RICOH

EK-071-9203

RP/RS531010E

CMOS 1Mbit MASK ROM

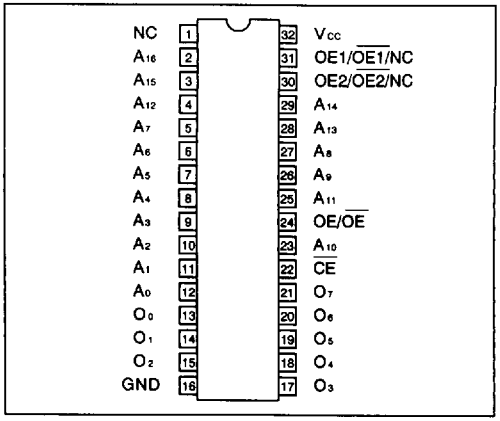
(131,072 word × 8 bit)

RP/RS531010E is a 1 Mbit programmable mask ROM using CMOS process technology.
It has also been provided with a power down function which reduces supply current from 30mA (Max.) to 100μA (Max.) by setting the $\overline{CE}$ input to the " H " level.
In addition, the logic level of the output enable can be selected from among three types of logic levels, ACTIVE HIGH, ACTIVE LOW and ISOLATED.

■ FEATURES

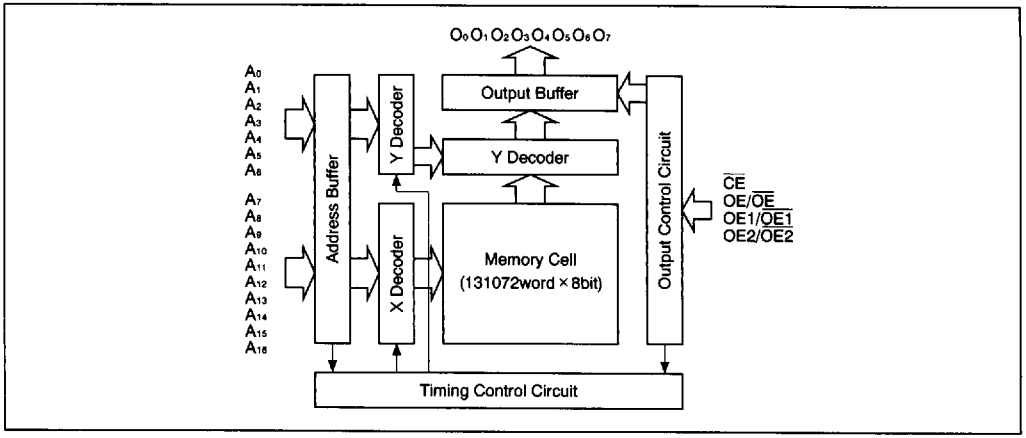
1. Organization : 131072 words x 8 bits
2. Access Time : 200 ns
3. TTL Compatible Input/Output
4. Single 5V Power Supply
5. Power Consumption :
   operation 165 mW (Max.)
   standby 0. 55 mW (Max.)
6. 3 - state Output
7. Package : RP531010E · · · 32 pin DIP
   RS531010E · · · 32 pin SOP

■ PIN CONFIGURATION (TOP VIEW)



■ PIN DESCRIPTION

Pin Name	Function
$A_0 \sim A_{16}$	Address Input
$O_0 \sim O_7$	Data Output
OE/$\overline{OE}$	Output Enable Input
OE1/$\overline{OE1}$	Output Enable Input
OE2/$\overline{OE2}$	Output Enable Input
$\overline{CE}$	Chip Enable Input
Vcc	Power Supply (+ 5V)
GND	Ground
NC	No connection



■ ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Condition	Limit	Unit
V_{CC}	Supply Voltage	With respect to GND	− 0.3 ~ 7	V
V_I	Input Voltage		− 0.3 ~ V_{CC} + 0.5	V
V_O	Output Voltage		− 0.3 ~ V_{CC} + 0.3	V
Pd	Power Consumption	Ta = 25 ℃	210	mW
Topr	Operating Temperature		0 ~ 70	℃
Tstg	Storage Temperature		− 40 ~ 125	℃

■ RECOMMENDED OPERATING CONDITION (Ta=0~70℃)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Supply Voltage	4.5	5.0	5.5	V
V_{IH}	" H " Input Voltage	2.2		V_{CC}	V
V_{IL}	" L " Input Voltage	0		0.8	V

■ ELECTRICAL CHARACTERISTICS

● DC ELECTRICAL CHARACTERISTICS (Ta=0~70℃, Vcc=5V±10%)

