

LH534A00

CMOS 4M (512K × 8) MROM

FEATURES

- 524,288 words × 8 bit organization
- Access time: 120 ns (MAX.)
- Static operation
- TTL compatible I/O
- Three-state outputs
- Single +5 V power supply
- Power consumption:
 - Operating: 357.5 mW (MAX.)
 - Standby: 550 μ W (MAX.)
- Package:
 - 32-pin, 8 × 20 mm² TSOP (Type I)

DESCRIPTION

The LH534A00 is a 4M-bit mask-programmable ROM organized as 524,288 × 8 bits. It is fabricated using silicon-gate CMOS process technology.

PIN CONNECTIONS

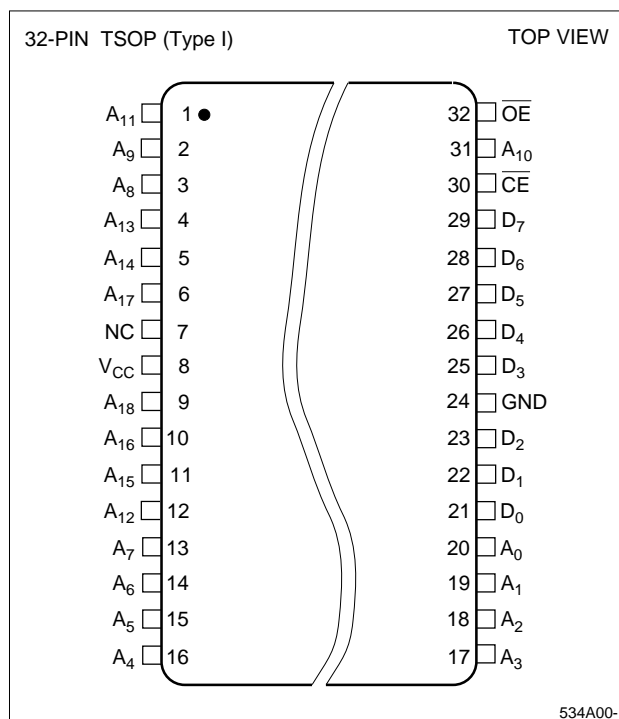


Figure 1. Pin Connections for TSOP Package

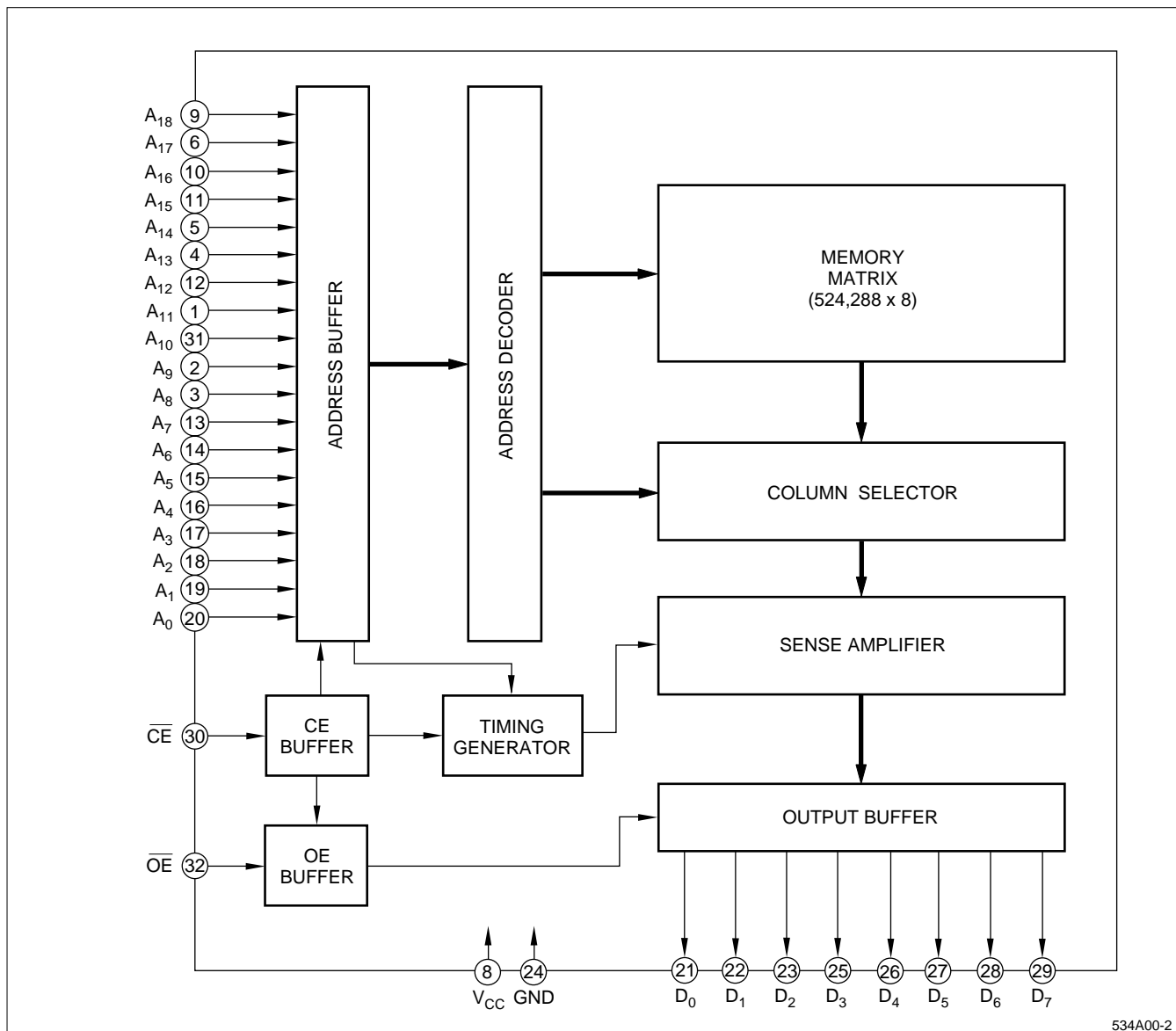


Figure 2. LH534A00 Block Diagram

PIN DESCRIPTION

SIGNAL	PIN NAME
A ₀ – A ₁₈	Address input
D ₀ – D ₇	Data output
CE	Chip enable input

SIGNAL	PIN NAME
OE	Output enable input
V _{CC}	Power supply (+5 V)
GND	Ground

TRUTH TABLE

$\overline{\text{CE}}$	$\overline{\text{OE}}$	DATA OUTPUT	SUPPLY CURRENT
H	X	High-Z	Standby
L	H	High-Z	Operating
	L	Output	Operating

NOTE:

X = H or L, High-Z = 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}	-20 to +70	°C
Storage temperature	T_{stg}	-65 to +150	°C

