REAL TIME CLOCK MODULE (I²C-Bus)

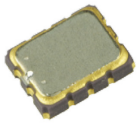
Built-in 32.768 kHz DTCXO, High Stability

Pb Free
RoHS Compliant

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

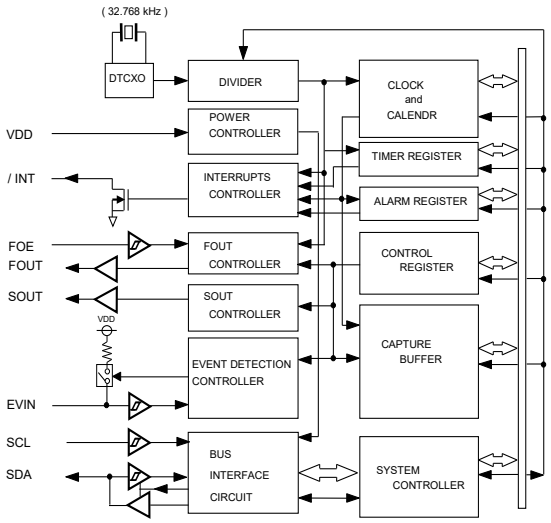
RX8804CE

- Built-in frequency adjusted 32.768 kHz crystal unit and DTCXO
- Interface Type : I²C-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_{BAT} low, V_{DD} low
- SOUT pin outputs that selected flag bit value



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

Block diagram



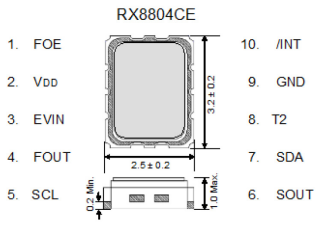
Overview

- Interface type
  I²C-Bus interface Fast-Mode 400 kHz
- High stability
  XA: ± 3.4 x 10^{-6} / -40 ºC to +85 ºC (equivalent to ±9 s of mo. deviation)
  ± 8.0 x 10^{-6} / +85 ºC to +105 ºC (equivalent to ±21 s of mo. deviation)
  XB: ± 5.0 x 10^{-6} / -40 ºC to +85 ºC (equivalent to ±13 s of mo. deviation)
  ± 8.0 x 10^{-6} / +85 ºC to +105 ºC (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 I²C 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

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
VDD	-	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.

Terminal connection / External dimensions (Unit: mm)



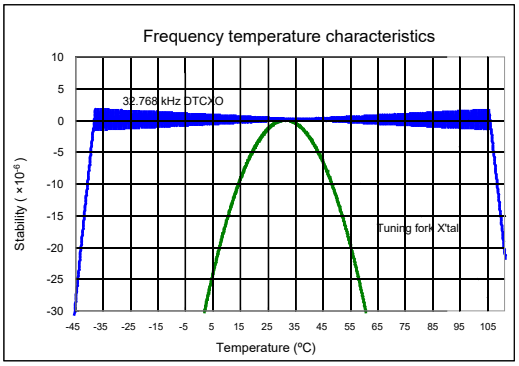
Specifications (characteristics)

∗ Refer to application manual for details

■ Electrical Characteristics

Item	Symbol	Conditions		Min.	Typ.	Max.	Unit
Operating voltage	VDD	-		1.6	3.0	5.5	V
Temp. compensated Voltage	VTEM	-		1.5	3.0	5.5	V
Clock supply voltage	VCLK	-		1.5	3.0	5.5	V
Operating temperature	Ta	-		-40	+25	+105	ºC
Stability	Δ f / f	XA	Ta = -40 ºC to +85 ºC		±3.4		x 10^{-6}
			Ta = +85 ºC to +105 ºC		±8.0		
		XB	Ta = -40 ºC to +85 ºC		±5.0		
			Ta = +85 ºC to +105 ºC		±8.0		
Current consumption (1)	IDD1	fSCL = 0 Hz, /INT = VDD, FOE = GND, FOUT: OFF, Temp. Compensation interval 2.0 s	VDD = 5 V	-	0.4	1.6	µA
Current consumption (2)	IDD2		VDD = 3 V	-	0.35	1.5	

■ 32.768 kHz DTCXO Frequency temperature characteristics (Example)



►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 general equipment.
	►Designed for automotive applications related to driving and safety.

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