

REAL TIME CLOCK MODULE (I²C-Bus)

Built-in 32.768 kHz DTCXO, High Stability, Power switching



Product Number
 1,000 pcs / Reel
RX8900SA UA: X1B000292000100
RX8900SA UB: X1B000292000200
RX8900SA UC: X1B000292000300
 2,000 pcs / Reel
RX8900CE UA: X1B000301000100
RX8900CE UB: X1B000301000200
RX8900CE UC: X1B000301000300

RX8900SA / RX8900CE

- Built-in frequency adjusted 32.768 kHz crystal unit and DTCXO
- Interface Type : I²C-Bus
- Interface voltage range : 2.5 V to 5.5 V
- Temp. compensated voltage range : 2.0 V to 5.5 V
- Timekeeping voltage range : 1.6 V to 5.5 V
- Auto power switching function : Automatically switches to backup power supply by monitoring the V_{DD} voltage
- Interrupt output : Wake up every minute or every second
- Alarm interruption : Day, date, hour, minute
- Auto repeat wakeup timer interruption



RX8900SA



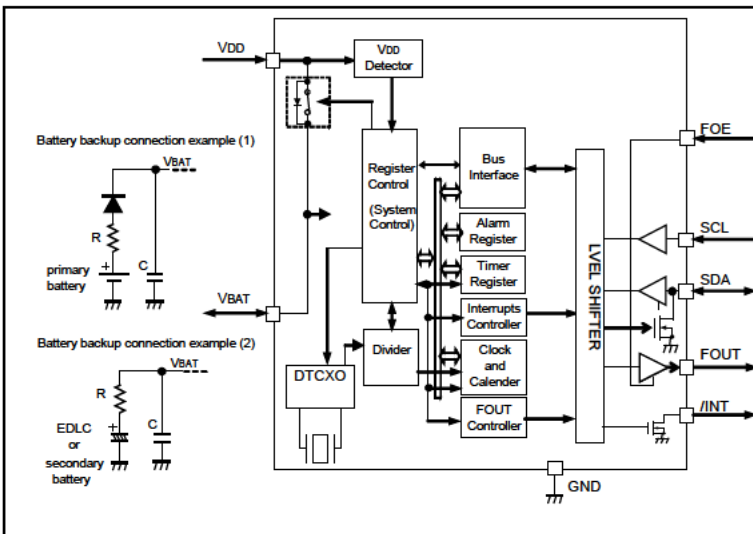
RX8900CE

(10.1 x 7.4 mm, t = 3.3 mm Max.) (3.2 x 2.5 mm, t = 1.0 mm Max.)

The I²C-Bus is a trademark of NXP Semiconductors

Block diagram

Overview



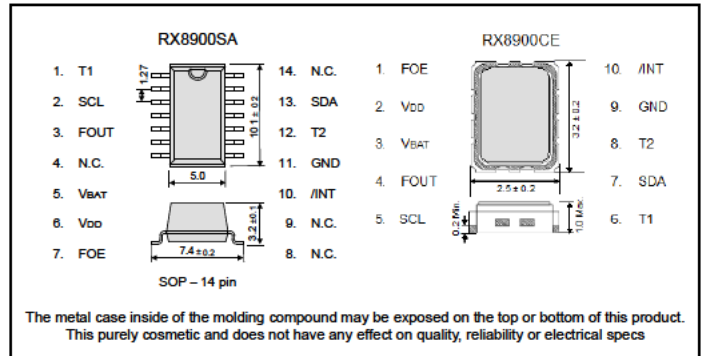
- Interface type
I²C-Bus interface Fast-Mode 400 kHz
- High stability
 UA: $\pm 3.4 \times 10^{-6}$ / -40 °C to +85 °C (equiv. to ± 9 s of mo. deviation)
 UB: $\pm 5.0 \times 10^{-6}$ / -40 °C to +85 °C (equiv. to ± 13 s of mo. deviation)
 UC: $\pm 5.0 \times 10^{-6}$ / -30 °C to +70 °C (equiv. to ± 13 s of mo. deviation)
- Auto power switch function
 The V_{DD} voltage is monitored and it switches to the backup power supply by the automatic operation
 Backup power supply switching voltage 1.9 V Min.
- Clock output function
 Output frequency is selectable from 32.768 kHz, 1024 Hz, 1 Hz
- Wakeup timer function
 Selectable from 244 μ s to 2.8 days (12 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
- Alarm function
 It is possible program from day to minute
- Temp. sensor function
 Available readout temperature data from embedded temp sensor

Pin Function

Terminal connection / External dimensions

(Unit: mm)

Signal Name	I / O	Function
T1	-	Test pin in the factory (Do not connect externally)
SCL	Input	Serial clock input pin
FOUT	Output	Frequency output pin (CMOS) (frequency selection: 32.768 kHz, 1024 Hz, 1 Hz)
VBAT	-	This is a power supply pin for backup battery Connect an EDLC, a secondary battery, a primary battery. In the backup voltage range, supplied to IC, from this pin
VDD	-	Power-supply pin
FOE	Input	The FOUT output control pin
/INT	Output	Interrupt output (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



The metal case inside of the molding compound may be exposed on the top or bottom of this product. This purely cosmetic and does not have any effect on quality, reliability or electrical specs

Specifications (characteristics)

* Refer to application manual for details

tem	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Operating voltage	V _{DD}	-	2.5	3.0	5.5	V	
Temp. compensated Voltage	V _{TEM}	-	2.0	3.0	5.5	V	
Clock supply voltage	V _{CLK}	-	1.6	3.0	5.5	V	
V _{DD} detect voltage (3)	V _{DET3}	-	2.3	2.4	2.5	V	
Operating temperature	T _a	-	-40	+25	+85	°C	
Stability	$\Delta f / f$	UA	T _a = -40 °C to +85 °C		± 3.4	$\times 10^{-6}$	
		UB	T _a = -40 °C to +85 °C		± 5.0		
		UC	T _a = -30 °C to +70 °C				
Current consumption (1)	I _{DD1}	fSCL = 0 Hz, /INT = V _{DD} , FOE = GND, V _{DD} = V _{BAT} , FOUT: OFF, Temp. Compensation interval 20 s	V _{DD} = 5 V	-	0.72	1.5	μ A
Current consumption (2)	I _{DD2}		V _{DD} = 3 V	-	0.70	1.4	

32.768 kHz-DTCXO Frequency temperature characteristics (Example)

