REAL TIME CLOCK MODULE (I²C-Bus)

Built-in 32.768 kHz-DTCXO, High Stability

RX-8803SA / LC

- Built in frequency adjusted 32.768 kHz crystal unit and DTCXO.
- 1/100s resolution Time register
- Interface Type : I²C-Bus interface (400kHz)
- Interface voltage range : 1.6 V to 5.5 V
- Temp. compensated voltage range : 2.2 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, EVIN input.

.Epson prepared Linux driver for development.
(http://www5.epsondevice.com/en/information/support/linux_rtc/)

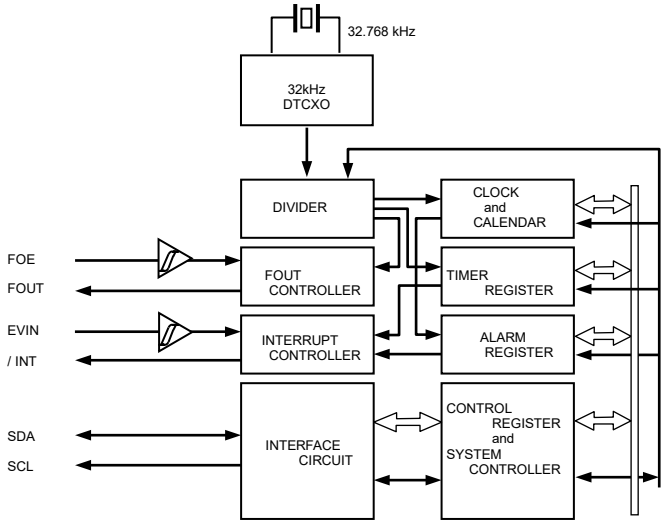
Product Number

RX-8803SA UB : X1B000151000100
RX-8803SA UA : X1B000151000200
RX-8803SA UC : X1B000151000300
RX-8803SA AA : X1B000151000400
RX-8803LC UA : X1B000142000100
RX-8803LC UB : X1B000142000200
RX-8803LC UC : X1B000142000300
RX-8803LC AA : X1B000142000400

RX-8803SA

RX-8803LC

Block diagram



Overview

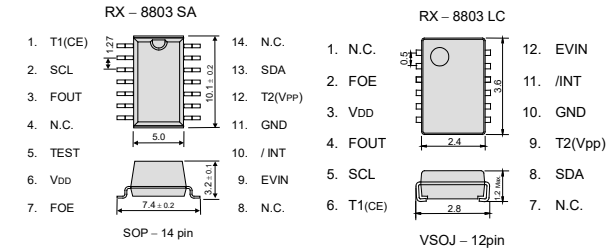
- **High Stability**
  - UA ± 3.4 x 10^{-6} / -40 °C to +85 °C
    (Equivalent to ±9 seconds of month deviation)
  - UB ± 5.0 x 10^{-6} / -40 °C to +85 °C
    (Equivalent to ±13 seconds of month deviation)
  - UC ± 5.0 x 10^{-6} / -30 °C to +70 °C
  - AA (+5 ± 5.0) x 10^{-6} / +25 °C
- **High Resolution:** 1/100s Time register with capture buffer
- **32.768 kHz frequency output function**
  - FOUT pin output (C-MOS output), CL=30 pF
  - Output selectable: 32.768 kHz, 1024 Hz, 1 Hz
- **The various interrupt**
  - Timer Function can be set between 1/ 4096 second and 4095 minutes.
  - Alarm Function can be set to day of week, day, hour, or minute.
  - EVIN input.
- **Time synchronize function with 1PPS signal input**
- **Register compatibility:** upper compatible with RX-8801.

*It is possible to use it by the terminal connection as 32.768 kHz-DTCXO.

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)
TEST	input	Use by the manufacture for testing. (Do not connect externally. RX-8803SA only.)
VDD	-	Connected to a positive power supply
FOE	input	The input pin for the FOUT output control.
EVIN	input	External event input.
/ 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.

***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)

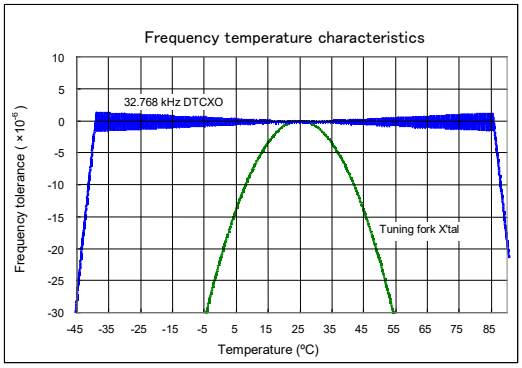
* Refer to application manual for details.

■ Electrical Characteristics

Item	Symbol	Conditions		Min.	Typ.	Max.	Unit
Operating voltage	VDD	Interface voltage		1.6	3.0	5.5	V
Temp. compensated Voltage	VTEM	Temp. compensated voltage		2.2	3.0	5.5	V
Clock supply voltage	VCLK	-		1.6	3.0	5.5	V
Operating temperature	TOPR	-		-40	+25	+85	°C
Stability	Δ f / f	UA	Ta = -40 °C to +85 °C	±3.4 *1			× 10^{-6}
		UB	Ta = -40 °C to +85 °C	±5.0 *2			
		UC	Ta = -30 °C to +70 °C				
		AA	Ta = +25 °C	5 ±5.0 *3			
Current consumption (1)	IDD1	Backup Mode FOE = GND, /INT = VDD FOUT output : OFF	VDD = 5V	-	0.75	3.4	µA
Current consumption (2)	IDD2		VDD = 3V	-	0.75	2.1	

*1) Equivalent to ±9 seconds of month deviation. *2) Equivalent to ±13 seconds of month deviation.
*3) Equivalent to ±13 seconds of month deviation. (excluding offset)

■ 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 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).