

# LH530800A-Y

CMOS 1M (128K × 8) 3 V-Drive MROM

## FEATURES

- 131,072 words × 8 bit organization
- Access times:
  - 500 ns (MAX.) at  $2.6\text{ V} \leq V_{CC} < 4.5\text{ V}$
  - 150 ns (MAX.) at  $4.5\text{ V} \leq V_{CC} \leq 5.5\text{ V}$
- Low-power consumption:
  - Operating: 193 mW (MAX.)
  - Standby: 550  $\mu$ W (MAX.)
- Static operation
- Three-state outputs
- Mask-programmable control pin:
  - Pin 24 = OE/ $\overline{\text{OE}}$
- Wide range power supply:
  - 2.6 V to 5.5 V
- Packages:
  - 32-pin, 600-mil DIP
  - 32-pin, 525-mil SOP

## DESCRIPTION

The LH530800A-Y is a 1M-bit mask-programmable ROM organized as 131,072 × 8 bits. It is fabricated using silicon-gate CMOS process technology.

## PIN CONNECTIONS

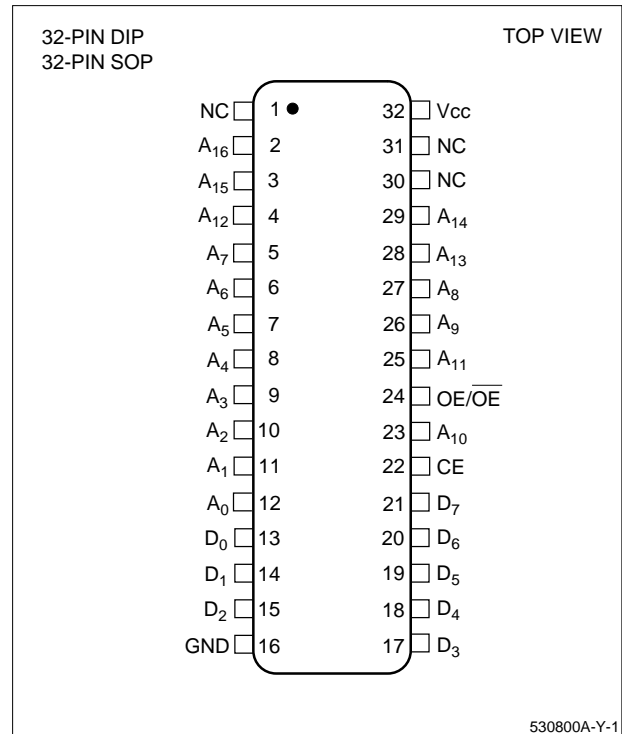


Figure 1. Pin Connections for DIP and SOP Packages

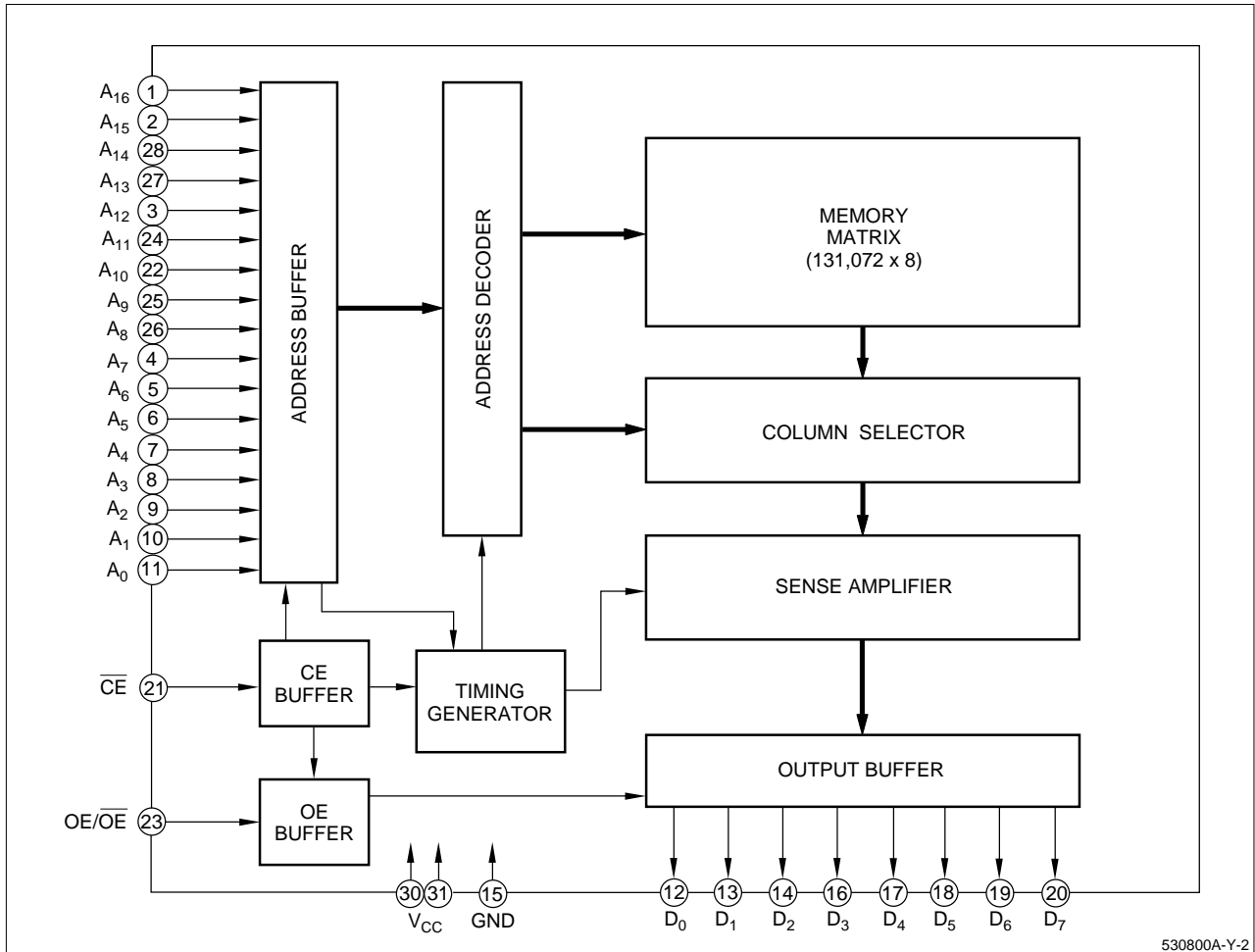


