

LH538200

CMOS 8M (1M × 8) Mask Programmable ROM

FEATURES

- 1,048,576 × 8 bit organization
- Access time: 200 ns (MAX.)
- Power consumption:
Operating: 275 mW (MAX.)
- Programmable OE₁/ $\overline{\text{OE}}_1$ /DC
- Fully static operation
- TTL compatible I/O
- Three-state outputs
- Single +5 V power supply
- Package:
32-pin, 600-mil DIP
Compatible with 28-pin 1M-bit mask
programmable ROM-specific pinout

DESCRIPTION

The LH538200 is a mask programmable ROM organized as 1,048,576 × 8 bits. It is fabricated using silicon-gate CMOS process technology.

PIN CONNECTIONS

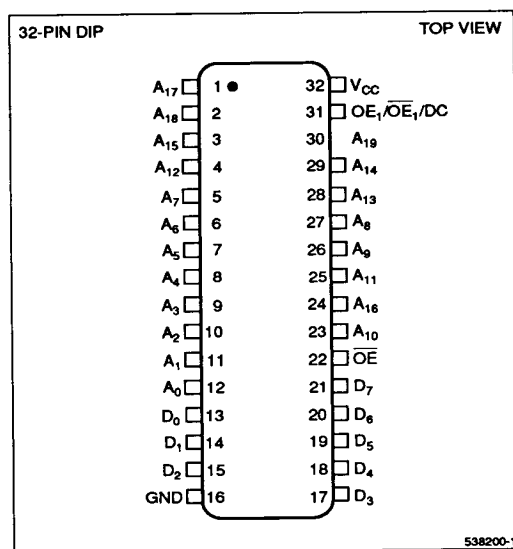


Figure 1. Pin Connections for DIP Package

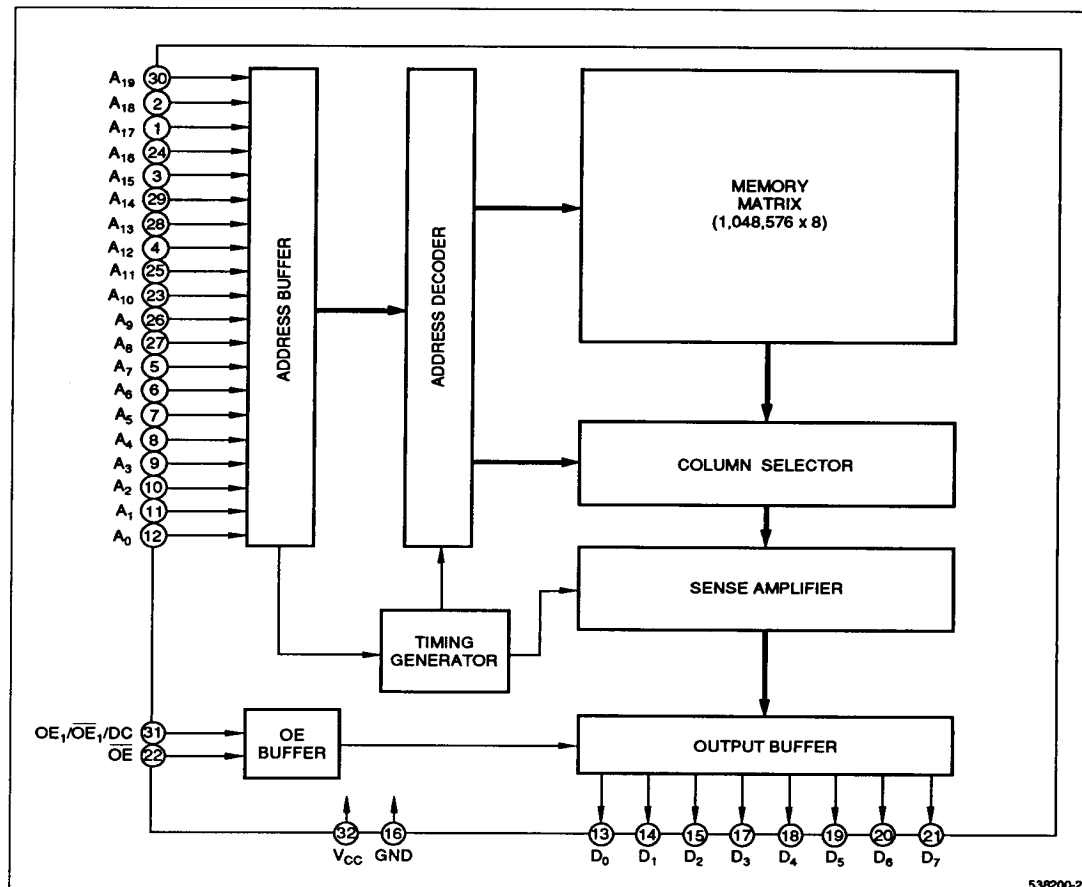


Figure 2. LH538200 Block Diagram

PIN DESCRIPTION

SIGNAL	PIN NAME	NOTE
A ₀ - A ₁₉	Address input	
D ₀ - D ₇	Data output	
$\overline{OE}$	Output Enable input	

