

SMM43100C

CMOS 1M-BIT MASK ROM

preliminary
Under Development

- Low supply current
- Access time 100ns
- 131,072 words × 8 bits asynchronous

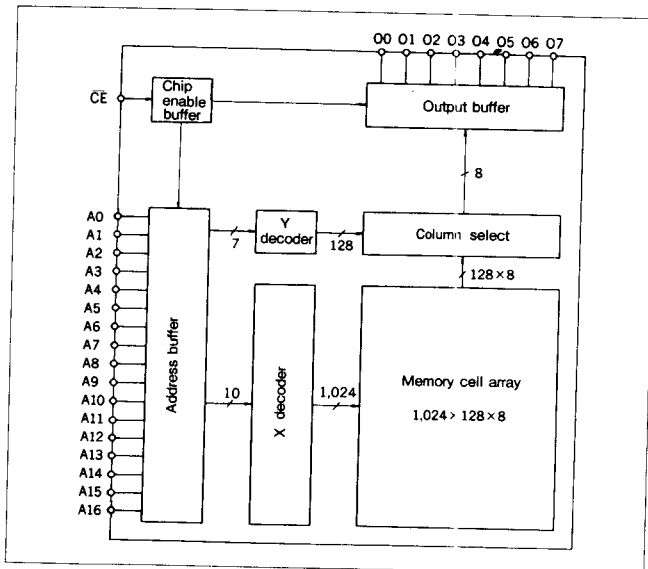
DESCRIPTION

The SMM43100C is a 131,072 words × 8 bits mask programmable asynchronous CMOS read-only memory (ROM) and operates on a single power source. Both the input and output ports are TTL compatible with 3-state output. This memory requires no external clock, since it has perfect static operation.

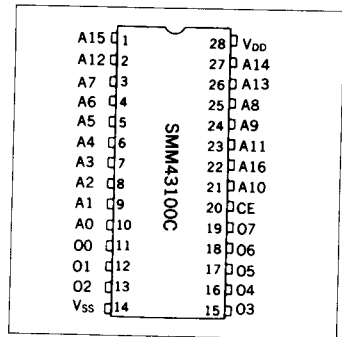
FEATURES

- Access time100ns
- Low supply currentStandby : 0.1μA (Typ)
.....Operation : 30mA (Typ)
- Asynchronous type
- Single power supply5V ±10%
- TTL-compatible input and output
- 3-state output with wired-OR capability
- Package.....28-pin DIP (plastic)

BLOCK DIAGRAM



PIN CONFIGURATION



PIN DESCRIPTION

A0 to A16	Address input
CE	Chip enable
O0 to O7	Data output
V _{DD}	Power supply(+5V)
V _{SS}	Power supply(0V)

■ ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Supply voltage	V_{DD}	-0.3 to 7.0	V
Input voltage	V_I	-0.3 to $V_{DD}+0.3$	V
Output voltage	V_O	-0.3 to $V_{DD}+0.3$	V
Power dissipation	P_D	1.0	W
Output current	I_O	10	mA
Operating temperature	T_{opr}	-10 to 70	°C
Storage temperature	T_{stg}	-65 to 150	°C
Soldering temperature and time	T_{sol}	260°C, 10s (at lead)	—

■ ELECTRICAL CHARACTERISTICS

● DC Electrical Characteristics

($V_{DD}=5V \pm 10\%$, $T_a = -10^\circ$ to $70^\circ C$)

Parameter	Symbol	Conditions	Min	Typ*	Max	Unit
High level input voltage	V_{IH}	—	2.2	—	$V_{DD}+0.3$	V
Low level input voltage	V_{IL}	—	-0.3	—	0.8	V
Input leakage current	I_{LI}	$0 \leq V_I \leq V_{DD}$	-2.0	—	2.0	μA
Standby supply current	I_{DDs}	$CE = V_{DD} - 0.2$	—	0.1	40	μA
Operating supply current	I_{DDO}	with output pin open	—	30	50	mA
Output leakage current	I_{LO}	$0 \leq V_O \leq V_{DD}$	-10.0	—	10.0	μA
High level output voltage	V_{OH}	$I_{OH} = -1.0mA$	2.4	—	—	V
Low level output voltage	V_{OL}	$I_{OL} = 3.2mA$	—	—	0.4	V
Input terminal capacitance	C_I	$f = 1MHz$	—	—	10	pF
Output terminal capacitance	C_O	$f = 1MHz$	—	—	15	pF