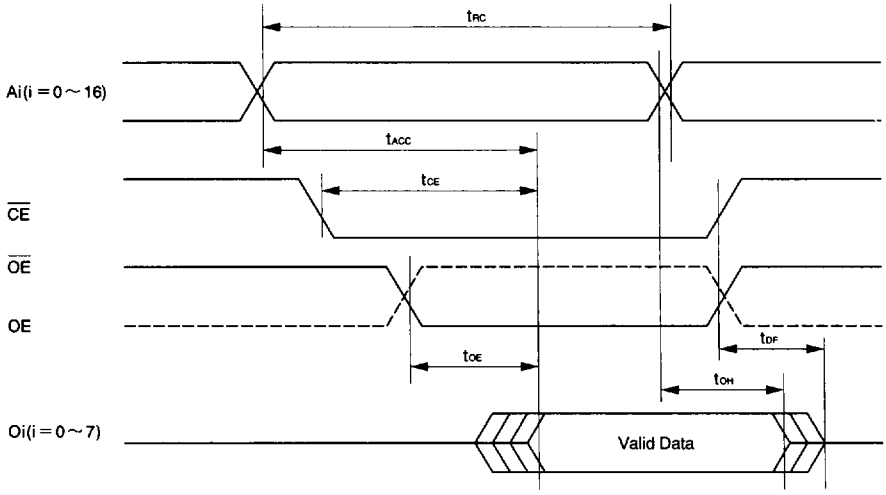
Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
I_{SB1}	Supply Current (Standby)	Io= 0 mA, $\overline{CE}$ =2.2V Total input=2.2Vor 0.8V			3	mA
I_{SB2}	Supply Current (Standby)	Io=0 mA, $\overline{CE}$=Vcc−0.2V Total input=Vcc − 0.2V or GND+0.2V			0.1	mA
I_{CC1}	Supply Current (Operation)	Io = 0 mA, t_{RC} = 200 ns			30	mA
I_{CC2}	Supply Current (Operation)	t_{RC} = 1 μs(CL=100PF) $\overline{CE}$, $\overline{OE}$ = GND + 0.2V V_{IL} = GND +0.2V V_{IH} = Vcc −0.2V			10	mA
V_{OH1}	" H " Output Voltage	I_{OH} = −0.4 mA	2.4			V
V_{OH2}	" H " Output Voltage	I_{OH} = −0.1 mA	Vcc × 0.8			V
V_{OL}	" L " Output Voltage	I_{OL} = 3.2 mA			0.4	V
V_{IH}	" H " Input Voltage		2.2		Vcc	V
V_{IL}	" L " Input Voltage		−0.3		0.8	V
I_{LI}	Input Leakage Current	V_I = 0V ~ Vcc	− 10		10	μA
I_{LO}	Output Leakage Current	V_O = 0V ~ Vcc Chip Deselected	− 10		10	μA

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

Symbol	Parameter	Min.	Typ.	Max.	Unit
t_{RC}	Read Cycle Time	200			ns
t_{ACC}	Address Access Time			200	ns
t_{CE}	Chip Enable Access Time			200	ns
t_{OE}	Output Enable Access Time			80	ns
t_{DF}	Output Floating Delay Time	0		80	ns
t_{OH}	Output Hold Time	0			ns

Input Voltage : V_{IL} = 0.6V, V_{IH} = 2.4V, tr, tf = 10 ns
Output Load : 1 TTL + 100 pF
Measuring Voltage : V_{IL} = 0.8V, V_{IH} = 2.2V, V_{OL} = 0.8V, V_{OH} = 2.2V

● TIMING CHART



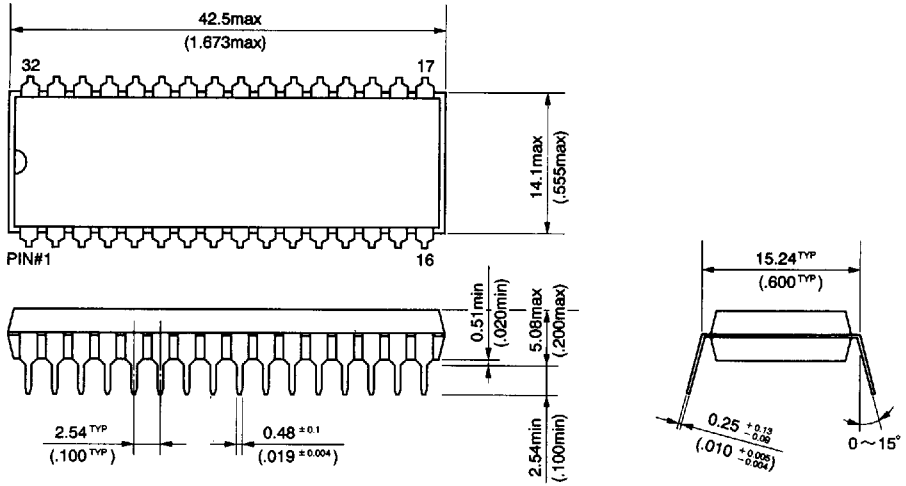
NOTE
(Valid data after power on)
After power on, with CE set to GND level, valid data output will be sent after t_{ACC}, from a change in at least one address input.
If other than the above parameters, the valid data output will be sent after t_{CE} due to the CE rise pulse.

● CAPACITANCE

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Ci	Input Capacitance	f = 1MHz			10	pF
Co	Output Capacitance				15	pF

PACKAGE DIMENSION (Unit:mm/inch)

● 32PIN DIP (RP531010E)



● 32PIN SOP (RS531010E)