

LH5324000

CMOS 24M (3M × 8) MROM

FEATURES

- 3,145,728 × 8 bit organization
- Access time: 150 ns (MAX.)
- Supply current:
 - Operating: 65 mA (MAX.)
 - Standby: 100 μA (MAX.)
- TTL compatible I/O
- Three-state output
- Single +5 V Power supply
- Static operation
- When the address input at both A₁₉ and A₂₀ is high level, outputs become high impedance irrespective of \overline{CE} or \overline{OE} .
- Package:
 - 42-pin, 600-mil DIP
- Others:
 - Non programmable
 - Not designed or rated as radiation hardened
 - CMOS process (P type silicon substrate)

DESCRIPTION

The LH5324000 is a 24M-bit CMOS mask-programmable ROM organized as 3,145,728 × 8 bits. It is fabricated using silicon-gate CMOS process technology.

PIN CONNECTIONS

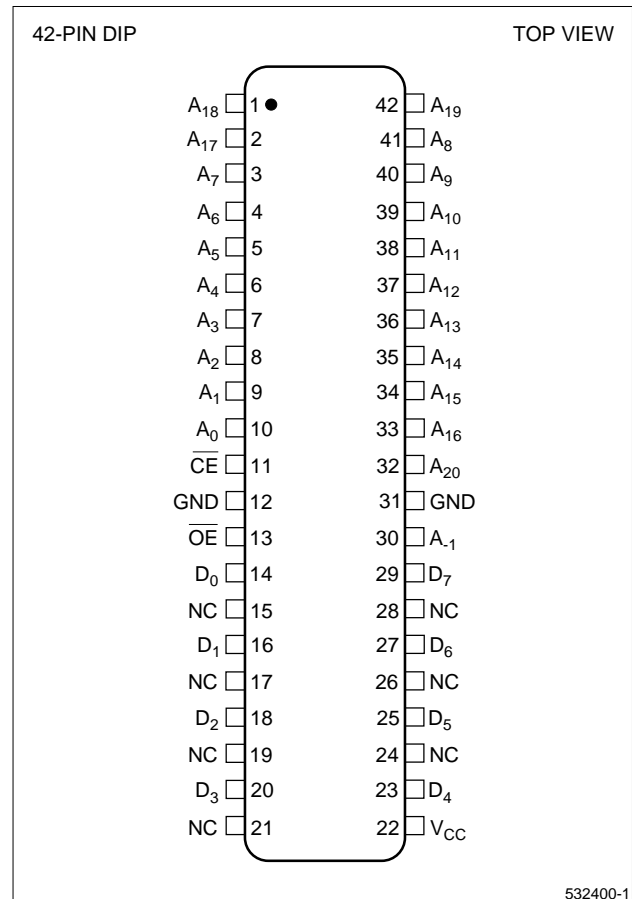
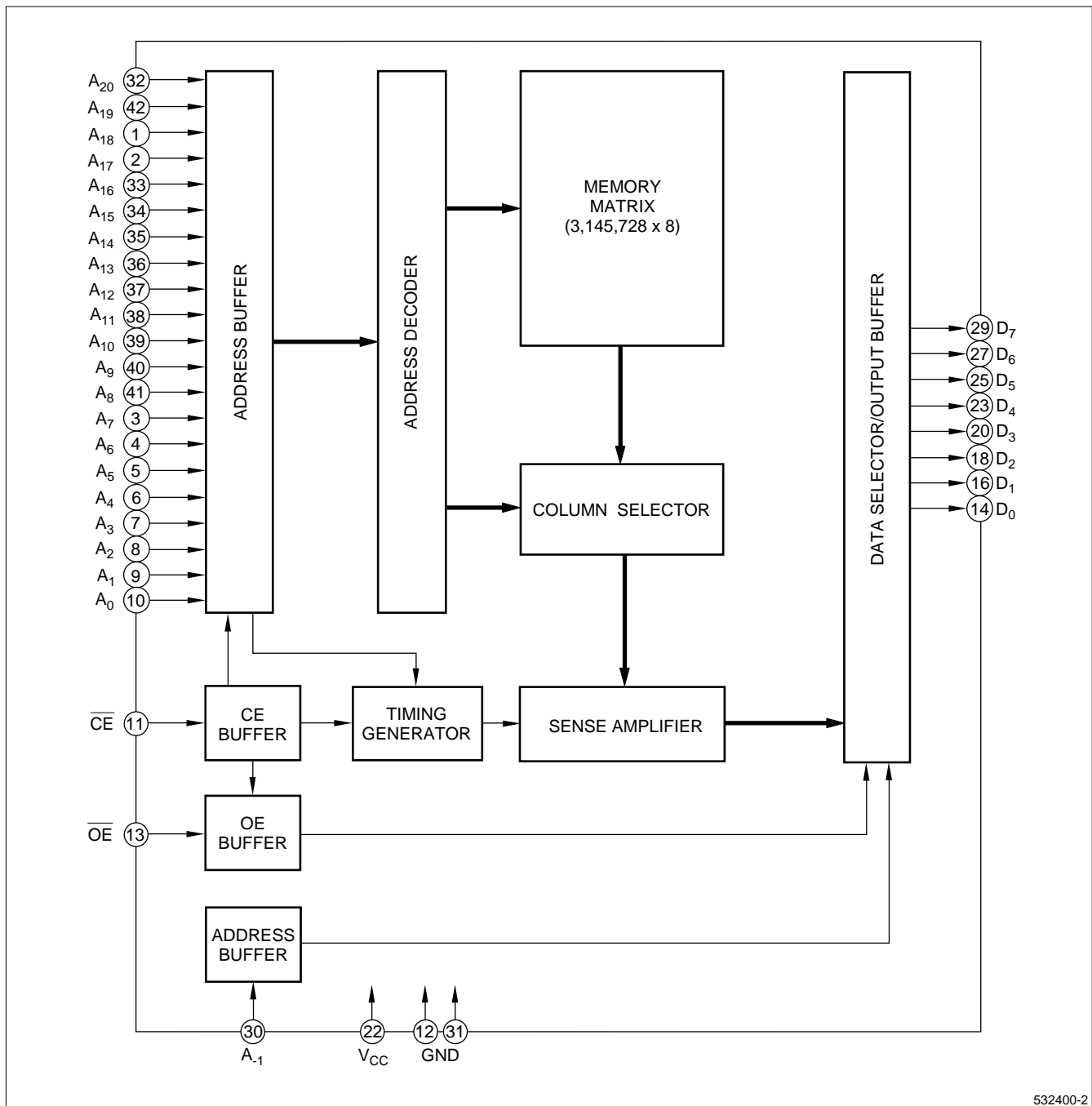