*Typical values are measured at $V_{DD}=5V$ and $T_a = 25^\circ C$

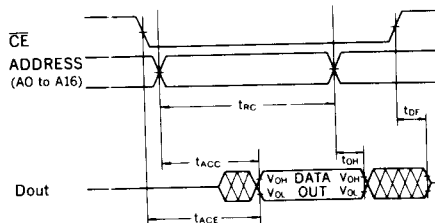
● AC Electrical Characteristics

($V_{DD}=5V \pm 10\%$, $T_a = -10^\circ$ to $70^\circ C$)

Parameter	Symbol	Conditions	Min	Max	Unit
Read cycle time	t_{RC}	<ul style="list-style-type: none"> Input pulse level $V_{IH}=2.4V$ $V_{IL}=0.6V$ $C_L = 1TTL + 100pF$ Input/Output Reference level: 1.5V $t_r = t_f = 10ns$ 	100	—	ns
Address access time	t_{ACC}		—	100	ns
CE access time	t_{ACE}		—	100	ns
Output floating time	t_{DF}		—	40	ns
Output hold time	t_{OH}		0	—	ns

● Timing Chart

○ Read Cycle



FUNCTIONS

Truth table

CE	A0 to A16	O0 to O7	Mode
H	X	High impedance	Standby
L	Stable	Output data	Read

X: "H" or "L"

Reading data

Data can be read by setting addresses while holding $\overline{CE} = "L"$.

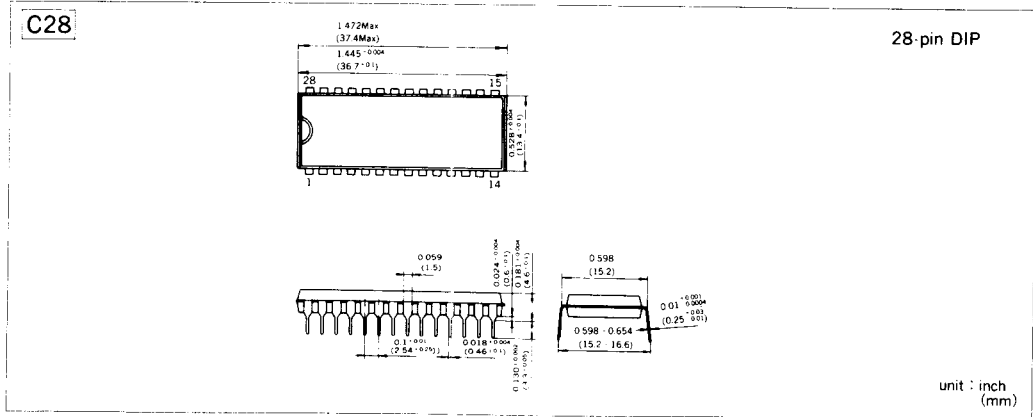
Standby mode

When \overline{CE} is "H", the memory is in the standby mode. In this mode, the output terminals are in the high impedance state and any input of address is prohibited. There will be no current flow except for leakage in the chip.

[Note] Recommendations

- Although the SMM43100C is a CMOS mask ROM, transient current will flow at the time of transistors transition in data read operation. For protection of such transient current, it is recommended to connect a high-frequency capacitor and an electrolytic capacitor between power supply lines V_{DD} and V_{SS} .
- Although the input and output ports of the SMM43100C are TTL compatible, when it is connected to TTL ICs, it is advisable to connect a pull-up resistor to each of the \overline{CE} and the address input terminals.

PACKAGE DIMENSIONS



■ CHARACTERISTICS CURVES

Under measurement