

**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 / T<sub>a</sub> = +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.



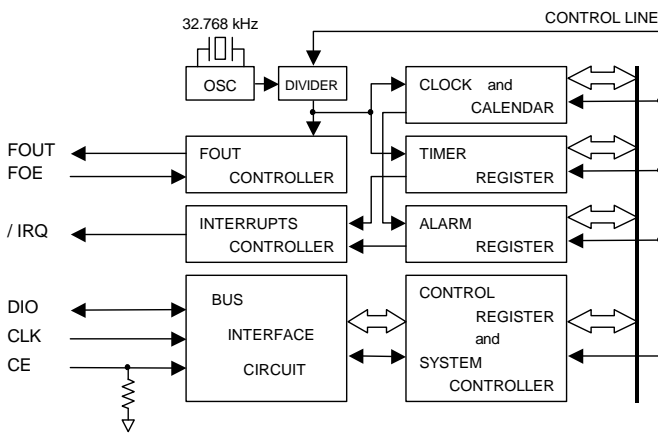
Product Number (Please contact us)  
**RX-4571LC : Q414571C2000100**  
**RX-4571NB : Q41457192000100**  
**RX-4571SA : Q41457152000100**



Actual size



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

VSOJ - 12pin

**RX - 4571 NB**

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

SON - 22 pin

**RX - 4571 SA**

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

SOP - 14 pin

**\*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	T <sub>a</sub> = +25 °C	1.0	3.0	5.5	V
		T <sub>a</sub> = -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	Δf/f	T <sub>a</sub> = +25 °C VDD = 3.0 V	B: 5 ± 23 *	× 10 <sup>-6</sup>
Oscillation start-up time	t <sub>STA</sub>	T <sub>a</sub> = +25 °C VDD = 1.6 V	1 Max.	s

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

**Current consumption characteristics**

T<sub>a</sub> = -40 °C to +85 °C

Symbol	Conditions	Min.	Typ.	Max.	Unit	
I <sub>BK</sub>	CE = GND /IRQ = OFF FOUT ; output OFF ( Hi - z )	VDD = 5 V	-	0.40	1.00	μA
		VDD = 3 V	-	0.32	0.95	
I <sub>32k</sub>	CE = GND /IRQ = OFF FOUT ; 32.768 kHz output ON CL = 30 pF	VDD = 5 V	-	8.0	14.0	μA
		VDD = 3 V	-	5.0	8.5	

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