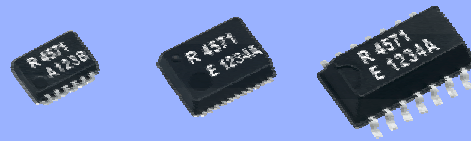




LOW BACKUP VOLTAGE SERIAL-INTERFACE REAL TIME CLOCK MODULE RX-4571 LC/NB/SA



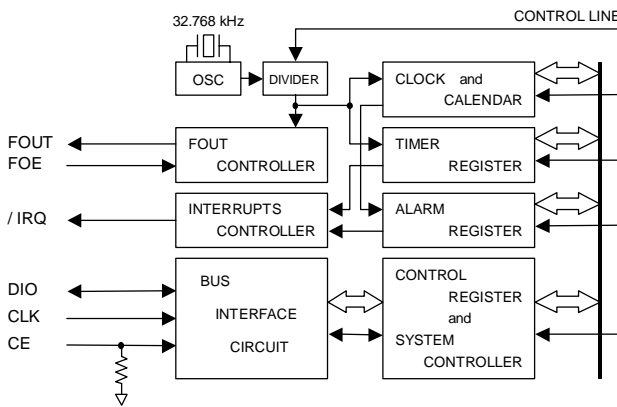
- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : 3-wire serial interface
- Operating voltage range : 1.6 V to 5.5 V
- Wide Timekeeper voltage range : 1.0 V to 5.5 V / T_a = +25 °C
- Low backup current : 0.32 μA (Typ.) / 3 V
- 32.768 kHz frequency output function : C-MOS output With Control Pin
- Real-time clock function
Clock/calendar function, auto leap year correction function, alarm interrupt function, etc.



Actual size



Block diagram



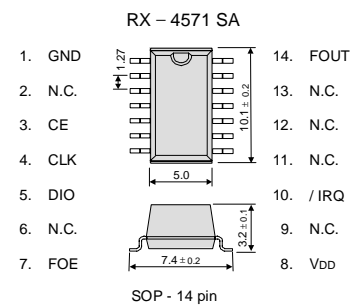
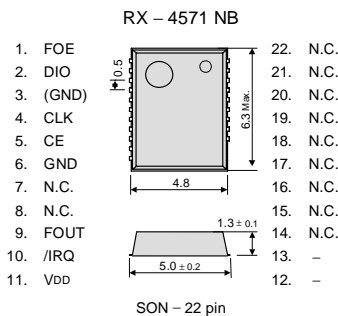
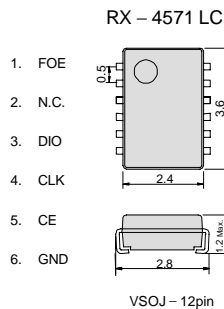
Overview

- **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)
V _{DD}	—	Connected to a positive power supply.
GND	—	Connected to a ground.

Terminal connection / External dimensions

(Unit:mm)



Metal may be exposed on the top or bottom of this product. This will not affect any quality, reliability or electrical spec.

Specifications (characteristics)

* Refer to application manual for details.

Recommended Operating Conditions

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power voltage	V _{DD}	—	1.6	3.0	5.5	V
Clock voltage	V _{CLK}	T _a = +25 °C	1.0	3.0	5.5	V
		T _a = -40 to +85 °C	1.1	3.0	5.5	V
Operating temperature	TOPR	—	-40	+25	+85	°C

Frequency characteristics

Item	Symbol	Condition	Rating	Unit
Frequency tolerance	Δf/f	T _a = +25 °C V _{DD} = 3.0 V	5 ± 23 *	× 10 ⁻⁶
Oscillation start-up time	t _{STA}	T _a = +25 °C V _{DD} = 1.6 V	1 Max.	s

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

Current consumption characteristics

T_a = -40 °C to +85 °C

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