Figure 1. Pin Connections



532400-2

Figure 2. LH5324000 Block Diagram

PIN DESCRIPTION

SIGNAL	PIN NAME
A ₁ - A ₂₀	Address input
D ₀ - D ₇	Data output
CE	Chip enable input
OE	Output enable input

SIGNAL	PIN NAME
V _{CC}	Power pin (+5 V)
GND	Ground
NC	No connection

TRUTH TABLE

$\overline{\text{CE}}$	$\overline{\text{OE}}$	A-1 - A18	A19	A20	DATA OUTPUT	SUPPLY CURRENT
					D0 - D7	
H	X	X	X	X	High-Z	Standby (I_{SB})
L	H	X	X	X	High-Z	Operating (I_{CC})
L	L	X	L	L	Output	Operating (I_{CC})
L	L	X	L	H	Output	Operating (I_{CC})
L	L	X	H	L	Output	Operating (I_{CC})
L	L	X	H	H	High-Z	Operating (I_{CC})

NOTES:

1. X = Don't care; High-Z = High-impedance
2. When the address inputs become HIGH to both A19 and A20, the data does not exist in this address area, the data outputs become "High Impedance".

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply voltage	V_{CC}	-0.3 to +7.0	V
Input voltage	V_{IN}	-0.3 to $V_{\text{CC}} + 0.3$	V
Output voltage	V_{OUT}	-0.3 to $V_{\text{CC}} + 0.3$	V
Operating temperature	T_{OPR}	0 to +70	°C
Storage temperature	T_{STG}	-65 to +150	°C

