

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

Build in backup battery charge control function

## RX8130CE

- Built in frequency adjusted 32.768 kHz crystal unit
- Interface Type : I<sup>2</sup>C -Bus
- Interface voltage range : 1.6 V ~ 5.5 V
- Wide voltage for timekeeping : 1.1 V ~ 5.5 V
- Low backup current : 300 nA (Typ.) / 3 V
- Auto power switching function : Switchover by main power supply monitor.
- Backup battery charge control function : For the rechargeable lithium batteries.
- Reset functions with a delay : Detect a main power supply and remove the reset.
- The various function include full calendar, alarm, timer, etc.

The I<sup>2</sup>C-Bus is a trademark of NXP Semiconductors.

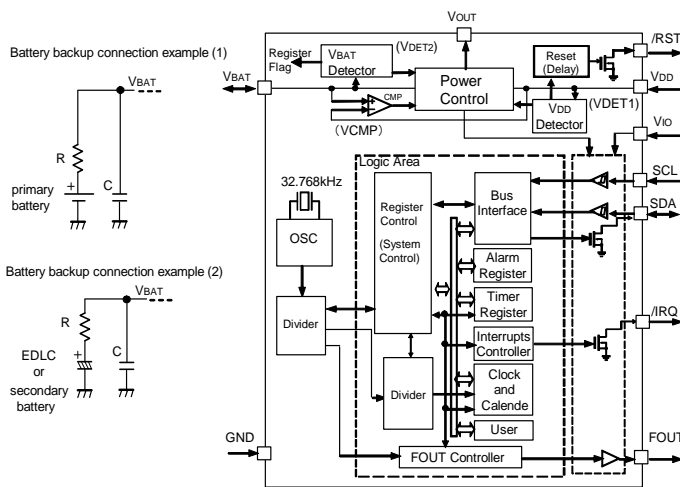


Product Number (Please contact us)  
RX8130CE : X1B000311000100



Actual size

### Block diagram



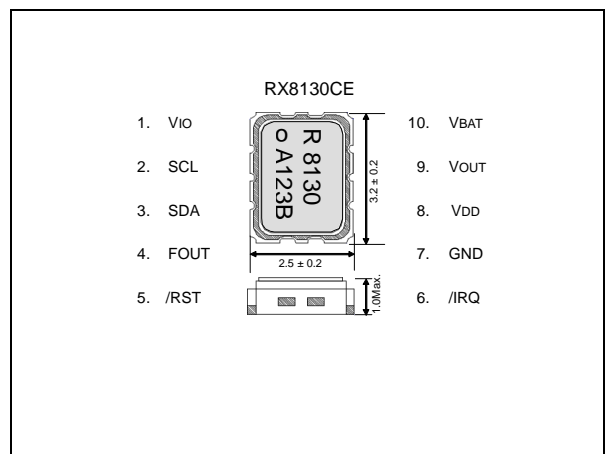
### Overview

- I<sup>2</sup>C-Bus interface.
- Auto power switching function
  - The VDD voltage is monitored and it switches to the backup power supply by the automatic operation.
  - The switch voltage to the backup power supply, 1.25V (Min.)
  - Even if the main power supply voltage is decreased, the current flow from the backup power supply is prevented.
- Charge control function for the rechargeable lithium batteries.
  - Stop charging automatically by detecting the full charge.
  - Records in the register detecting the backup power supply voltage decrease.
- Reset function with a delay
  - When the main power is supplied, reset output is released.
  - The release voltage is selected by the register. (2.80V / 2.75V)
  - Delay time from the voltage rise detection is 60ms Typ.
- Frequency output function
  - Output frequency is selectable from 32.768kHz, 1024Hz, 1Hz.
- Timer function
  - Selectable in 1/4096 second from 65535 hours.
  - Timer source clock are 1hour, 1min, 64Hz, 4096Hz.
  - It is automatically recorded to TF-bit at the time of event occurrence, and possible to output with /IRQ pin.

### Pin Functin

Signal Name	I / O	Function
SCL	Input	Serial clock input pin.
SDA	Input / Output	Data input and output pin.
FOUT	Output	Frequency output pin with output control function. (C-MOS) Output frequency can be selected as 32.768kHz, 1024Hz, 1Hz.
/RST	Output	Reset output pin.(N-ch open drain) In case of VDD voltage drop detection, a reset signal is outputted. In case of VDD voltage rise detection, it is released reset signal after 60ms.
/IRQ	Output	Interrupts output by Alarm and Timer events.(N-ch open drain)
VDD	-	This is a power-supply pin. It can impress the voltage unlike VIO.
VIO	-	This is a interface power supply pin. This is a pin to supply the voltage same as a host.
VOUT	-	Internal voltage output pin. Connect smoothing capacitor of 1.0μF
VBAT	-	This is a power supply pin for backup battery. This is a pin to connect a large-capacity capacitor, a secondary battery, a primary battery. In a backup power supply operating range, the voltage is supplied inside by this pin.
GND	-	Connected to a ground.

### Terminal connection / External dimensions (Unit:mm)



### Specifications (characteristics)

\* Refer to application manual for details.

#### Recommended Operating Conditions

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating supply voltage	VDD	-	1.25	3.0	5.5	V
Clock supply voltage	VCLK	-	1.1	3.0	5.5	V
Operating temperature	TOPR	-	-40	+25	+85	°C
VDD detect voltage	-VDET2	VDD, Fall	1.20	1.30	1.40	V

#### Frequency characteristics

Item	Symbol	Condition	Rating	Unit
Frequency tolerance	Δ f / f	Ta = +25 °C VDD = 3.0 V	B : 5 ± 23'	× 10 <sup>-6</sup>
Oscillation start-up time	tSTA	VDD = 2.75 V ~ 5.5 V	1 Max.	s

\* Equivalent to ±1 minute of monthly deviation (excluding offset.)

#### Current consumption characteristics

Ta = -40 °C ~ +85 °C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Current consumption	IBK	SCL=SDA = "L", VBAT=3.0V, VDD=VIO=0.0V	-	300	500	nA
	I32k	SCL=SDA = "H", FOUT=32.768kHz, /IRQ=OFF, VDD=VIO=3.0V, FOUT pin CL=15pF CHGEN=L or VBAT ≥ VDET3	-	3.5	4.0	μA

## 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 data, circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of customer damage or 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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Epson:

[RX8130CE B3](#) [RX8130CE B0](#) [RX8130CE B6](#) [RX8130CE BX](#)



## Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331