Figure 2. LH530800A-Y Block Diagram

**PIN DESCRIPTION**

SIGNAL	PIN NAME	NOTE
A <sub>0</sub> - A <sub>16</sub>	Address input	
D <sub>0</sub> - D <sub>7</sub>	Data Output	
CE	Chip enable input	
OE/OE	Output enable input	1

SIGNAL	PIN NAME	NOTE
V <sub>CC</sub>	Power supply	
GND	Ground	
NC	Non connection	

**NOTE:**

- 1. Active levels of OE/OE are mask-programmable.

**TRUTH TABLE**

CE	OE/OE	D <sub>0</sub> - D <sub>7</sub>	SUPPLY CURRENT	NOTE
H	X	High-Z	Standby (I <sub>SB</sub> )	1
L	L/H	High-Z	Operating (I <sub>CC</sub> )	
L	H/L	D <sub>OUT</sub>	Operating (I <sub>CC</sub> )	

**NOTE:**

- 1. X = H or L

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	RATING	UNIT
Supply voltage	V <sub>CC</sub>	-0.3 to +7.0	V

Input voltage	$V_{IN}$	-0.3 to $V_{CC} + 0.3$	V
Output voltage	$V_{OUT}$	-0.3 to $V_{CC} + 0.3$	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	$V_{CC}$	2.6		5.5	V

