

LH530800A-Y

CMOS 1M (128K × 8)
3 V-Drive Mask-Programmable ROM

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 μW (MAX.)
- Static operation
- Three-state outputs
- Mask-programmable control pin:
 - Pin 24 = $\text{OE}/\overline{\text{OE}}$
- 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

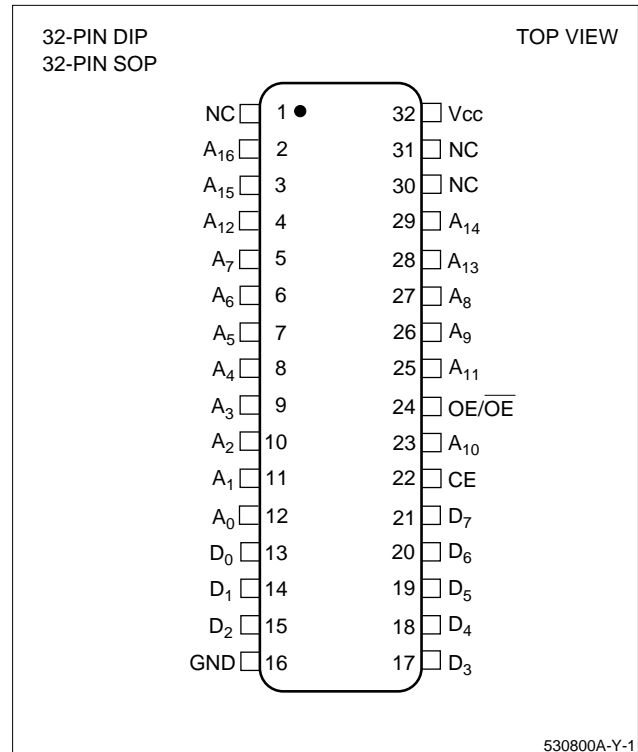


Figure 1. Pin Connections for DIP and SOP Packages

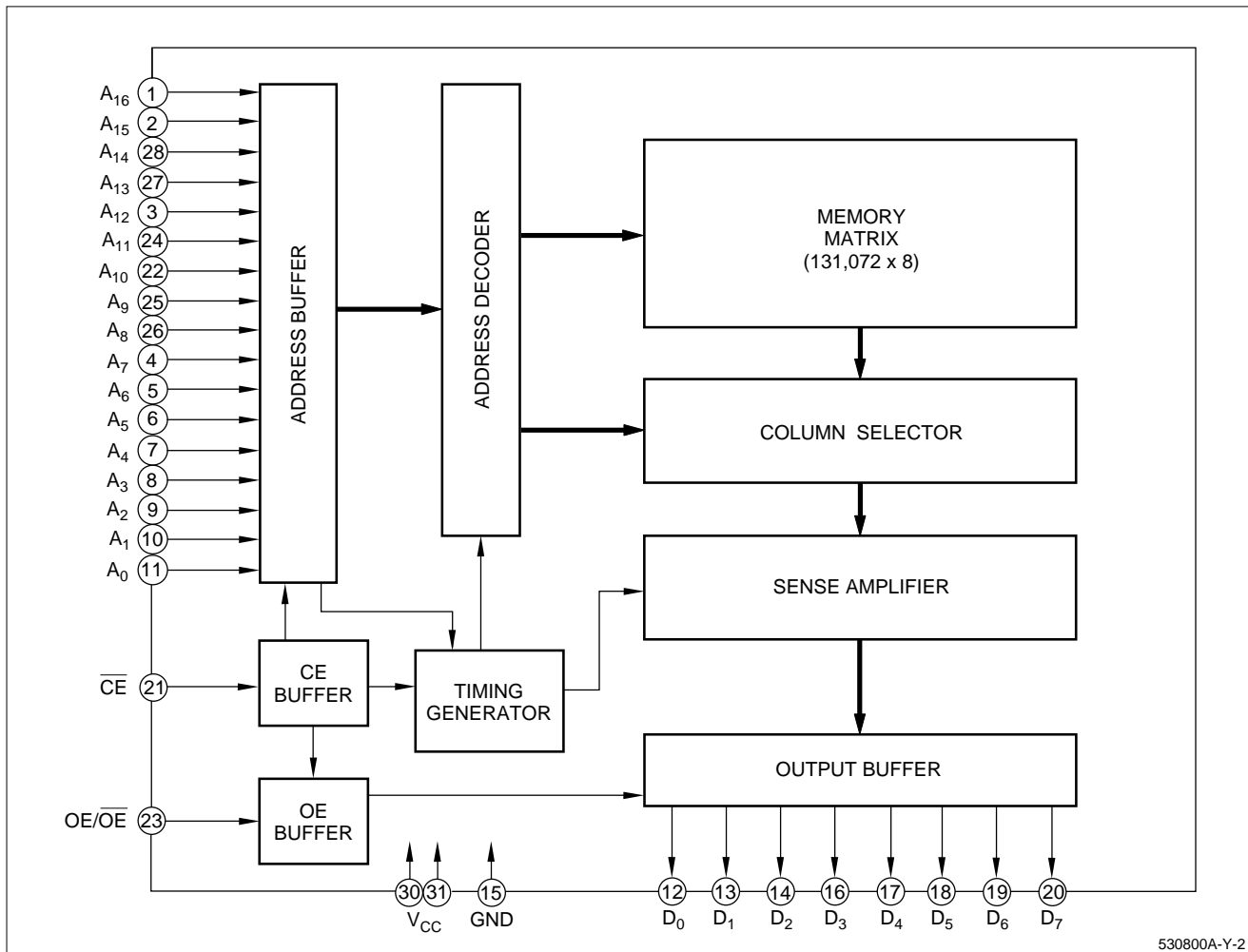


Figure 2. LH530800A-Y Block Diagram

PIN DESCRIPTION

SIGNAL	PIN NAME	NOTE
A ₀ - A ₁₆	Address input	
D ₀ - D ₇	Data Output	
\overline{CE}	Chip enable input	
OE/\overline{OE}	Output enable input	1

SIGNAL	PIN NAME	NOTE
V _{CC}	Power supply	
GND	Ground	
NC	Non connection	

NOTE:

1. Active levels of OE/\overline{OE} are mask-programmable.

TRUTH TABLE

\overline{CE}	OE/\overline{OE}	D ₀ - D ₇	SUPPLY CURRENT	NOTE
H	X	High-Z	Standby (I _{SB})	1
L	L/H	High-Z	Operating (I _{CC})	
L	H/L	D _{OUT}	Operating (I _{CC})	

NOTE:

1. X = H or L

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply voltage	V_{CC}	-0.3 to +7.0	V
Input voltage	V_{IN}	-0.3 to $V_{CC} + 0.3$	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	μA	
Output leakage current	$ I_{LO} $	$V_{OUT} = 0$ V to V_{CC}			10	μA	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}	$\overline{CE} = V_{IH}$			2	mA	
	I_{SB2}	$\overline{CE} = V_{CC} - 0.2$ V			100	μA	
Input capacitance	C_{IN}	$f = 1$ MHz			10	pF	
Output capacitance	C_{OUT}	$T_A = 25^\circ C$			10	pF	

NOTES:

- $\overline{CE}/\overline{OE} = V_{IH}$, $OE = V_{IL}$
- $4.5 \text{ V} \leq V_{CC} \leq 5.5 \text{ V}$, outputs open
- $3.4 \text{ V} < V_{CC} < 4.5 \text{ V}$, outputs open
- $2.6 \text{ V} \leq V_{CC} \leq 3.4 \text{ V}$, 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:

- 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.