RECOMMENDED OPERATING CONDITIONS ($T_A = -20^\circ\text{C}$ to $+70^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply voltage	V_{CC}	4.5	5.0	5.5	V

DC CHARACTERISTICS ($V_{\text{CC}} = 5\text{ V} \pm 10\%$, $T_A = -20^\circ\text{C}$ to $+70^\circ\text{C}$)

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}	$I_{\text{OH}} = -400\text{ }\mu\text{A}$	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}	$t_{\text{RC}} = 120\text{ ns}$		65	mA	2
	I_{CC2}	$t_{\text{RC}} = 1\text{ }\mu\text{s}$		50	mA	2
	I_{CC3}	$t_{\text{RC}} = 120\text{ ns}$		60	mA	3
	I_{CC4}	$t_{\text{RC}} = 1\text{ }\mu\text{s}$		45	mA	3
Standby current	I_{SB1}	$\overline{\text{CE}} = V_{\text{IH}}$		3	mA	
	I_{SB2}	$\overline{\text{CE}} = V_{\text{CC}} - 0.2\text{ V}$		100	μA	
Input capacitance	C_{IN}	$f = 1\text{ MHz}$		10	pF	
Output capacitance	C_{OUT}	$T_A = 25^\circ\text{C}$		10	pF	

NOTES:

- $\overline{\text{CE}}/\overline{\text{OE}} = V_{\text{IH}}$
- $V_{\text{IN}} = V_{\text{IH}}$ or V_{IL} , $\overline{\text{CE}} = V_{\text{IL}}$, outputs open
- $V_{\text{IN}} = (V_{\text{CC}} - 0.2\text{ V})$ or 0.2 V , $\overline{\text{CE}} = 0.2\text{ V}$, outputs open

