Discontinued Product

OKI Semiconductor

MSM538022E

524,288-Word x 16-Bit or 1,048,576-Word x 8-Bit MASKROM

DESCRIPTION

The OKI MSM538002E is a high-speed CMOS Mask ROM that can electrically switch between 524,288-word x 16-bit or 1,048,576-word x 8-bit configurations. The MSM538002E Operates on a single 5.0V power supply and is TTL compatible. The chip's asynchronous I/O requires no external clock assuring easy operation. A power-down mode provides low power dissipation when the chip is not selected. The CE and OE pins are provided as control signals that permit three-stated output allowing easy memory expansion on a system bus.The MSM531602C is suited for use as large capacity fixed memory for microcomputers and data terminals.

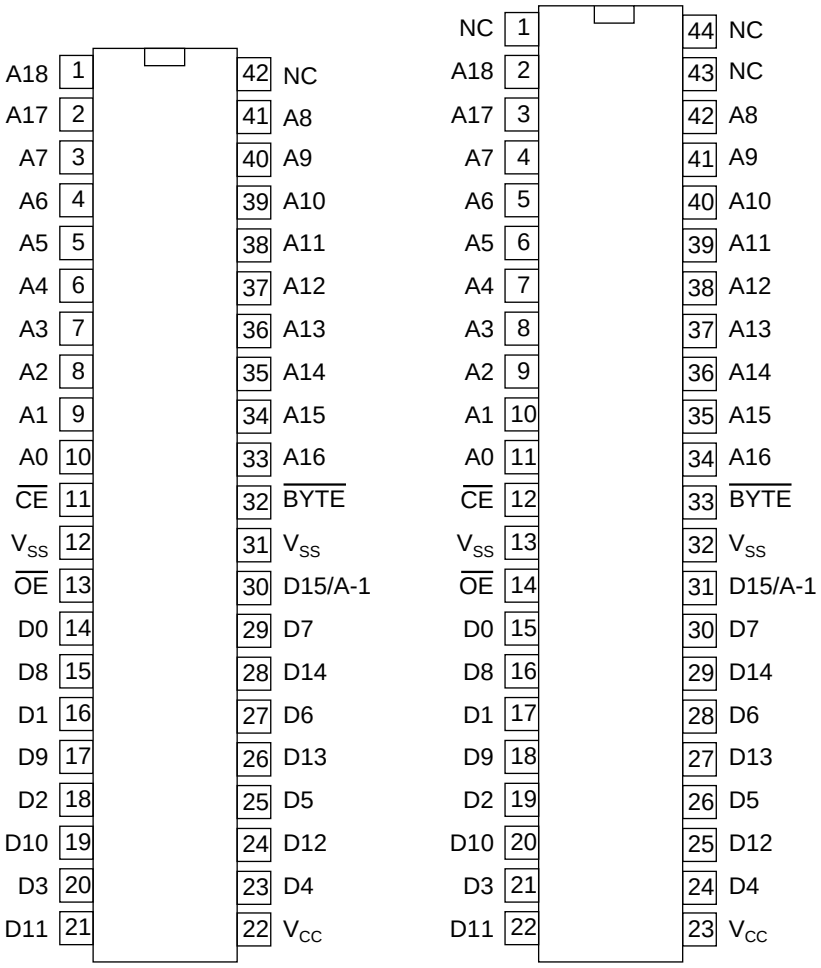
FEATURES

Single 5.0V power supply
524,288-words x 16-bit / 1,048,576-words x 8-bit
Access time
80ns MAX
Input/Output TTL compatible
Tri-State output configurations
Internal powerdown function
Packages:

42-PIN PLASTIC DIP	(DIP42-P-600-2.54)	(MSM538002E-xxRS)
44-PIN PLASTIC SOP	(SOP44-P-600-1.27-K)	(MSM538002E-xxGS-K)
44-PIN PLASTIC TSOP	(TSOPII44-P-400-0.8-K)	(MSM538002E-xxTS-AK)

