128K X 8 MASK ROM

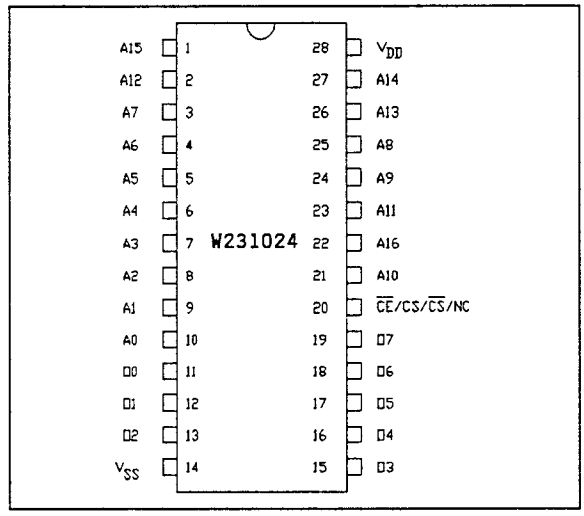
FEATURES

- Power Consumption :
  Active : 175mW (Typ.)
  Standby : 25mW(Typ.)
- Access Time : 200/300 ns (Max.)
- Single +5V Supply
- Fully Static Operation
- Direct TTL Compatible
- Programmable Chip Select (CS/$\overline{CS}$) and Chip Enable ($\overline{CE}$)
- Automatic Power-Down ($\overline{CE}$)
- Three State Outputs
- Available in 28 Pin DIP,or in Chip Form

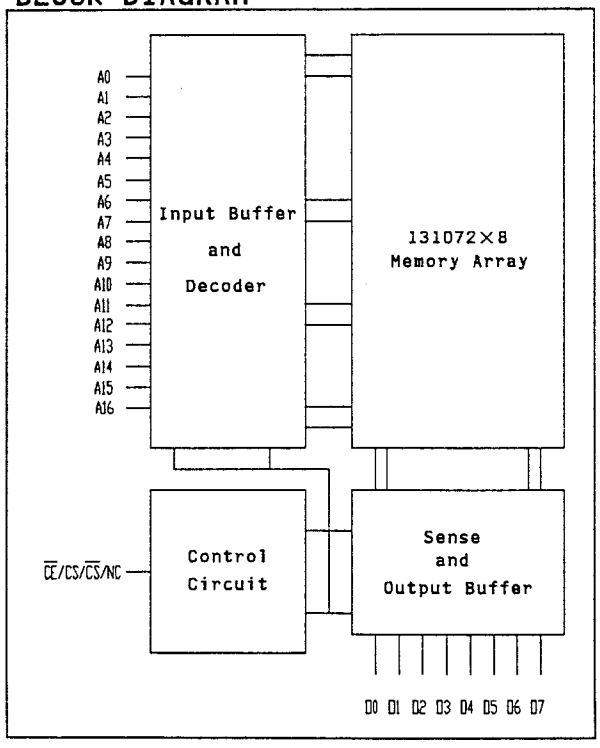
DESCRIPTION

The W231024 is a High Speed Mask-Programmable Read-Only Memory Organized as 131072 ×8 Bits and Operates on a Single 5-Volt Supply. The Device is Manufactured in WINBOND's High Performance NMOS Technology.

PIN CONFIGURATION



BLOCK DIAGRAM



PIN DESCRIPTION

SYMBOL	DESCRIPTION
A0 - A16	Address Inputs
O0 - O7	Data Outputs
$\overline{CE}$/ CS/$\overline{CS}$/NC	Chip Enable Input/ Chip Select Input/ No Connection
V_{DD}	Power Supply
V_{SS}	Ground

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DC CHARACTERISTICS

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Supply Voltage to V_{SS} Potential	-0.5 to +7.0	V
Inputs or Outputs to V_{SS} Potential	-0.5 to V_{DD}+0.5	V
Allowable Power Dissipation	1.0	W
Storage Temperature	-55 to +150	℃
Operating Temperature	0 to +70	℃