RECOMMENDED 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

DC ELECTRICAL CHARACTERISTICS ($V_{\text{CC}} = 5 \text{ V} \pm 10\%$, $T_A = 0$ to +70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	MAX.	UNIT	NOTE
Input 'High' voltage	V_{IH}	—	2.2	$V_{\text{CC}} + 0.3$	V	—
Input 'Low' voltage	V_{IL}	—	-0.3	0.8	V	—
Output 'High' voltage	V_{OH}	$I_{\text{OH}} = -400 \mu\text{A}$	2.4	—	V	—
Output 'Low' voltage	V_{OL}	$I_{\text{OL}} = 2.0 \text{ mA}$	—	0.4	V	—
Input leakage current	$ I_{\text{LI}} $	$V_{\text{IN}} = 0 \text{ V to } V_{\text{CC}}$	—	10	μA	—
Output leakage current	$ I_{\text{LO}} $	$V_{\text{OUT}} = 0 \text{ V to } V_{\text{CC}}$	—	10	μA	1
Operating current	I_{CC1}	$t_{\text{RC}} = 150 \text{ ns}$	—	65	mA	2
	I_{CC2}	$t_{\text{RC}} = 1 \mu\text{s}$	—	55		
Standby current	I_{SB1}	$\overline{\text{CE}} = V_{\text{IH}}$	—	2	mA	—
	I_{SB2}	$\overline{\text{CE}} = V_{\text{CC}} - 0.2 \text{ V}$	—	100		
Input capacitance	C_{IN}	$f = 1 \text{ MHz}, t_A = 25^\circ\text{C}$	—	10	pF	—
Output capacitance	C_{OUT}		—	10		

NOTES:

1. $\overline{\text{CE}} = V_{\text{IH}}, \overline{\text{OE}} = V_{\text{IH}}$
2. $V_{\text{IN}} = V_{\text{IH}}$ or $V_{\text{IL}}, \overline{\text{CE}} = V_{\text{IL}}$, output is open

AC ELECTRICAL CHARACTERISTICS ($V_{CC} = +5\text{ V} \pm 10\%$, $T_A = 0$ to $+70^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	NOTE
Read cycle time	t_{RC}	150	—	ns	—
Address access time	t_{AA}	—	150	ns	—
Chip enable access time	t_{ACE}	—	150	ns	—
Output enable delay time	t_{OE}	—	70	ns	—
Output hold time	t_{OH}	5	—	ns	—
Output floating time	t_{CHZ}	—	60	ns	1
	t_{OHZ}	—	60	ns	
	t_{AHZ}	—	70	ns	

NOTE:

1. Determined by the time for the output to be opened. (Irrespective of output voltage)

AC TEST CONDITIONS

PARAMETER	RATING
Input voltage amplitude	0.6 V to 2.4 V
Input signal rise time	10 ns
Input signal fall time	10 ns
Input reference level	1.5 V
Output reference level	0.8 V, 2.2 V
Output load condition	1TTL + 100 pF

NOTE:

It is recommended that a decoupling capacitor be connected between V_{CC} and GND-Pin.