8MEPROM (42-PIN) pin compatible

PIN CONFIGURATION

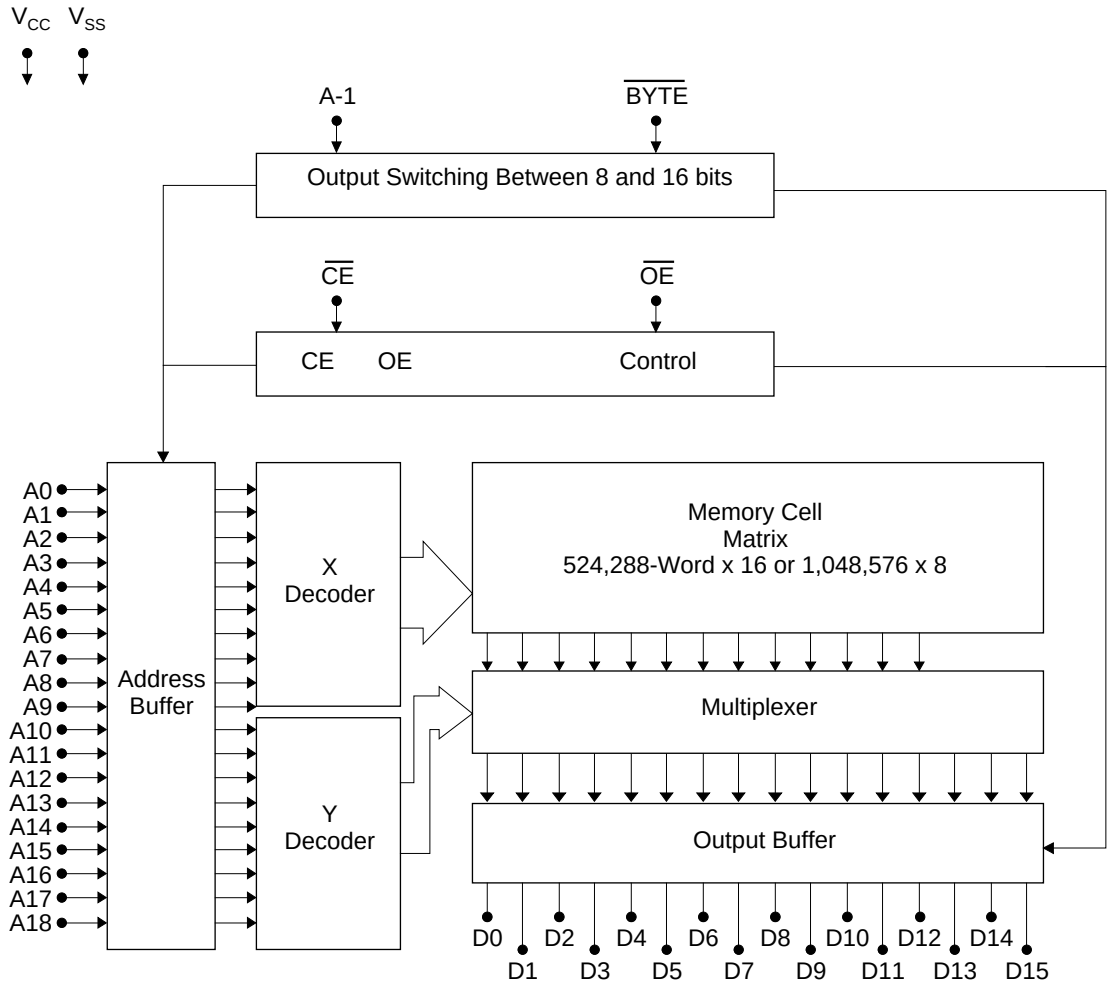


42PIN DIP

44PIN SOP/
TSOP

Pin Name	Function
D15/A-1	Data output / address input
A0 to A18	Address input
D0 to D15	Data output
$\overline{CE}$	Chip enable
$\overline{OE}$	Output enable
$\overline{BYTE}$	Mode switch
V_{CC}, V_{SS}	Power supply

BLOCK DIAGRAM



FUNCTION TABLE

$\overline{CE}$	$\overline{OE}$	$\overline{BYTE}$	A-1/D15	D0 to D7	D8 to D15	D_{OUT} Mode	LSB	MSB
H	X	X	X	Hi-Z	Hi-Z	Hi-Z	—	—
L	H	X	X	Hi-Z	Hi-Z			
L	L	H	Input Inhibited (D15)	D0 to D7	D8 to D15	16 bit	A0	A18
L	L	L	L	D0 to D7	Hi-Z	8 bit	A-1	A18
L	L	L	H	D8 to D15	Hi-Z			

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Parameter	Symbol	Conditions	Rated Value	Unit
Power Supply Voltage	V_{CC}	to V_{SS}	–0.3 to 7	V
Input Voltage	V_I		–0.3 to V_{CC} + 0.5	V
Output Voltage	V_O		–0.3 to V_{CC} + 0.5	V
Power Dissipation	P_D	Per Package T_{opr} = 25°C	1.0	W
Operating Temperature	T_{opr}	—	0 to 70	°C
Storage Temperature	T_{stg}	—	–55 to 150	°C

Recommended Operating Conditions

Parameter	Symbol	Conditions	Rated Value			Unit
			Min.	Typ.	Max.	
Power Supply Voltage	V_{CC}	—	4.75	5.0	5.25	V
	V_{SS}	—	0.0	0.0	0.0	V
"H" Input Voltage	V_{IH}	—	2.2	5.0	V_{CC} +0.5	V
"L" Input Voltage	V_{IL}	—	–0.3	0.0	0.8	V
Operating Temperature	T_{opr}	—	0	—	70	°C

DC Characteristics

(V_{CC} = 5V±5%, Ta = 0 to 70°C)