## DC CHARACTERISTICS ( $V_{CC} = 2.6$ V to 5.5 V, $T_A = 0$ to +70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	NOTE
Input 'Low' voltage	$V_{IL}$		-0.3		0.4	V	
Input 'High' voltage	$V_{IH}$		$0.8 \times V_{CC}$		$V_{CC} + 0.3$	V	
Output 'Low' voltage	$V_{OL}$	$I_{OL} = 400 \mu A$			0.4	V	
Output 'High' voltage	$V_{OH}$	$I_{OH} = -100 \mu A$	$0.8 \times V_{CC}$			V	
Input leakage current	$ I_{LI} $	$V_{IN} = 0$ V to $V_{CC}$			10	$\mu A$	
Output leakage current	$ I_{LO} $	$V_{OUT} = 0$ V to $V_{CC}$			10	$\mu A$	1
Operating current	$I_{CC1}$	$t_{RC} = 150$ ns			35	mA	2
	$I_{CC2}$	$t_{RC} = 500$ ns			18	mA	3
	$I_{CC3}$	$t_{RC} = 500$ ns			12	mA	4
Standby current	$I_{SB1}$	$CE = V_{IH}$			2	mA	
	$I_{SB2}$	$CE = V_{CC} - 0.2$ V			100	$\mu A$	
Input capacitance	$C_{IN}$	$f = 1$ MHz			10	pF	
Output capacitance	$C_{OUT}$	$T_A = 25^\circ C$			10	pF	

### NOTES:

1.  $CE/OE = V_{IH}$ ,  $OE = V_{IL}$
2.  $4.5 \text{ V} \leq V_{CC} \leq 5.5 \text{ V}$ , outputs open
3.  $3.4 \text{ V} < V_{CC} < 4.5 \text{ V}$ , outputs open
4.  $2.6 \text{ V} \leq V_{CC} \leq 3.4 \text{ V}$ , outputs open

## AC CHARACTERISTICS ( $T_A = 0$ to +70°C)

PARAMETER	SYMBOL	2.6 V $\leq$ $V_{CC}$ < 4.5 V		4.5 V $\leq$ $V_{CC}$ $\leq$ 5.5 V		UNIT	NOTE
		MIN.	MAX.	MIN.	MAX.		
Read cycle time	$t_{RC}$	500		150		ns	
Address access time	$t_{AA}$		500		150	ns	
Chip enable access time	$t_{ACE}$		500		150	ns	
Output enable delay time	$t_{OE}$		200		80	ns	
Output hold time	$t_{OH}$	10		10		ns	
CE to output in High-Z	$t_{CHZ}$		150		80	ns	1
OE to output in High-Z	$t_{OHZ}$		150		80	ns	

### NOTE:

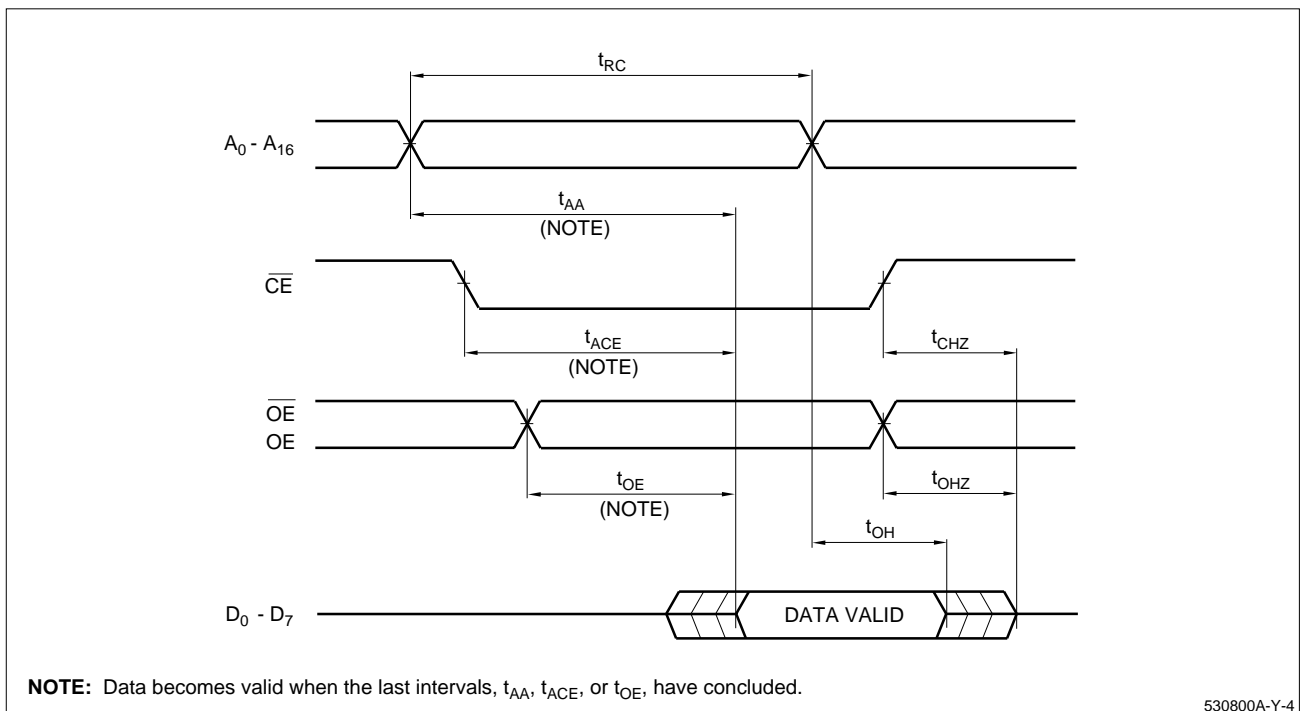
1. This is the time required for the output to become high-impedance.

