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# REAL TIME CLOCK MODULE (I<sup>2</sup>C-Bus)

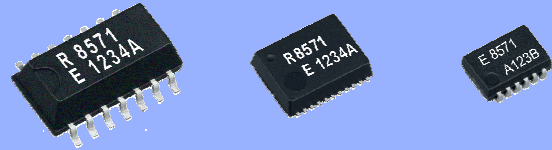
Low current consumption

## RX-8571 SA/NB/LC

- Built-in frequency adjusted 32.768 kHz crystal unit.
  - Interface Type : I<sup>2</sup>C-Bus Interface (400 kHz)
  - Operating voltage range : 1.6 V to 5.5 V
  - Wide voltage for timekeeping : 1.3 V to 5.5 V
  - Low backup current : 220 nA / 3 V (Typ.)
  - 32.768 kHz frequency output function : C-MOS output With Control Pin
  - Built-in user RAM : 128 bit (8 bit x 16, SRAM)
  - The various functions include full calendar, alarm, timer, etc. (Long-running timer : 65535 hours)
- \* The I<sup>2</sup>C-Bus is a trademark of NXP Semiconductors



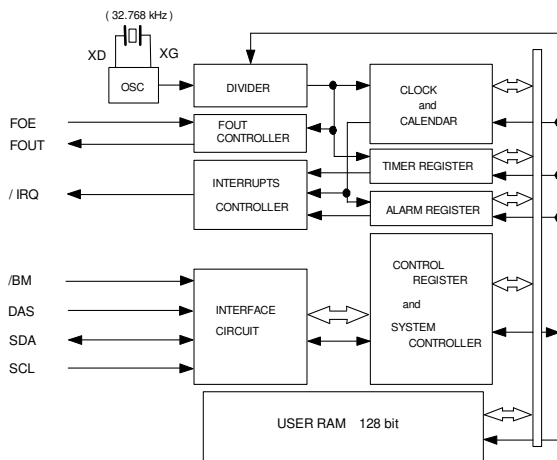
Product Number (Please contact us)  
 RX-8571SA : X1B000072000100  
 RX-8571NB : X1B000062000100  
 RX-8571LC : X1B000052000100



Actual size



### Block diagram

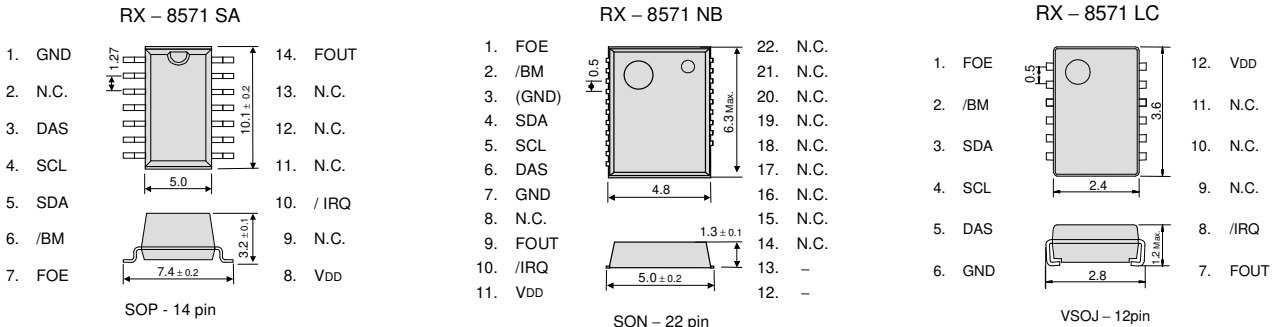


### Overview

- 32.768 kHz frequency output function
  - FOE pin enable output on/off control.
  - Output frequency can be selected as 32.768 kHz, 1024 Hz, 1 Hz.
- Timer Function
  - Timer function can be set up between 1/4096 second and 65535 hours.
  - Timing period are 1 h, 1 min, 64 Hz, 4096 Hz.
  - It is recorded automatically to TF-bit at the time of event occurs, and possible to output with /IRQ pin output.
- Alarm function
  - Alarm function can be set to day of week, day, hour, or minute.
  - It is recorded automatically to AF-bit at the time of event occurs, and possible to output with /IRQ pin output.
- User RAM
  - 128 bit (8 bit x 16, SRAM)

### Terminal connection / External dimensions

(Unit:mm)



The metal case inside of the molding compound may be exposed on the top or bottom of this product. This purely cosmetic and does not have any effect on quality, reliability or electrical specs.

#### \*Stop using the glue

Any glue must never use it after soldering LC-package to a circuit board. This product has glass on the back side of a package. When glue invasions between circuit board side and glass side, then glass cracks by thermal expansion of glue. In this case a crystal oscillation stops. Consider glue abolition or glue do not touch to LC-package

### Specifications (characteristics)

\* Refer to application manual for details.

#### Recommended Operating Conditions

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power voltage	VDD	—	1.6	3.0	5.5	V
Clock voltage	VCLK	—	1.3	3.0	5.5	V
Operating temperature	T <sub>OPR</sub>	—	-40	+25	+85	°C

#### Frequency characteristics

Item	Symbol	Conditions	Rating	Unit
Frequency tolerance	$\Delta f / f$	T <sub>a</sub> = +25 °C VDD = 3.0 V	B: 5 ± 23 *	× 10 <sup>-6</sup>
Oscillation start up time	t <sub>STA</sub>	T <sub>a</sub> = +25 °C VDD = 1.6 V	1 Max.	s

\* Please ask for tighter tolerance. ( Equivalent to 1 minute of monthly deviation )

#### Current consumption characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Current Consumption	I <sub>DD</sub>	FOE=/BM="L" FOUT= OFF /IRQ = OFF VDD = 3.0V T <sub>a</sub> = +25 °C	LC type	-	220	400	nA
		SA/NB type	-	200	400		
		FOE=/BM="L" FOUT= OFF /IRQ = OFF VDD = 3.0V T <sub>a</sub> = -40 °C to +85 °C	-	-	550	nA	



## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.





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In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

### ► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc ).

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