pF
Output Capacitance[1]	C_{OUT}	-	-	15	pF

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

■ DC ELECTRICAL CHARACTERISTICS FOR READ OPERATION

(V_{CC} = 5V ± 10%, V_{SS} = 0 V, T_a = 0 to 70°C)

Item	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Input Leakage Current	I_{IL}	-	-	10	µA	V_{IN} = 0 to V_{CC}
Output Leakage Current	I_{OL}	-	-	10	µA	$\overline{CE}$ = 2.4V, V_{OUT} = 0 to V_{CC}
Operating V_{CC} Current	I_{CC}	-	-	100	mA	V_{CC} = 5.5 V, ID_{OUT} = 0mA, t_{RC} = Min.
Standby V_{CC} Current	I_{SB1}	-	-	30	µA	V_{CC} = 5.5 V, $\overline{CE} \geq V_{CC}$ - 0.2V
	I_{SB2}	-	-	3	mA	V_{CC} = 5.5 V, $\overline{CE} \geq$ 2.4V
Input Voltage	V_{IH}	2.4	-	V_{CC}+0.3	V	
	V_{IL}	-0.3	-	0.45	V	
Output Voltage	V_{OH}	2.4	-	-	V	I_{OH} = -400 µA
	V_{OL}	-	-	0.4	V	I_{OL} = 2.1 mA

■ AC ELECTRICAL CHARACTERISTICS FOR READ OPERATION

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(V_{CC} = 5V±10%, V_{SS} = 0V, T_a = 0 to 70°C)

Test Conditions

- Input pulse levels: 0.45 / 2.4V
- Input rise and fall times: ≤10ns
- Output load: 1TTL gate + CL = 100pF (including jig capacitance)
- Input/Output Timing Reference level: 1.5V

Item	Symbol	Min.	Max.	Unit
Read Cycle Time	t_{RC}	100	-	ns
Address Access Time	t_{AA}	-	100	ns
Chip Enable Access Time	t_{ACE}	-	100	ns
Output Enable Access Time	t_{OE}	-	55	ns
Output Hold Time from Address Change	t_{DHA}	0	-	ns
Output Hold Time from Chip Enable	t_{DHC}	0	-	ns
Output Hold Time from Output Enable	t_{DHO}	0	-	ns
Chip Enable to Output in High-Z [1]	t_{CHZ}	-	40	ns
Output Enable to Output in High-Z [1]	t_{OHZ}	-	40	ns
Chip Enable to Output in Low-Z	t_{CLZ}	5	-	ns
Output Enable 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 becomes an open circuit and are not referenced to output voltage levels.

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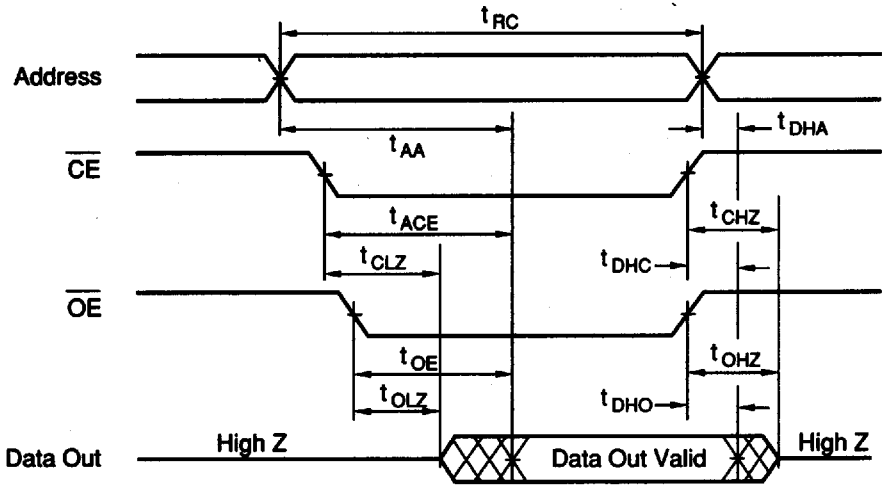
READ TIMING WAVEFORM



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

(TD.R.HN62442B)