

## 阅读申明

- 1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
- 2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
- 3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描述上的差异，建议读者做出适当判断。
- 4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

## Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.
2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.
3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.
4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets" .

**REAL TIME CLOCK MODULE (I<sup>2</sup>C-Bus)**  
**Built-in 32.768 kHz-DTCXO, High Stability**  
**and Power Switching**

**RX 8900 SA / CE** **NEW**

- Built in frequency adjusted 32.768 kHz crystal unit and DTCXO.
- Interface Type : I<sup>2</sup>C-Bus interface (400kHz)
- Interface voltage range : 2.5 V to 5.5 V
- Temp. compensated voltage range : 2.0 V to 5.5 V
- Clock supply voltage range : 1.6 V to 5.5 V
- Selectable clock output (32.768 kHz, 1024 Hz, 1 Hz)
- The various functions include full calendar, alarm, timer, temp. sensor function.
- Epson prepared Linux driver for development.  
[http://www5.epsondevice.com/en/quartz/tech/linux\\_for\\_rtc/index.html](http://www5.epsondevice.com/en/quartz/tech/linux_for_rtc/index.html)
- The registered trademark Linux® is used pursuant to a sublicense from LMI (Linux Mark Institute)
- The I<sup>2</sup>C-Bus is a trademark of NXP Semiconductors.



Product Number (Please contact us)  
 RX8900SA: X1B000292xxxx00  
 RX8900CE: X1B000301xxxx00

CE



RX8900SA  
 (10.1 × 7.4 × 3.3 mm)



RX8900CE  
 (3.2 × 2.5 × 1.0 mm)

Actual size

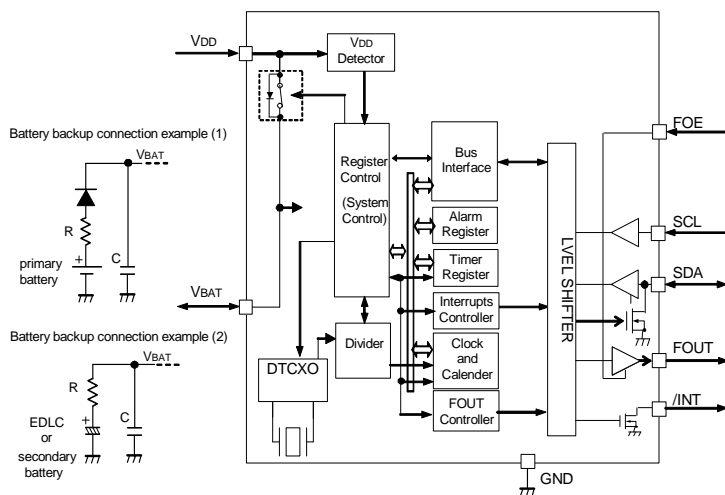
RX8900SA



RX8900CE



**Block diagram**



**Overview**

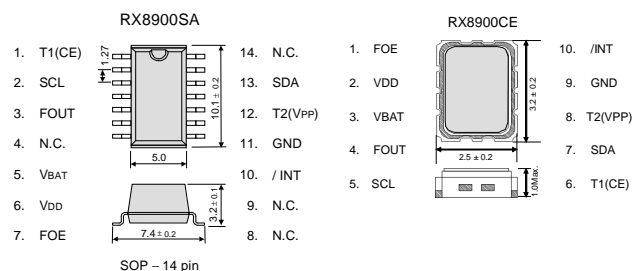
- **High Stability**
  - UA ± 3.4 × 10<sup>-6</sup> / -40 °C to +85 °C (Equivalent to 9 seconds of month deviation)
  - UB ± 5.0 × 10<sup>-6</sup> / -40 °C to +85 °C (Equivalent to 13 seconds of month deviation)
  - UC ± 5.0 × 10<sup>-6</sup> / -30 °C to +70 °C (Equivalent to 13 seconds of month deviation)
- **32.768 kHz frequency output function**
  - FOUT pin output (C-MOS output), CL=30 pF
  - Output selectable: 32.768 kHz, 1024 Hz, 1 Hz
- **Available automatic battery backup switch-over function**
  - Charge from VDD to backup battery connected to VBAT is possible. VDD voltage drop (VDET3) detection and automatically switches to the backup battery. This circuit is optimal to backup with a secondary battery and a large capacitor.
- **Timer function**
  - Timer period is adjustable in 1/4096 second from 4095 minutes.
- **Alarm function**
  - Available dual-alarm, weekly and monthly.
- **Temp. sensor function**
  - Available readout temperature data from embedded temp sensor. (Bank\_2\_Add17h)

**Pin Function**

Signal Name	I / O	Function
T1(CE)	input	Use by the manufacture for testing. (Do not connect externally.)
SCL	input	Serial clock input pin.
FOUT	Output	The pin outputs the reference clock signal. (CMOS output)
VBAT	-	Battery supply. This pin has charge capability to backup battery.
VDD	-	Connected to a positive power supply
FOE	input	The input pin for the FOUT output control.
/INT	Output	Interrupt output (N-ch. open drain).
GND	-	Connected to a ground
T2(VPP)	-	Use by the manufacture for testing. (Do not connect externally.)
SDA	I/O	Data input and output pin.

**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.

**Specifications (characteristics)**

\* Refer to application manual for details.

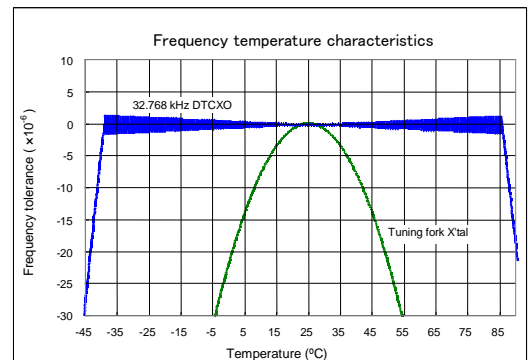
■ Electrical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating voltage	V <sub>DD</sub>	Interface voltage	2.5	3.0	5.5	V
Temp. compensated Voltage	V <sub>TEM</sub>	Temp. compensated voltage	2.0	3.0	5.5	V
Clock supply voltage	V <sub>CLK</sub>	Internal clock	1.6	3.0	5.5	V
Operating temperature	T <sub>OPR</sub>	No condensation	-40	+25	+85 <sup>*1</sup>	°C
Stability	Δf/f	UA	Ta = -40 °C to +85 °C		±3.4 <sup>*2</sup>	× 10 <sup>-6</sup>
		UB	Ta = -40 °C to +85 °C		±5.0 <sup>*3</sup>	
		UC	Ta = -30 °C to +70 °C			
Current consumption (1)	I <sub>DD1</sub>	fSCL=0Hz, /INT=V <sub>DD</sub> , FOE=GND, V <sub>DD</sub> =V <sub>BAT</sub>	-	0.72	1.5	μA
Current consumption (2)	I <sub>DD2</sub>	FOUT: OFF, Temp. Compensation interval 2.0 s.	-	0.70	1.4	

\*1) Please contact us about +85 °C < T<sub>OPR</sub>

\*2) Equivalent to 9 seconds of month deviation. \*3) Equivalent to 13 seconds of month deviation.

■ 32.768 kHz-DTCXO Frequency temperature characteristics (Example)



## 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.





## WORKING FOR HIGH QUALITY

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.)

## Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.  
/ Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.