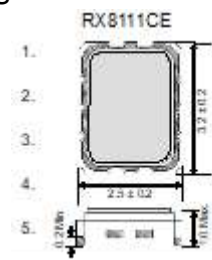


Time stamp function and Low current consumption

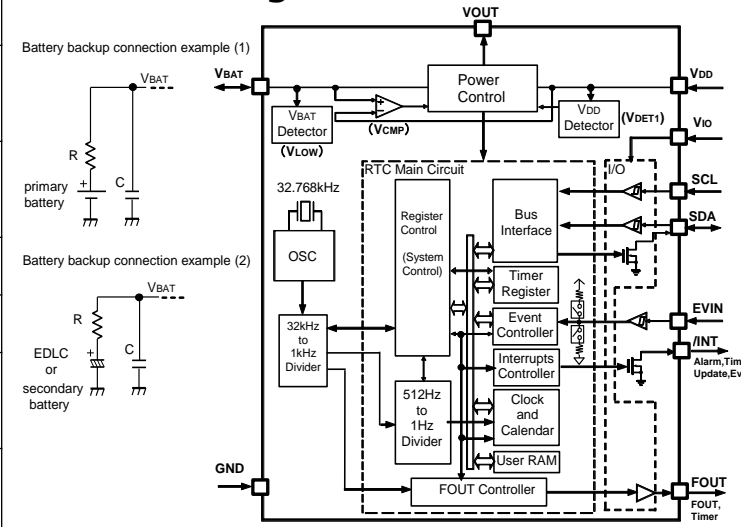
- Built in frequency adjusted 32.768 kHz crystal unit
- Interface Type : I²C-Bus
- Low backup current : **100 nA Typ.** / 3 V
- Auto power switching function : Automatically switches to backup power supply by monitoring the V_{DD} voltage
- Time stamp function : **8 times stamped** from year to 1/256 seconds
- Interrupt output : Wake up every minute or every second
- Alarm interruption : Day, date, hour, minute, second
- Auto repeat wakeup timer interruption (24 bit x 1 ch.)
- Self-monitoring interruption : Crystal oscillation stop, V_{BAT} low, V_{DD} low



Pin	Connection
1	VDD
2	VOUT
3	VBAT
4	FOUT
5	SCL
6	EVIN
7	SDA
8	VIO
9	GND
10	/INT

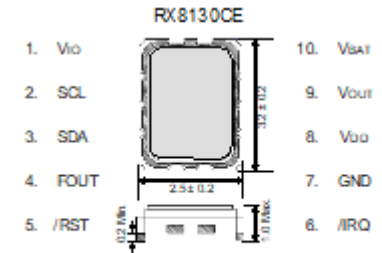
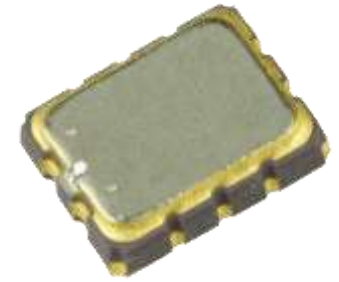
Item	Symbol	Specs				
Operating Conditions	Operating supply voltage	V _{DD} 1.6 V to 5.5 V				
	Operating temperature	T _a -40 °C to +85 °C				
	V _{DD} detect voltage	-V _{DET1} 1.2 V to 1.6 V (V _{DD} , Fall)				
Characteristics	Frequency tolerance	<table border="1"> <tr> <td>A</td> <td>±11.5 × 10⁻⁶ (+25 °C)</td> </tr> <tr> <td>B</td> <td>±23 × 10⁻⁶ (+25 °C)</td> </tr> </table>	A	±11.5 × 10 ⁻⁶ (+25 °C)	B	±23 × 10 ⁻⁶ (+25 °C)
	A	±11.5 × 10 ⁻⁶ (+25 °C)				
	B	±23 × 10 ⁻⁶ (+25 °C)				
Oscillation start-up time	t _{STA} 0.3 s Typ. / 1 s Max. (V _{DD} = 2.75 V to 5.5 V)					
Current consumption	I _{BAT} 100 nA / Typ. 3 V 450 nA / Max. 3 V (T _a = -40 °C to +85 °C)					

