



# REAL TIME CLOCK MODULE (I<sup>2</sup>C-Bus)

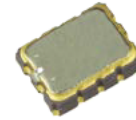
Built-in 32.768 kHz DTCXO, High Stability



Product Number (2,000 pcs / Reel)  
 RX8804CE XA: X1B000371000100  
 RX8804CE XB: X1B000371000200

## RX8804CE

- Built-in frequency adjusted 32.768 kHz crystal unit and DTCXO
- Interface Type : I<sup>2</sup>C-Bus
- Selectable clock output : 32.768 kHz, 1024 Hz, 1 Hz
- Time stamp function : 1 time stamped from year to second
- Interrupt output : Wake up every minute or every second
- Alarm interruption : Day, date, hour, minute
- Auto repeat wakeup timer interruption
- Self-monitoring interruption : Crystal oscillation stop, V<sub>BAT</sub> low, V<sub>DD</sub> low
- SOUT pin outputs that selected flag bit value

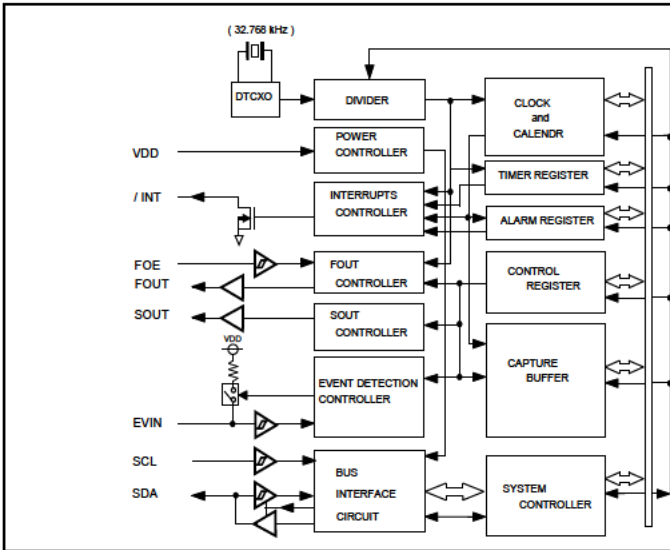


RX8804CE  
 ( 3.2 × 2.5 mm, t = 1.0 mm Max. )

The I<sup>2</sup>C-Bus is a trademark of NXP Semiconductors

### Block diagram

### Overview



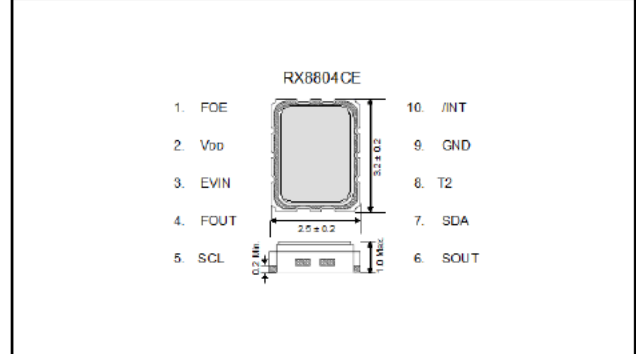
- Interface type  
I<sup>2</sup>C-Bus interface Fast-Mode 400 kHz
- High stability  
XA: ± 3.4 × 10<sup>-6</sup> / -40 °C to +85 °C (equivalent to ±9 s of mo. deviation)  
± 8.0 × 10<sup>-6</sup> / +85 °C to +105 °C (equivalent to ±21 s of mo. deviation)  
XB: ± 5.0 × 10<sup>-6</sup> / -40 °C to +85 °C (equivalent to ±13 s of mo. deviation)  
± 8.0 × 10<sup>-6</sup> / +85 °C to +105 °C (equivalent to ±21 s of mo. deviation)
- Clock output function  
Output frequency is selectable from 32.768 kHz, 1024 Hz, 1 Hz
- Wakeup timer function  
Selectable from 244 μs to 32 years (24 bit x 1 ch.)  
Timer source clock selectable from 1/60 Hz, 1 Hz, 64 Hz, 4096 Hz  
Auto release after interrupt output from /INT pin at timer completes  
This operation is auto repeat with a selected cycle, it can be used like a watchdog timer
- Time stamp function  
1 time stamped from year to second  
The time stamp trigger inputs from EVIN pin, self-monitoring and I<sup>2</sup>C software command  
EVIN pin has function of chattering-cancel
- Alarm function  
It is possible program from day to minute
- Internal state output function  
SOUT pin outputs selected flag-bit value or specified value (H or L)

### Pin Function

### Terminal connection / External dimensions

(Unit: mm)

Signal Name	I / O	Function
SOUT	Output	Internal state output pin
SCL	Input	Serial clock input pin
FOUT	Output	Frequency output pin (CMOS) (frequency selection: 32.768 kHz, 1024 Hz, 1 Hz)
EVIN	Input	Event input pin
V <sub>DD</sub>	-	Power-supply pin
FOE	Input	The FOUT output control pin
/INT	Output	Interrupts output by Alarm and Timer events (N-ch. open drain)
GND	-	Ground pin
T2	-	Test pin in the factory (Do not connect externally)
SDA	Input / Output	Serial data input and output pin.



### Specifications (characteristics)

\* Refer to application manual for details

#### Electrical Characteristics

tem	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Operating voltage	V <sub>DD</sub>	-	1.6	3.0	5.5	V	
Temp. compensated Voltage	V <sub>TEM</sub>	-	1.5	3.0	5.5	V	
Clock supply voltage	V <sub>CLK</sub>	-	1.5	3.0	5.5	V	
Operating temperature	T <sub>a</sub>	-	-40	+25	+105	°C	
Stability	Δf/f	XA	T <sub>a</sub> = -40 °C to +85 °C	±3.4		x 10 <sup>-6</sup>	
			T <sub>a</sub> = +85 °C to +105 °C	±8.0			
		XB	T <sub>a</sub> = -40 °C to +85 °C	±5.0			
			T <sub>a</sub> = +85 °C to +105 °C	±8.0			
Current consumption (1)	I <sub>DD1</sub>	fSCL = 0 Hz, /INT = V <sub>DD</sub> , FOE = GND, FOUT: OFF, Temp. Compensation interval 2.0 s	V <sub>DD</sub> = 5 V	-	0.4	1.6	μA
Current consumption (2)	I <sub>DD2</sub>		V <sub>DD</sub> = 3 V	-	0.35	1.5	μA

#### 32.768 kHz DTCXO Frequency temperature characteristics (Example)