SIGNAL	PIN NAME	NOTE
OE ₁ / $\overline{OE}$ ₁ /DC	Output Enable input/ Don't Care	1
V _{CC}	Power supply (+5 V)	
GND	Ground	

NOTE:

- The active level of OE₁/ $\overline{OE}$ ₁/DC is mask programmable.
Selecting DC allows the outputs to be active for both high and low levels that are applied to this pin.
It is recommended to apply either a HIGH or a LOW to the DC pin.

TRUTH TABLE

OE	OE ₁ /OE ₁ /DC	MODE	D ₀ - D ₇	SUPPLY CURRENT
H	X	Non selected	High-Z	Operating (I _{cc})
X	L/H	Non selected	High-Z	Operating (I _{cc})
L	H/L	Selected	DOUT	Operating (I _{cc})

NOTE:

X = H or L

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT	NOTE
Supply voltage	V _{CC}	-0.3 to +7.0	V	1
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}	-55 to +150	°C	

NOTE:

1. The maximum applicable voltage on any pin with respect to GND.

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 CHARACTERISTICS (V_{CC} = 5 V ± 10%, T_A = 0 to +70°C)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	NOTE
Input "Low" voltage	V _{IL}		-0.3		0.8	V	
Input "High" voltage	V _{IH}		2.2		V _{CC} +0.3	V	
Output "Low" voltage	V _{OL}	I _{OL} = 2.0 mA			0.4	V	
Output "High" voltage	V _{OH}	I _{OH} = -400 μA	2.4			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} = 200 ns			50	mA	2
	I _{CC2}	t _{RC} = 1 μs			40		
	I _{CC3}	t _{RC} = 200 ns			45	mA	3
	I _{CC4}	t _{RC} = 1 μs			35		

NOTES:

1. OE/OE₁ = V_{IH} or OE₁ = V_{IL}.2. V_{IN} = V_{IH}/V_{IL}, outputs open.3. V_{IN} = (V_{CC} - 0.2 V) or 0.2 V, outputs open.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	NOTE
Read cycle time	t_{RC}	200			ns	
Address access time	t_{AA}			200	ns	
Output enable delay time	t_{OE}	10		80	ns	
Output hold time	t_{OH}	5			ns	
OE to output in High-Z	t_{OHZ}			70	ns	1

NOTE:

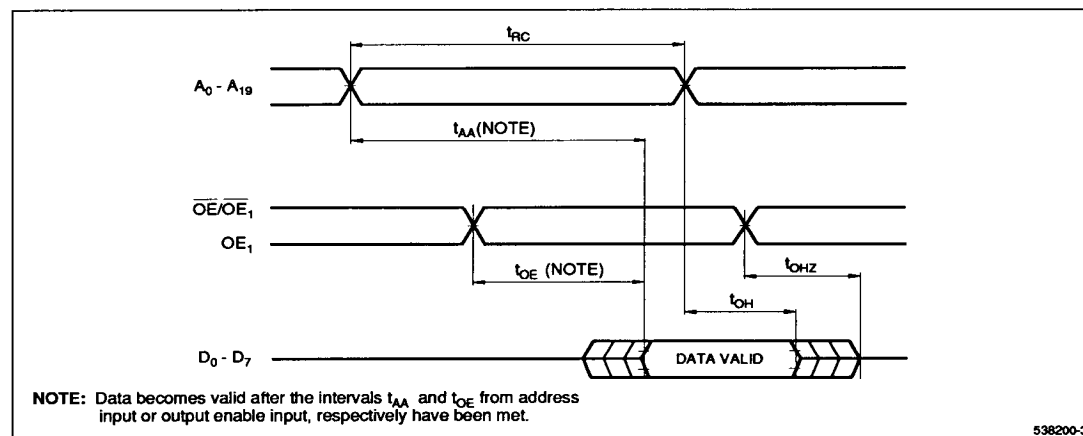
1. This is the time required for the outputs to become high-impedance.

AC TEST CONDITIONS

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

CAPACITANCE ($V_{CC} = 5\text{ V} \pm 10\%$, $f = 1\text{ MHz}$, $T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Input capacitance	C_{IN}			10	pF
Output capacitance	C_{OUT}			10	pF



538200-3

Figure 3. Timing Diagram**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.

ORDERING INFORMATION