**AC TEST CONDITIONS**

PARAMETER	RATING
Input voltage amplitude	0.4 V to $(0.8 \times V_{CC})$ V
Input rise/fall time	10 ns
Input/output reference level	1.5 V
Output load condition	1TTL + 100 pF

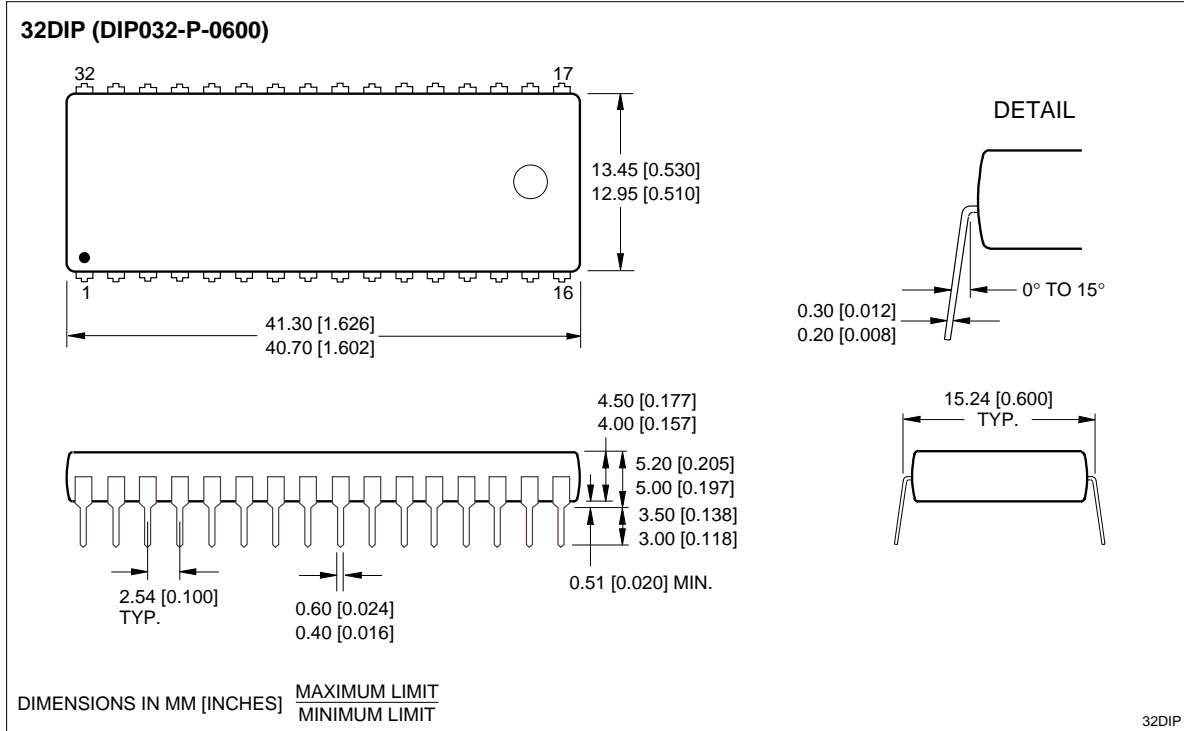
