REAL TIME CLOCK MODULE (SPI-Bus)
LOW BACKUP VOLTAGE

RX - 4571 LC / NB / SA

- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : 3-wire serial interface
- Operating voltage range : 1.6 V to 5.5 V
- The wide voltage for time keeping. : 1.0 V to 5.5 V / Ta = +25 °C
- Low backup current : 0.32 μA (Typ.) / 3 V
- 32.768 kHz frequency output function : C-MOS output With OE pin.
- Real-time clock function
  Clock/calendar function, auto leap year correction function,
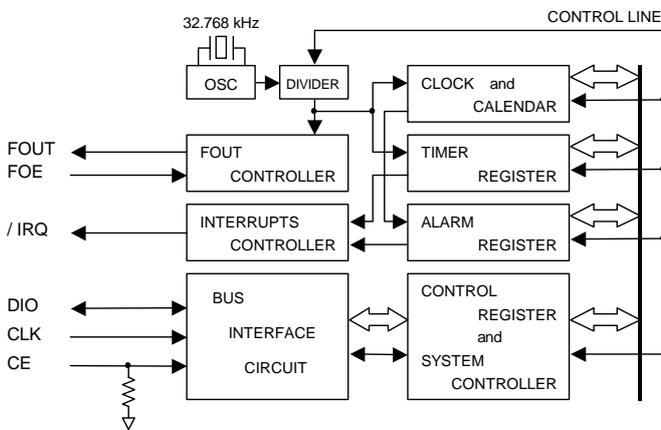 Alarm and Timer interrupt function, etc.

RoHS Compliant

Product Number (Please contact us)
RX-4571LC : Q414571C2000100
RX-4571NB : Q41457192000100
RX-4571SA : Q41457152000100

E 4571 A123B

R 4571 E 1234A

R 4571 E 1234A

Actual size

RX-4571LC	RX-4571NB	RX-4571SA
E 4571 A123B	R 4571 E1234A	R 4571 E 1234A

Block diagram

Overview

- **32.768 kHz frequency output function**
  - FOUT pin output (C-MOS output) , CL=30 pF
- **Timer function**
  - Timer function which can be set up between 1/4096 second and 4095 minutes.
- **Alarm function**
  - Alarm function can be set to any combination of day, day of week, hour, or minute.
- **Pin Function**

Signal Name	Input / Output	Function
CE	Input	The chip enabled input pin 0. (It has a built -in pull-down resistance)
CLK	Input	The shift clock input pin for serial data transfer.
DIO	Bi-directional	The data input / output pin for serial data transfer.
FOUT	Output	32.768 kHz clock output pin with the output control function. (C-MOS)
FOE	Input	FOE pin control the condition of FOUT with FSEL1-bit, FSEL0-bit, etc.
/IRQ	Output	Interrupt output (N-ch open drain)
VDD	—	Connected to a positive power supply.
GND	—	Connected to a ground.

Terminal connection / External dimensions

(Unit:mm)

RX – 4571 LC

1. FOE	12. VDD
2. N.C.	11. N.C.
3. DIO	10. N.C.
4. CLK	9. N.C.
5. CE	8. /IRQ
6. GND	7. FOUT

VSOJ – 12pin

RX – 4571 NB

1. FOE	22. N.C.
2. DIO	21. N.C.
3. (GND)	20. N.C.
4. CLK	19. N.C.
5. CE	18. N.C.
6. GND	17. N.C.
7. N.C.	16. N.C.
8. N.C.	15. N.C.
9. FOUT	14. N.C.
10. /IRQ	13. –
11. VDD	12. –

SON – 22 pin

RX – 4571 SA

1. GND	14. FOUT
2. N.C.	13. N.C.
3. CE	12. N.C.
4. CLK	11. N.C.
5. DIO	10. / IRQ
6. N.C.	9. N.C.
7. FOE	8. VDD

SOP - 14 pin

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	Ta = +25 °C	1.0	3.0	5.5	V
		Ta = -40 to +85 °C	1.1	3.0	5.5	V
Operating temperature	TOPR	–	-40	+25	+85	°C

■ Frequency characteristics

Item	Symbol	Conditions	Rating	Unit
Frequency tolerance	$\Delta f / f$	Ta = +25 °C VDD = 3.0 V	B: 5 ± 23 ∗	× 10 $^{-6}$
Oscillation start-up time	tSTA	Ta = +25 °C VDD = 1.6 V	1 Max.	s

∗ Please ask for tighter tolerance. (Equivalent to ±1 minute of monthly deviation)

■ Current consumption characteristics

Ta = -40 °C to +85 °C

Symbol	Conditions		Min.	Typ.	Max.	Unit
IBK	CE = GND /IRQ = OFF	VDD = 5 V	-	0.40	1.00	μA
	FOUT ; output OFF (Hi - z)	VDD = 3 V	-	0.32	0.95	
I32k	CE = GND /IRQ = OFF	VDD = 5 V	-	8.0	14.0	μA
	FOUT ; 32.768 kHz output ON CL = 30 pF	VDD = 3 V	-	5.0	8.5	

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	►Pb free.

RoHS Compliant	►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.)

For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

Notice