

# RICOH

EK-072-9203

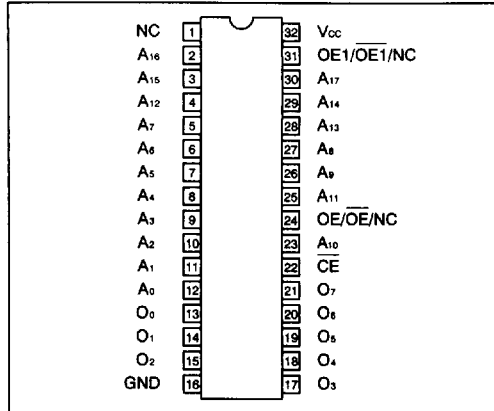
## RP/RS532010E

## CMOS 2Mbit MASK ROM (262,144 word × 8 bit)

RP/RS532010E is a 2 Mbit programmable mask ROM using CMOS process technology. It has also been provided with a power down function which reduces supply current from 50 mA (Max.) to 100 μA (Max.) by setting the  $\overline{CE}$  input to the "H" level.

In addition, the logic level of the number 31 pin output enable can be selected from among three types of logic levels, ACTIVE HIGH, ACTIVE LOW and ISOLATED. Further the logic level of the number 24 pin output enable can be specified from among two types either ACTIVE HIGH or ACTIVE LOW.

### PIN CONFIGURATION (TOP VIEW)

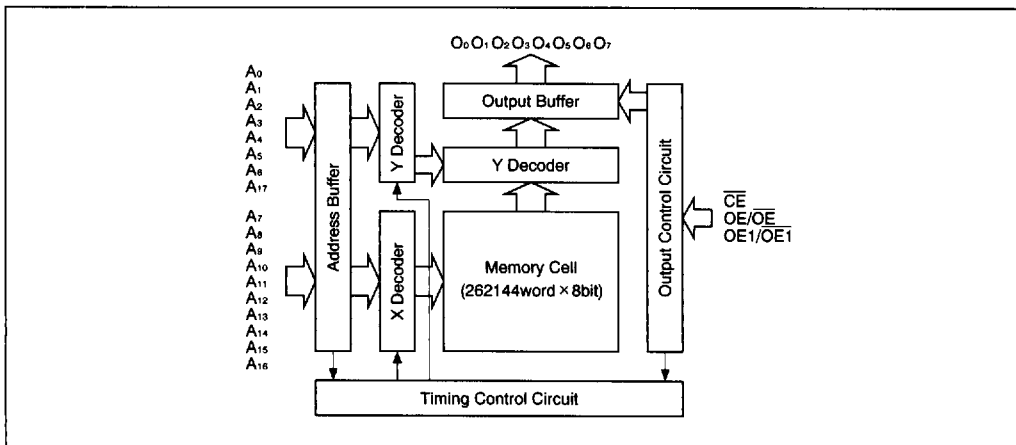


### FEATURES

1. Organization : 262144 words x 8 bits
2. Access Time : 200 ns
3. TTL Compatible Input/Output
4. Single 5V Power Supply
5. Power Consumption :
  - operation 275 mW (Max.)
  - standby 0.55 mW (Max.)
6. 3 - state Output
7. Package : RP532010E . . . 32 pin DIP  
RS532010E . . . 32 pin SOP

### PIN DESCRIPTION (TOP VIEW)

Pin Name	Function
A <sub>0</sub> ~ A <sub>17</sub>	Address Input
O <sub>0</sub> ~ O <sub>7</sub>	Data Output
OE/ $\overline{OE}$	Output Enable Input
OE1/ $\overline{OE1}$	Output Enable Input
$\overline{CE}$	Chip Enable Input
Vcc	Power Supply (+ 5V)
GND	Ground
NC	No connection



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## ■ ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Condition	Limit	Unit
V <sub>CC</sub>	Supply Voltage	With respect to GND	- 0.3 ~ 7	V
V <sub>I</sub>	Input Voltage		- 0.3 ~ V <sub>CC</sub> + 0.5	V
V <sub>O</sub>	Output Voltage		- 0.3 ~ V <sub>CC</sub> + 0.3	V
P <sub>d</sub>	Power Consumption	T <sub>a</sub> = 25 °C	350	mW
T <sub>opr</sub>	Operating Temperature		0 ~ 70	°C
T <sub>stg</sub>	Storage Temperature		- 40 ~ 125	°C

## ■ RECOMMENDED OPERATING CONDITION (T<sub>a</sub>=0~70°C)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V <sub>CC</sub>	Supply Voltage	4.5	5.0	5.5	V
V <sub>IH</sub>	" H " Input Voltage	2.2		V <sub>CC</sub>	V
V <sub>IL</sub>	" L " Input Voltage	0		0.8	V