AC CHARACTERISTICS ($V_{CC} = 5\text{ V} \pm 10\%$, $T_A = -20^\circ\text{C}$ to $+70^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	NOTE
Read cycle time	t_{RC}	120		ns	
Address access time	t_{AA}		120	ns	
Chip enable access time	t_{ACE}		120	ns	
Output enable delay time	t_{OE}		60	ns	
Output hold time	t_{OH}	0		ns	
CE to output in High-Z	t_{CHZ}		60	ns	1
OE to output in High-Z	t_{OHZ}				

NOTE:

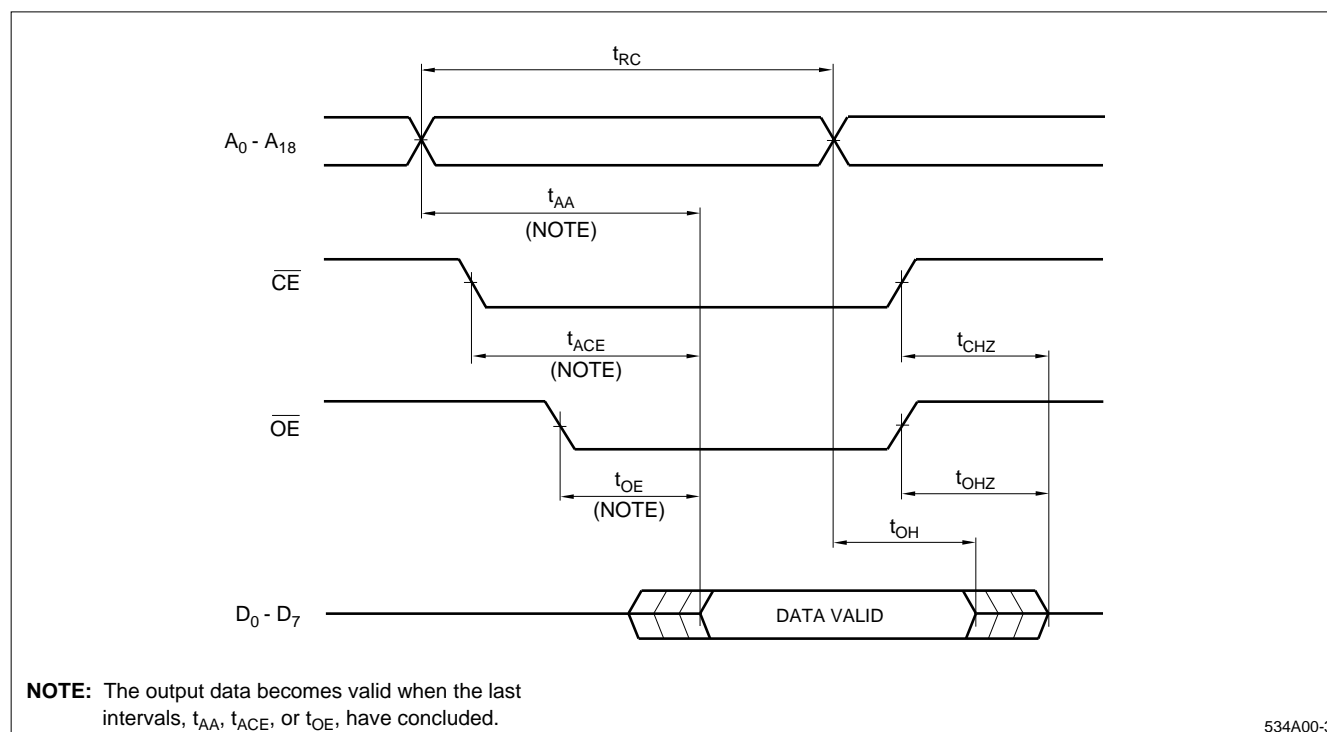
1. This is the time required for the outputs to become high-impedance.