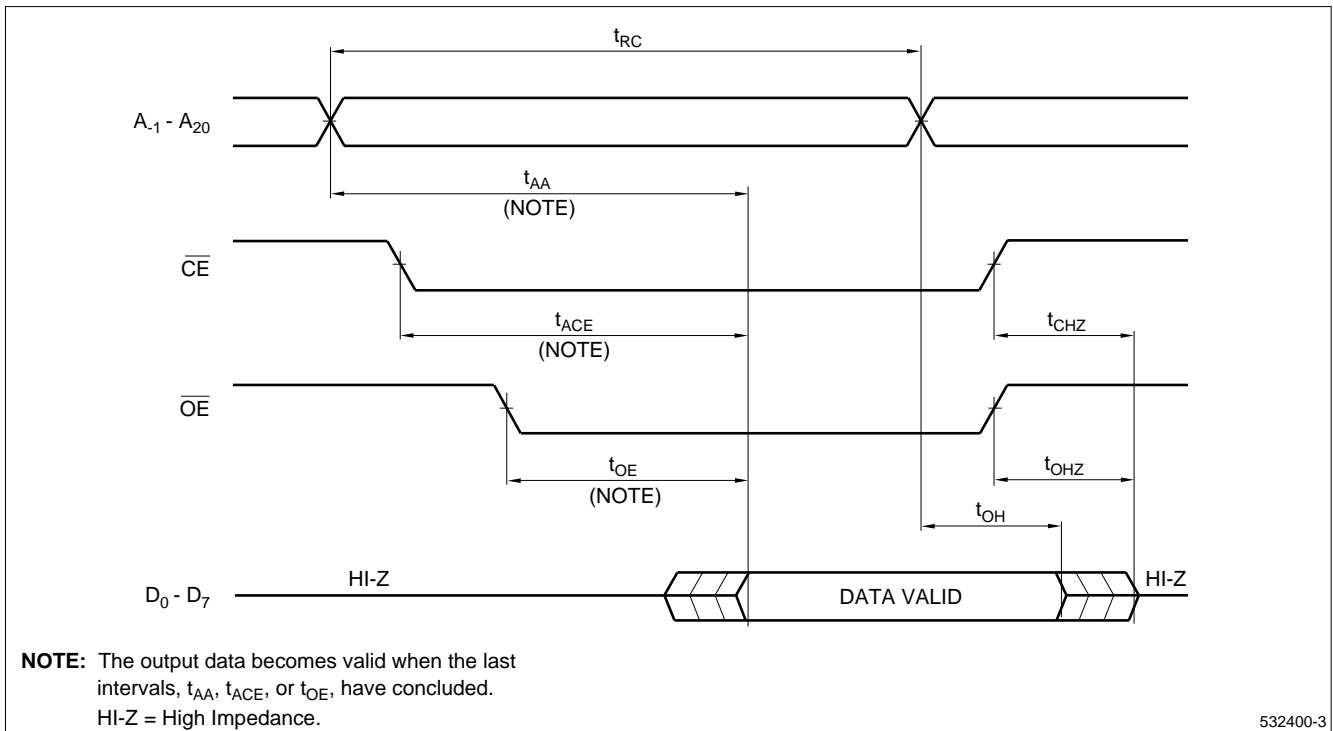


Figure 3. Byte Mode

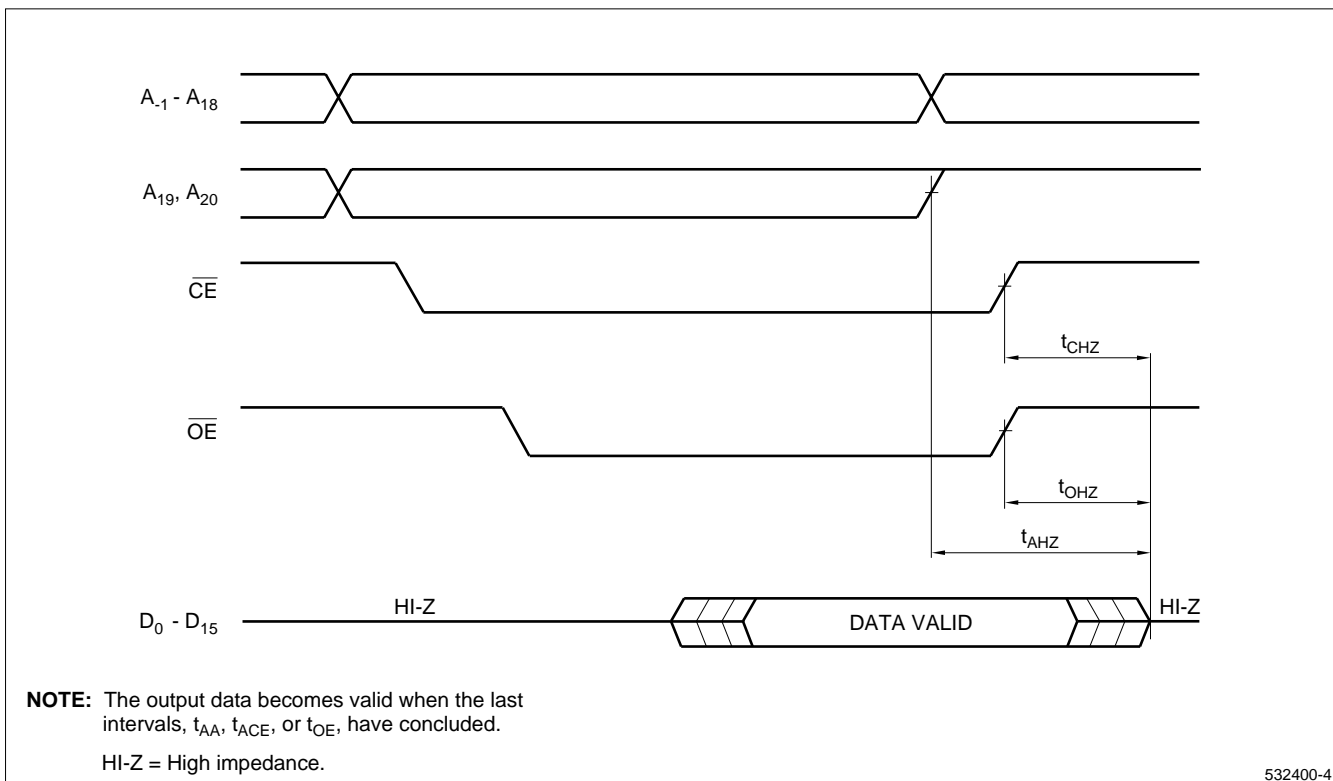


Figure 4. Word Mode