## ■ ELECTRICAL CHARACTERISTICS

● DC ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=0~70°C, V<sub>CC</sub>=5V±10%)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
I <sub>sb1</sub>	Supply Current (Standby)	I <sub>o</sub> = 0 mA, $\overline{CE} = 2.2V$ Total input = 2.2V or 0.8V			3	mA
I <sub>sb2</sub>	Supply Current (Standby)	I <sub>o</sub> = 0 mA, $\overline{CE} = V_{CC} - 0.2V$ Total input = V <sub>CC</sub> - 0.2V or GND + 0.2V			0.1	mA
I <sub>cc1</sub>	Supply Current (Operation)	I <sub>o</sub> = 0 mA, t <sub>RC</sub> = 200 ns			50	mA
I <sub>cc2</sub>	Supply Current (Operation)	t <sub>RC</sub> = 1 μs (CL = 100PF) $\overline{CE}$ , $\overline{OE} = GND + 0.2V$ V <sub>IL</sub> = GND + 0.2V V <sub>IH</sub> = V <sub>CC</sub> - 0.2V			10	mA
V <sub>OH1</sub>	" H " Output Voltage	I <sub>OH</sub> = -0.4 mA	2.4			V
V <sub>OH2</sub>	" H " Output Voltage	I <sub>OH</sub> = -0.1 mA	V <sub>CC</sub> × 0.8			V
V <sub>OL</sub>	" L " Output Voltage	I <sub>OL</sub> = 3.2 mA			0.4	V
V <sub>IH</sub>	" H " Input Voltage		2.2		V <sub>CC</sub> + 0.3	V
V <sub>IL</sub>	" L " Input Voltage		- 0.3		0.8	V
I <sub>LI</sub>	Input Leakage Current	V <sub>i</sub> = 0V ~ V <sub>CC</sub>	- 10		10	μA
I <sub>LO</sub>	Output Leakage Current	V <sub>o</sub> = 0V ~ V <sub>CC</sub> Chip Deselected	- 10		10	μA

● AC ELECTRICAL CHARACTERISTICS (Ta=0~70°C, Vcc=5V±10%)

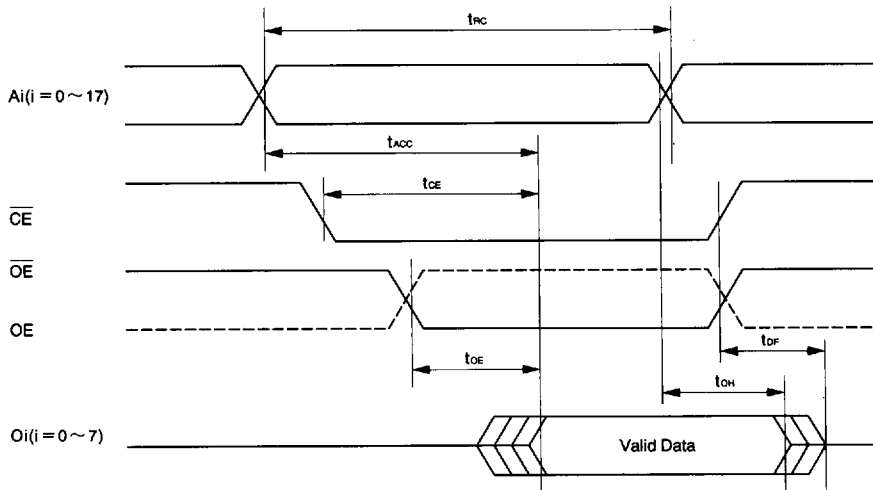
Symbol	Parameter	Min.	Typ.	Max.	Unit
t <sub>RC</sub>	Read Cycle Time	200			ns
t <sub>ACC</sub>	Address Access Time			200	ns
t <sub>CE</sub>	Chip Enable Access Time			200	ns
t <sub>OE</sub>	Output Enable Access Time			80	ns
t <sub>DF</sub>	Output Floating Delay Time	0		80	ns
t <sub>OH</sub>	Output Hold Time	0			ns

Input Voltage : V<sub>IL</sub> = 0.6V, V<sub>IH</sub> = 2.4V, t<sub>r</sub>, t<sub>f</sub> = 10 ns

Output Load : 1 TTL + 100 pF

Measuring Voltage : V<sub>IL</sub> = 0.8V, V<sub>IH</sub> = 2.2V, V<sub>OL</sub> = 0.8V, V<sub>OH</sub> = 2.2V

● TIMING CHART



NOTE

(Valid data after power on)

After power on, with  $\overline{CE}$  set to GND level, valid data output will be sent after  $t_{ACC}$  from a change in at least one address input. If other than the above parameters, the valid data will be sent after  $t_{CE}$  due to the  $\overline{CE}$  rise pulse.

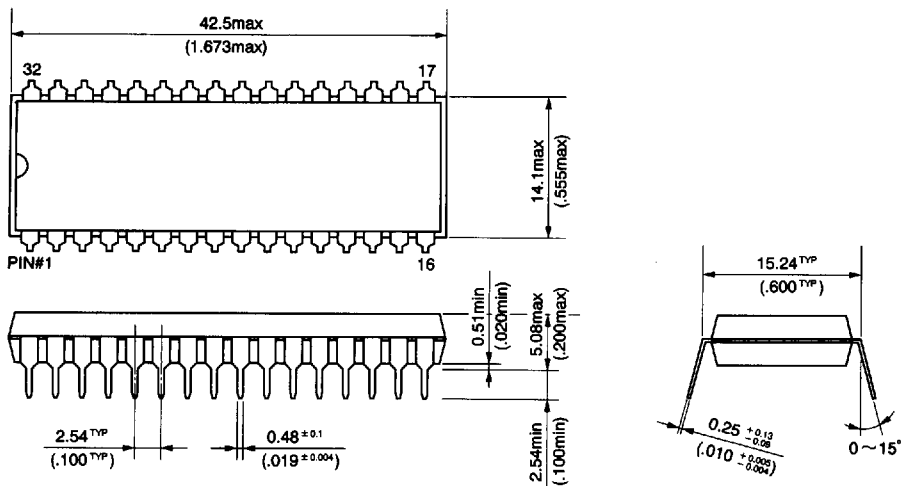
● CAPACITANCE

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
C <sub>i</sub>	Input Capacitance	f = 1MHz			10	pF
C <sub>o</sub>	Output Capacitance				15	pF

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PACKAGE DIMENSION (Unit:mm/inch)

● 32PIN DIP (RP531010E)



● 32PIN SOP (RS531010E)