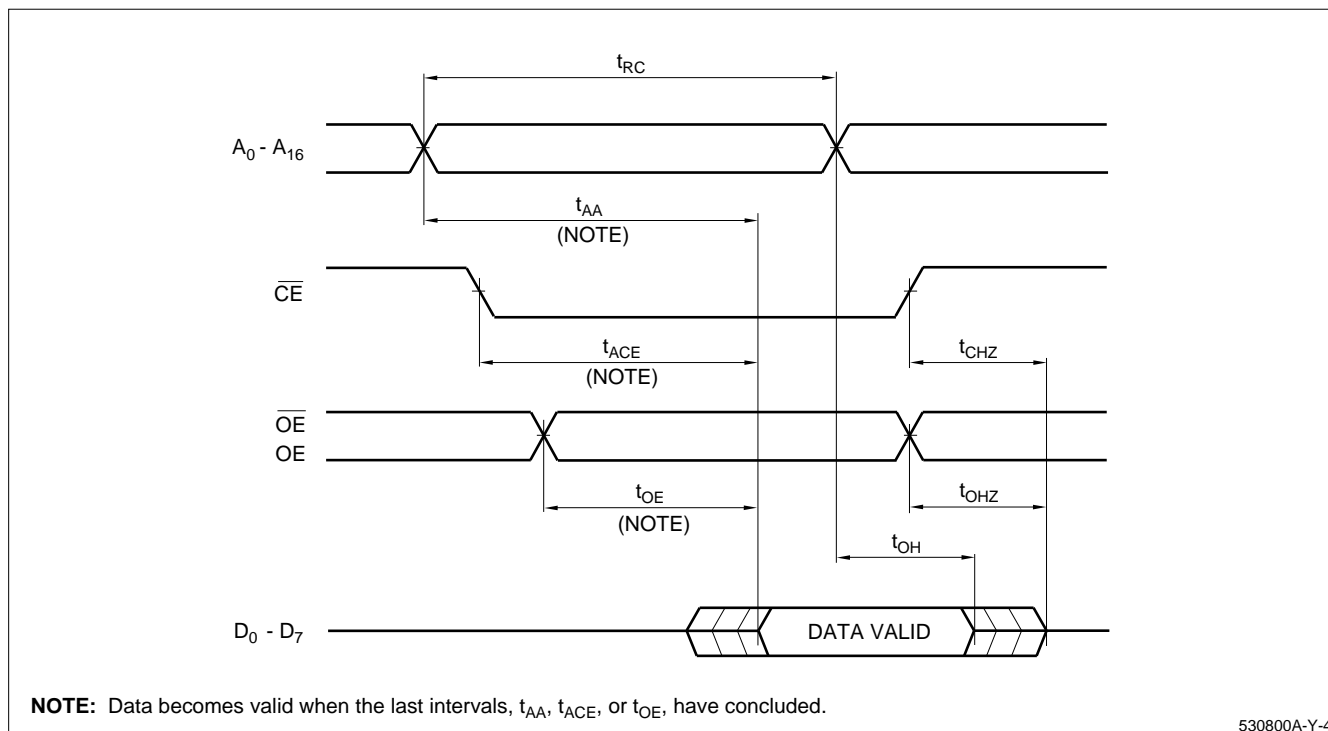
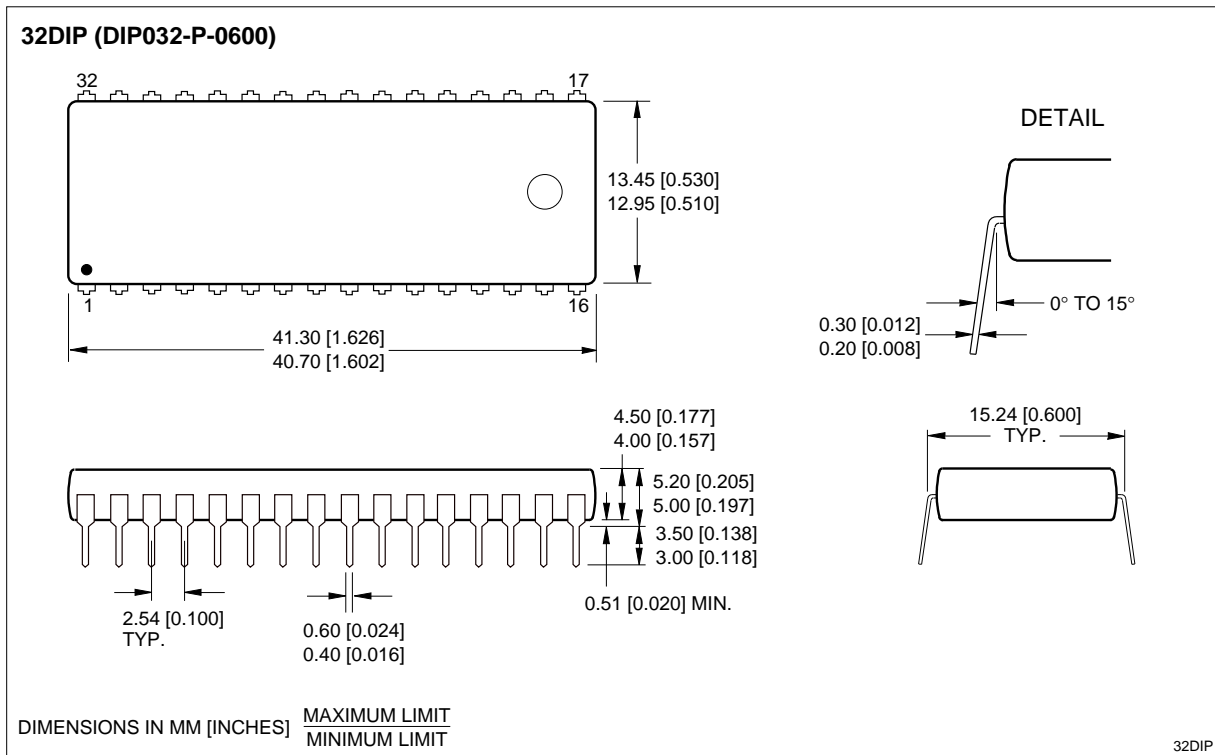
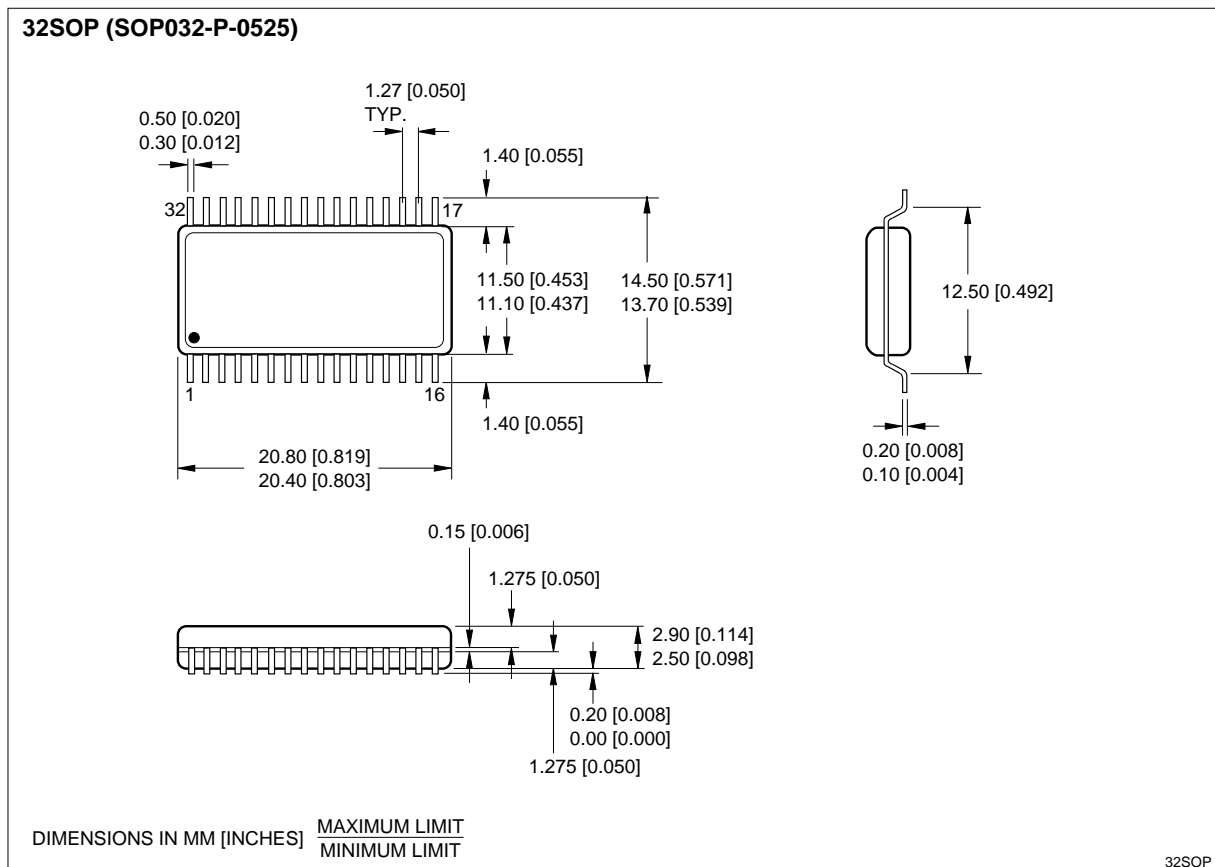


Figure 3. Timing Diagram

PACKAGE DIAGRAMS



32-pin, 600-mil DIP



32-pin, 525-mil SOP

ORDERING INFORMATION