Parameter	Symbol	Conditions	Rated Value			Unit
			Min.	Typ.	Max.	
"H" Output Voltage	V_{OH}	I_{OH} = –400µA	2.4	—	—	V
"L" Output Voltage	V_{OL}	I_{OH} = 2.1mA	—	—	0.4	V
Input Leakage Current	I_{LI}	V_I = 0 to V_{CC}	–10	—	10	µA
Output Leakage Current	I_{LO}	V_O = 0 to V_{CC} $\overline{CE}$ = $V_{IH\ MIN}$	–10	—	10	µA
Power Supply Current (Operating)	I_{CC}	$\overline{CE}$ = V_{IL}, $\overline{OE}$ = V_{IH}, t_C = 80ns	—	—	60	mA
Power Supply Current (Standby)	I_{CCS}[1]	$\overline{CE}$ = V_{CC}–0.2V	—	—	50	µA
	I_{CCS}	$\overline{CE}$ = $V_{IH\ MIN}$	—	—	500	µA

AC CHARACTERISTICS

Timing conditions

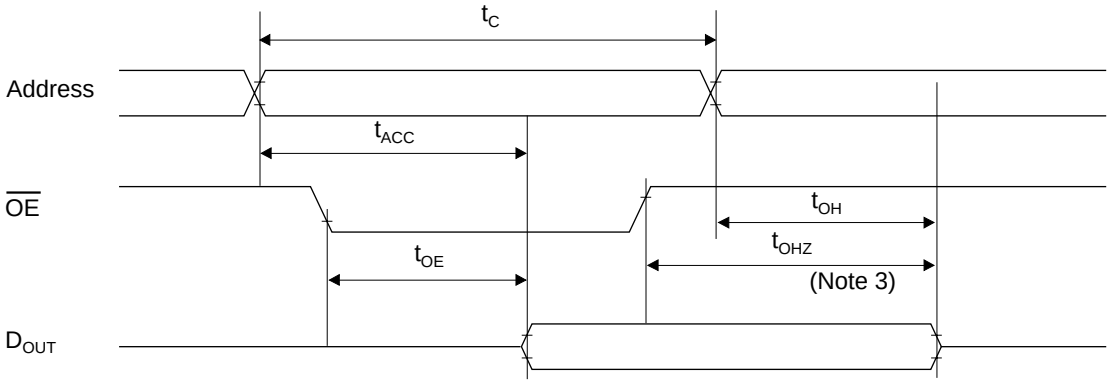
Parameter	Conditions
Input Signal Level	V_{IH}=3.0V, V_{IL}=0.0V
Transtion Time	t_r=t_f=5ns
Timing Reference Level	Input Voltage=1.5V Output Voltage=0.8V&2.0V
Load Condition	CL=50pF+1TTL

Read Cycle

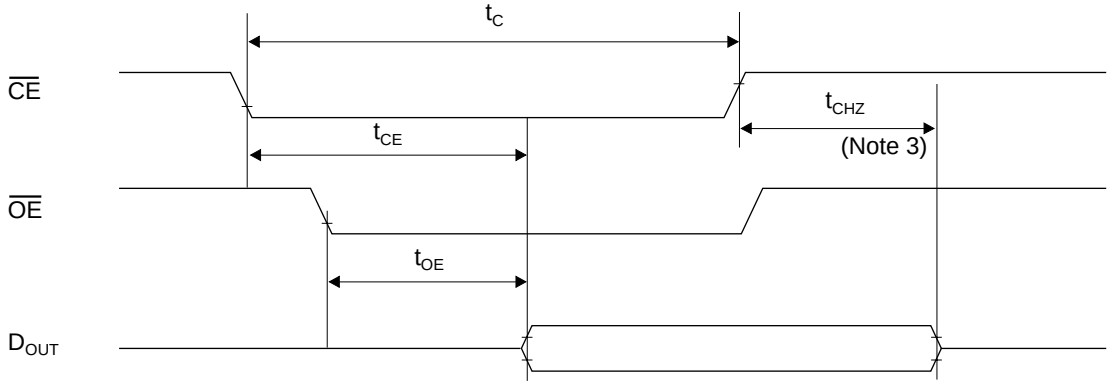
(Ta = 0 to 70°C)

Parameter	Symbol	Conditions	Rated Value			Unit
			Min.	Typ.	Max.	
Cycle time	t_C	—	80	—	—	ns
Address Access time	t_{ACC}	—	—	—	80	ns
$\overline{CE}$ Access time	t_{CE}	—	—	—	80	ns
$\overline{OE}$ Access time	t_{OE}	—	—	—	40	ns
$\overline{CE}$ Output Disable time	t_{CHZ}	—	0	—	35	ns
$\overline{OE}$ Output Disable time	t_{OHZ}	—	0	—	30	ns
Output Hold time	t_{OH}	—	0	—	—	ns

Read Cycle (Note 1)



Read Cycle (Note 2)



Note) 1. $\overline{CE}$ is low level.
2. Address is fixed before or at the same time when $\overline{CE}$ level falls.
3. t_{CHZ} & t_{OHZ} indicate the time until floating. They are not determined by the output level.

I/O CAPACITANCE

Parameter	Symbol	Conditions	Rated Value			Unit
			Min.	Typ.	Max.	
Input Capacitance	C_I	V_I=0V	—	—	8	pF
Output Capacitance	C_O	V_O=0V	—	—	10	pF

NOTICE

The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.

The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.

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