REAL TIME CLOCK MODULE (I²C-Bus)

Built-in backup battery charge control function

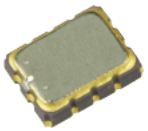
Pb Free
RoHS Compliant

Product Number (2,000 pcs / Reel)
RX8130CE: X1B000311000100

RX8130CE

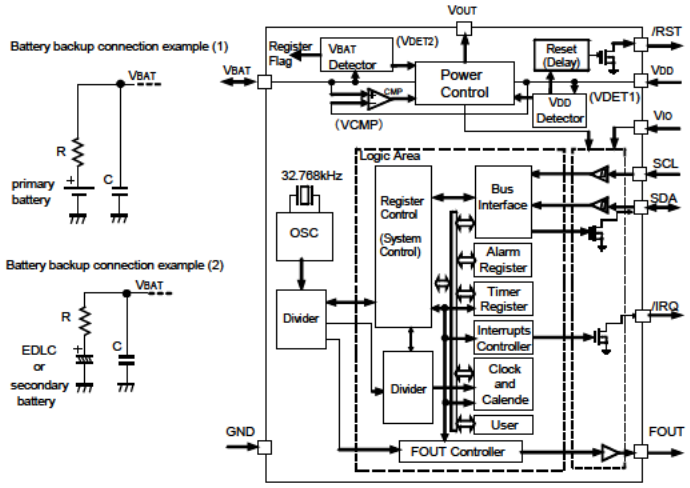
- Built-in frequency adjusted 32.768 kHz crystal unit
- Interface Type : I²C-Bus
- Low backup current : 300 nA Typ. / 3 V
- Auto power switching function : Automatically switches to backup power supply by monitoring the VDD voltage
- Backup battery charge control func ion : For the rechargeable battery
- Reset functions with a delay : Detect a main power supply and remove the reset
- Interrupt output : Wake up every minute or every second
- Alarm interruption : Day, date, hour, minute, second
- Auto repeat wakeup timer interruption
- Self-monitoring interruption : Crystal oscillation stop, VBAT low, VDD low

The I²C-Bus is a trademark of NXP Semiconductors



RX8130CE
(3.2 x 2.5 mm, t = 1.0 mm Max.)

Block diagram



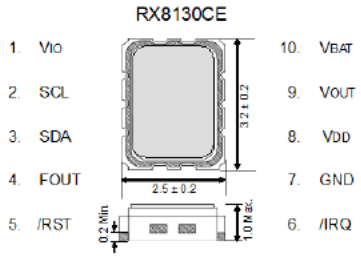
Overview

- Interface type
  I²C-Bus interface Fast-Mode 400 kHz
- Auto power switch function
  The VDD voltage is monitored and it switches to the backup power supply by the automatic operation
  Backup power supply switching voltage 1.2V Min.
- Clock output function
  Output frequency is selectable from 32.768 kHz, 1024 Hz, 1 Hz
- Wakeup timer function
  Selectable from 244 µs to 7.5 years (16 bit x 1 ch.)
  Timer source clock selectable from 1/3600 Hz, 1/60 Hz, 1 Hz, 64 Hz, 4096 Hz. Auto release after interrupt output from /IRQ pin at timer completes
  This operation is auto repeat with a selected cycle, it can be used like a watchdog timer
- Backup battery charge control function
  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 reset/release voltage is selected by the register (2 types)
  Delay time of release from backup mode is 60ms Min.

Pin Functin

Signal Name	I / O	Function
SCL	Input	Serial clock input pin
SDA	Input / Output	Serial data input and output pin
FOUT	Output	Frequency output pin (CMOS) (frequency selection: 32.768 kHz, 1024 Hz, 1 Hz)
/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, a released reset signal is outputted
/IRQ	Output	Interrupts output by Alarm and Timer events (N-ch. open drain)
VDD	–	Power-supply pin Possible to supply different voltage from VIO
VIO	–	Interface power supply pin Input to supply the voltage same as a host
VOUT	–	Internal voltage output pin Connect bypass capacitor of 1 0 µF
VBAT	–	This is a power supply pin for backup battery Connect an EDLC, a secondary battery, a primary battery In the backup voltage range, supplied to IC, from this pin
GND	–	Ground pin

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
Opera ing temperature	Ta	–	-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	x 10⁻⁶
Oscillation start-up time	tSTA	VDD = 2.75 V to 5.5 V	1 Max.	s

■ Current consumption characteristics Ta = -40 °C to +85 °C

tem	Symbol	Conditions	Min.	Typ.	Max.	Unit
Current consumption	IBAT	SCL = SDA = "L", VBAT = 3.0 V, VDD = VIO = 0.0 V	-	300	500	nA
	I32k	SCL = SDA = "H", FOUT = 32.768 kHz, / RQ=OFF, VDD = VIO = 3 0 V, FOUT pin CL = 15 pF, 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 IATF 16949 certification that is requested strongly by major automotive manufacturers as standard.

IATF 16949 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).

Mouser Electronics

Authorized Distributor

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

Epson:

RX8130CE B3 RX8130CE B6 RX8130CE BX RX8130CE:BB