**CAUTION**

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

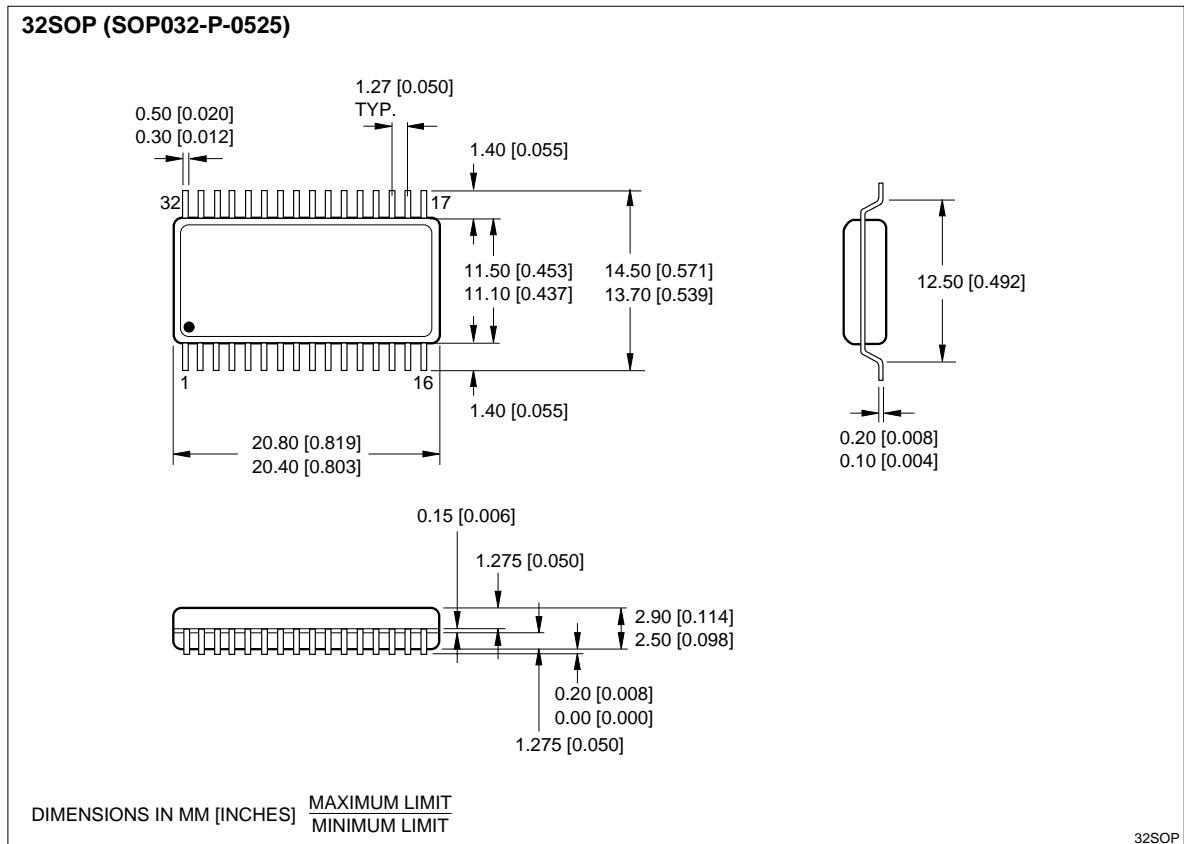


**Figure 3. Timing Diagram**

PACKAGE DIAGRAMS



32-pin, 600-mil DIP



32-pin, 525-mil SOP

**ORDERING INFORMATION**