■ Block diagram



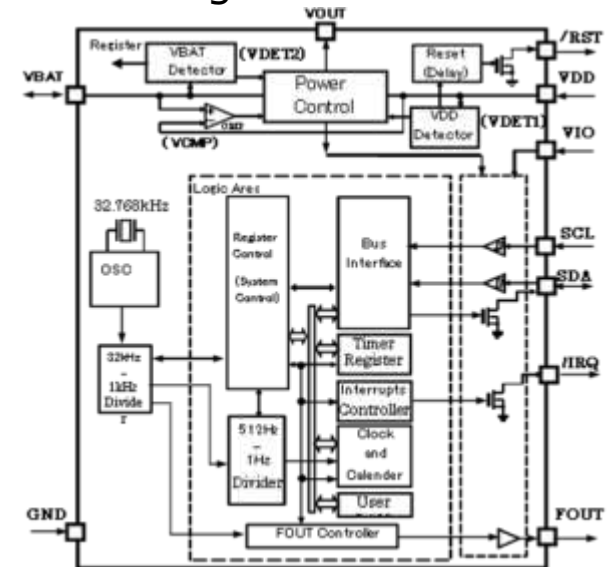
Built-in backup battery charge control function

- Built in frequency adjusted 32.768 kHz crystal unit
- Interface Type : I²C-Bus
- Low backup current : 300 nA Typ. / 3 V
- Auto power switching function : Automatically switches to backup power supply by monitoring the V_{DD} voltage
- **Backup battery charge control function : For the rechargeable battery**
- **Reset functions with a delay : Detect a main power supply and remove the reset**
- Interrupt output : Wake up every minute or every second
- Alarm interruption : Day, date, hour, minute, second
- Auto repeat wakeup timer interruption (16 bit x 1 ch.)
- Self-monitoring interruption : Crystal oscillation stop, V_{BAT} low, V_{DD} low



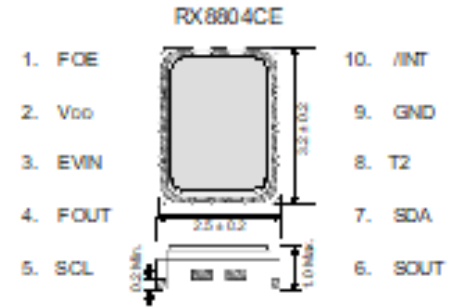
Item		Symbol	Specs
Operating Conditions	Operating supply voltage	V _{DD}	1.25 V to 5.5 V
	Operating temperature	T _a	-40 °C to +85 °C
	V _{DD} detect voltage	-V _{DET2}	1.2 V to 1.4 V (V _{DD} , Fall)
Characteristics	Frequency tolerance	Δf/f	B: +5±23 x 10 ⁻⁶ / +25 °C
	Oscillation start-up time	t _{STA}	1 s Max. (V _{DD} = 2.75 V to 5.5 V)
	Current consumption	I _{BAT}	300 nA / Typ. 3 V 500 nA / Max. 3 V (T _a = -40 °C to +85 °C)

■ Block diagram



Built-in 32.768 kHz DTCXO, High Stability, up to +105 °C

- 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 (24 bit x 1 ch.)
- Self-monitoring interruption : Crystal oscillation stop, V_{BAT} low, V_{DD} low
- SOUT pin outputs that selected flag bit value (H or L)
- Automotive grade available (RA8804CE)



Item		Symbol	Specs	
Operating Conditions	Operating supply voltage	V _{DD}	1.6 V to 5.5 V	
	Operating temperature	T _a	-40 °C to +105 °C	
Characteristics	Stability	Δf/f	XA	±3.4 × 10 ⁻⁶ (-40 °C to 85 °C) *equiv. to ±9 s of mo. deviation ±8 × 10 ⁻⁶ (-40 °C to 105 °C)
			XB	±5 × 10 ⁻⁶ (-40 °C to 85 °C) *equiv. to ±13 s of mo. deviation ±8 × 10 ⁻⁶ (-40 °C to 105 °C)
	Current consumption	I _{DD2}	350 nA / Typ. 3 V 1,500 nA / Max. 3 V (Temp. Compensation interval: 2.0 s)	

Block diagram

