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Products	Package	Time Keeping Current TYP.	Time Keeping Voltage	Alarm Function	Periodic Interrupt Function	32kHz Clock Output	Clock Adjustment Function	OSC Halt Sensing	Battery Checker	Others
RS/RV5C348A	SSOP10,SSOP10G	0.35μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	Open Drain	√	√	2.1V or 1.6V	• 32kHz Clock Output can be controlled by command.
RS/RV5C348B	SSOP10,SSOP10G	0.55μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	Open Drain	√	√	2.1V or 1.6V	• 32kHz Clock Output always outputs. Can not be controlled.
R2043K	FFP12	0.45μA (3V)	1.0V to 5.5 V	2sets (W/H/M,H/M)	2Hz to 1 month	Open Drain	√	√	1.6V or 1.3V	• Minimum Time Keeping Voltage : 0.66V (TYP.) • 32kHz Clock Output can be controlled by command.

3 - wire Serial Interface

Products	Package	Time Keeping Current TYP.	Time Keeping Voltage	Alarm Function	Periodic Interrupt Function	32kHz Clock Output	Clock Adjustment Function	OSC Halt Sensing	Battery Checker	Others
RS5C313/RS5C314	SSOP8	0.7μA (3V)	1.6V to 6.0V	–	1024Hz to 1 month	–	–	√	–	• RS5C313: SCLK RS5 C314: SCLK
RS5C316A/RS5C316B	SSOP8	0.6μA (3V)	1.6V to 6.0V	1set (W/H/M)	1024Hz to 1 month	–	–	√	–	• RS5C316A: SCLK RS5C316B: SCLK
RS5C321A	SSOP8	0.6μA (3V)	1.6V to 6.0V	–	–	Open Drain	–	√	–	
RS5C317A	SSOP14	0.6μA (3V)	1.6V to 6.0V	1set (W/H/M)	1024Hz to 1 month	CMOS OUT, With Control pin	–	√	–	• Watch Dog Timer
RS/RV5C338A	SSOP10,SSOP10G	0.35μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Control pin	√	√	2.1V or 1.6V	
RV5C339A	SSOP10G	0.35μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	Open Drain	√	√	2.1V or 1.6V	
R2061K01	FFP12	0.4μA (3V)	1.0V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	–	√	√	2.1V or 1.35V	• Back-up Battery Switch-over Circuit (Switching voltage = 1.7V) • Reset output with delay

2 - wire Serial Interface(I²C Bus)









Products	Package	Time Keeping Current TYP.	Time Keeping Voltage	Alarm Function	Periodic Interrupt Function	32kHz Clock Output	Clock Adjustment Function	OSC Halt Sensing	Battery Checker	Others
RS5C372A	SSOP8	0.5μA (3V)	1.3V to 6.0V	2sets (W/H/M)	2Hz to 1 month	Open Drain	√	√	–	• 32768Hz/32000Hz crystal selectable
RS5C372B	SSOP8	0.5μA (3V)	1.45V to 6.0V	2sets (W/H/M)	2Hz to 1 month	CMOS OUT	√	√	–	• 32768Hz/32000Hz crystal selectable
RV5C386A	SSOP10G	0.35μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Control pin	√	√	2.1V or 1.6V	
RV5C387A	SSOP10G	0.35μA (3V)	1.45V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	Open Drain	√	√	2.1V or 1.6V	
R2051S/K01	SSOP16,FFP12	0.4μA (3V)	1.0V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Level Shifter	√	√	2.1V or 1.35V	• Back-up Battery Switch-over Circuit (Switching Voltage = 2.4V) • Reset output with delay
R2051K02	FFP12	0.4μA (3V)	1.0V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Level Shifter	√	√	2.1V or 1.35V	• Back-up Battery Switch-over Circuit (Switching Voltage = 2.8V) • Reset output with delay
R2051S03	SSOP16	0.4μA (3V)	1.0V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Level Shifter	√	√	2.1V or 1.35V	• Back-up Battery Switch-over Circuit (Switching Voltage = 4.0V) • Reset output with delay
R2025S/D	SOP14,SON22	0.48μA (3V)	1.15V to 5.5V	2sets (W/H/M,H/M)	2Hz to 1 month	CMOS OUT, With Control pin	√	√	2.1V or 1.3V	• Built in crystal oscillator • Frequency Deviation (0±5ppm:25°C)

* I²C-Bus is a trademark of PHILIPS N.V. Purchase of I²C-Bus components of Ricoh Company, LTD. conveys a license under the Philips I²C Patent Rights to use these components in an I²C system, provided that the system conforms to the I²C standard Specifications as defined by Philips.

Glossary

Time keeping current	It is specified for only when Clock and Calendar circuit operating. In this case accessing to CPU is not possible.
Time keeping voltage	It is specified only for Clock and Calendar operating voltage. Operating voltage for CPU access is specified by the other specification.
Alarm function	When the time keeping register values match alarm register settings, the alarm condition activates the interrupt output, and sets the alarm flag to “1”.
Periodic interrupt function	Ricoh’s RTC incorporates periodic interrupt function (every second, every minutes etc.). It is useful for indicating time and calendar.
32kHz clock output	It is possible to output square wave with same frequency as crystal frequency. There are four kinds of 32KOUT pin. One is an N-channel open-drain output pin. Two is a simple CMOS output pin. Three is a CMOS output pin controlled by other input pin. Four is a CMOS output pin, and the “H” level is same as CPU power supply voltage, driven by level shifter.32kHz square wave can be generated for use as a CPU sub-clock, or for calibration of the crystal oscillator.
The clock adjustment circuit	It is possible to adjust time gain or loss by the CPU software to compensate the crystal frequency. It should be done by external trim capacitor in general RTC case. This function also can be used for temperature adjustment if there was a temperature information for the CPU.
The OSC halt sensing circuit	The oscillation halt sensing circuit records any past oscillation halt to internal register. The oscillation halt sensing circuit can be used to judge the validity of internal data in such events as power-on.
Battery checker	It is used to detect backup battery voltage level. Once the voltage decrease than detect level, flag will be generated.
32768Hz/32000Hz crystal selectable	Generally, 32768Hz crystal oscillator is used with a clock IC. But both 32000Hz crystal oscillator and 32768Hz crystal oscillator can be used with RS5C372A/B. 32KOUT pin outputs 32000Hz clock pulses when 32000Hz crystal oscillator is used.
Battery backup switch over function	Battery backup switchover function is the automatic switchover circuit between a main power supply and a backup battery of primary, secondary battery, or super capacitor. Switchover is executed by monitoring the voltage of a main power supply; therefore the voltage of a backup battery voltage is not relevant.
Frequency Deviation (0±5ppm)	R2025S/D incorporates 32768Hz crystal oscillator. The oscillation frequency is adjusted to high precision (0±5ppm: at 25°C). This deviation corresponds to ±15 seconds per every month. Customer also can calibrate time deviation to 3±5ppm, 6±5ppm, 9±5ppm, by using the clock adjustment circuit.

Package Information

Package	Pin	Sample (X1)	PCS/reel
SSOP8	8		2,000
SSOP10	10		2,000
SSOP14	14		2,000
SSOP16	16		2,000
SSOP10G	10		2,000
FFP12	12		4,000
SOP14 (RTC Module)	14		1,000
SON22 (RTC Module)	22		1,000