OPERATING CHARACTERISTICS

(V_{DD}=5V±10%, V_{SS}=0V, Ta=0 to 70℃)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Low Voltage	V_{IL}	-	- 0.5	-	+ 0.8	V
Input High Voltage	V_{IH}	-	+ 2.2	-	V_{DD}	V
Input Leakage Current	I_{LI}	V_{IN}= V_{SS} to V_{DD}	- 10	-	+ 10	μA
Output Leakage Current	I_{LO}	V_{OUT} = V_{SS} to V_{DD} $\overline{CE}$ = V_{IH} or $\overline{CS}$ = V_{IH} or CS = V_{IL}	- 10	-	+ 10	μA
Output Low Voltage	V_{OL}	I_{OL} = +3.2mA	-	-	+ 0.4	V
Output High Voltage	V_{OH}	I_{OH} = -1.0mA	+ 2.4	-	-	V
Operating Power Supply Current	I_{DD}	$\overline{CE}$ = V_{IL}, $\overline{CS}$ = V_{IL} or CS = V_{IH} I_{OUT} = 0mA, CYCLE = MIN	-	-	+ 80	mA
Standby Power Supply Current	I_{SB}	$\overline{CE}$ = V_{IH}	-	-	+ 20	mA

Note : Typical characteristics are at V_{DD}=5V, Ta=25℃.

CAPACITANCE

(V_{DD}=5V, Ta=25℃, f=1MHz)

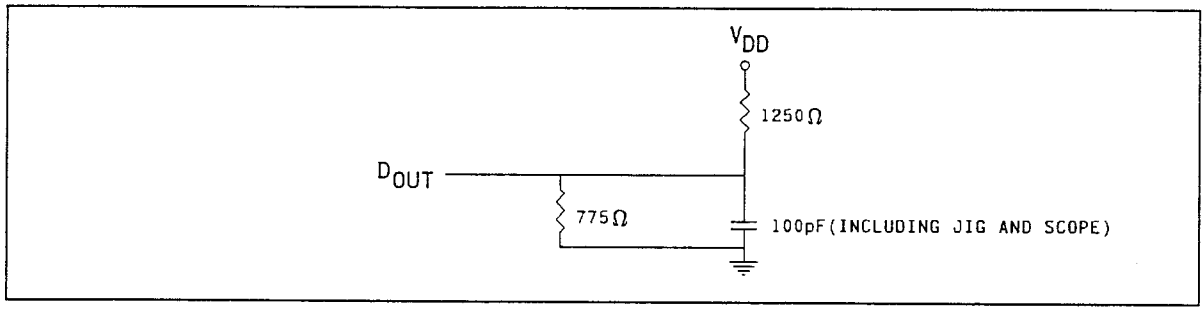
PARAMETER	SYMBOL	CONDITIONS	MAX.	UNIT
Input Capacitance	C_{IN}	V_{IN}=0V	5	pF
Output Capacitance	C_{OUT}	V_{OUT}=0V	5	pF

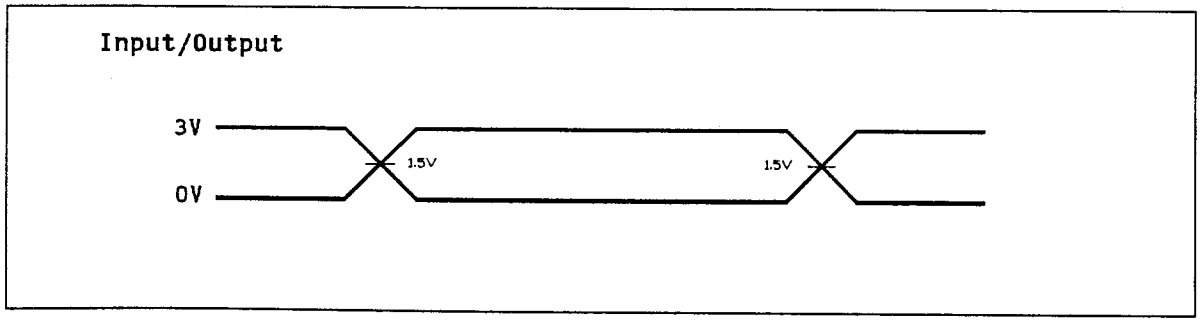
Note : This parameter is sampled and not 100% tested.