AC TEST CONDITIONS

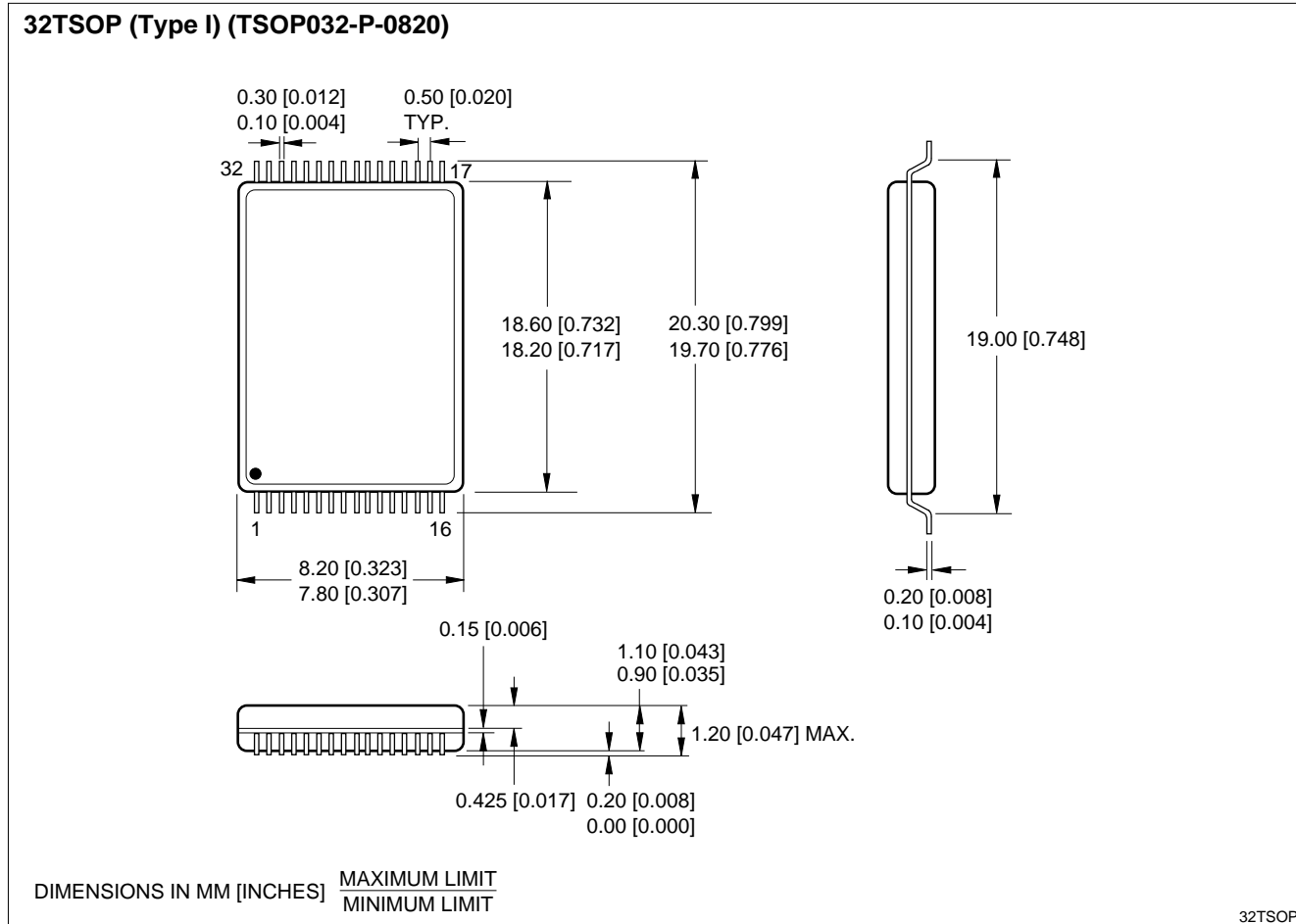
PARAMETER	RATING
Input voltage amplitude	0.4 to 2.6 V
Input rise/fall time	10 ns
Input/output reference level	1.5 V
Output load condition	1 TTL + 100 pF

CAUTION

To stabilize the power supply, it is recommended that a high-frequency bypass capacitor be connected between the V_{CC} pin and the GND pin.

**Figure 3. Timing Diagram**

PAGKAGE DIAGRAM



32-pin, 8 × 20 mm² TSOP (Type I)

ORDERING INFORMATION