AC TEST CONDITIONS

PARAMETER	CONDITIONS
Input Pulse Levels	0V to 3V
Input Rise and Fall Times	10ns
Input and Output Timing Reference Level	1.5V
Output Load	C_L=100pF, I_{OH}/I_{OL}=-1mA/3.2mA

AC TEST LOADS AND WAVEFORMS





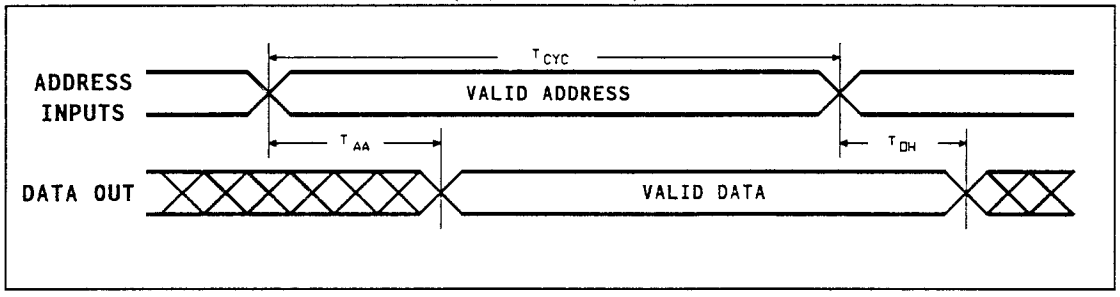
AC CHARACTERISTICS

(V_{DD}=5V±10%, V_{SS}=0V, Ta=0 to 70℃)

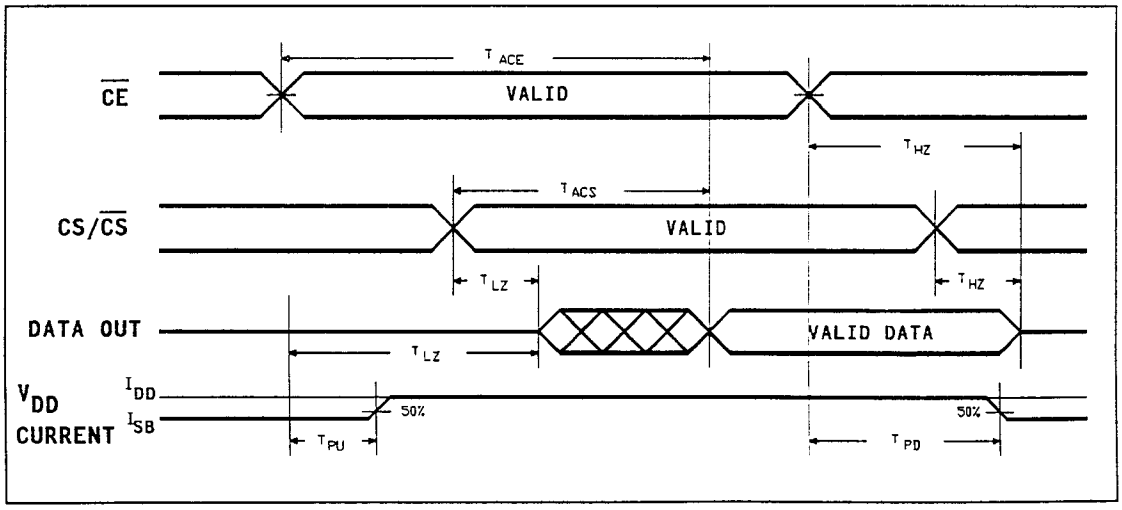
PARAMETER	SYMBOL	W231024-20		W231024-30		UNIT
		MIN.	MAX.	MIN.	MAX.	
Cycle Time	T_{CYC}	200	-	300	-	ns
Address Access Time	T_{AA}	-	200	-	300	ns
Chip Enable Access Time	T_{ACE}	-	200	-	300	ns
Chip Select Access Time	T_{ACS}	-	100	-	150	ns
Output Hold Time	T_{OH}	10	-	10	-	ns
Output Low Z Delay	T_{LZ}	10	-	10	-	ns
Output High Z Delay	T_{HZ}	-	100	-	150	ns
Power-Up Time	T_{PU}	0	-	0	-	ns
Power-Down Time	T_{PD}	-	100	-	150	ns

TIMING WAVEFORM

PROPAGATION DELAY FROM ADDRESS (CE/OE=ACTIVE)



PROPAGATION DELAY FROM CHIP ENABLE OR OUTPUT ENABLE (ADDRESS VALID)



ORDERING INFORMATION

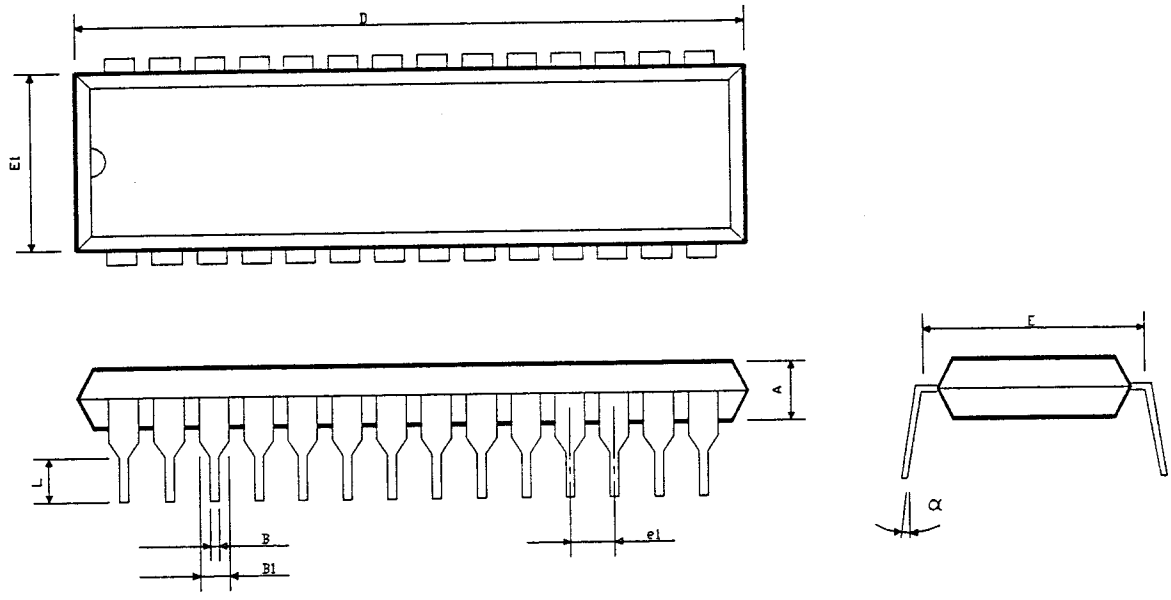
Part No.	Access Time (ns)	Operating Current Max. (mA)	Standby Current Max. (mA)	Package	Remark
W231024-20	200	80	20	600 mil DIP	
W231024-30	300	80	20	600 mil DIP	
W231024H-20	200	80	20	Chip Form	
W231024H-30	300	80	20	Chip Form	

Notes:

1. Winbond Electronics Corp. reserves the right to make changes to its products without prior notice, in order to improve design and performance.
2. If such products are to be used in applications in which personal injury might occur from failure, purchaser must do its own quality assurance testing appropriate to such application.

PACKAGE DIMENSION

28 LEAD P-DIP



Symbol	Dimensions in inch	Dimensions in mm
A	0.155 ± 0.005	3.937 ± 0.127
B	0.018 ± 0.004	0.457 ± 0.102
B1	0.060 ± 0.004	1.524 ± 0.102
D	1.460 ± 0.010	37.084 ± 0.254
E	0.600 ± 0.010	15.240 ± 0.254
E1	0.550 ± 0.010	13.970 ± 0.254
e1	0.100 ± 0.010	2.540 ± 0.254
L	0.135 ± 0.010	3.429 ± 0.254
α	0° ~ 7°	0° ~ 7°

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