

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.)

Block diagram

Overview

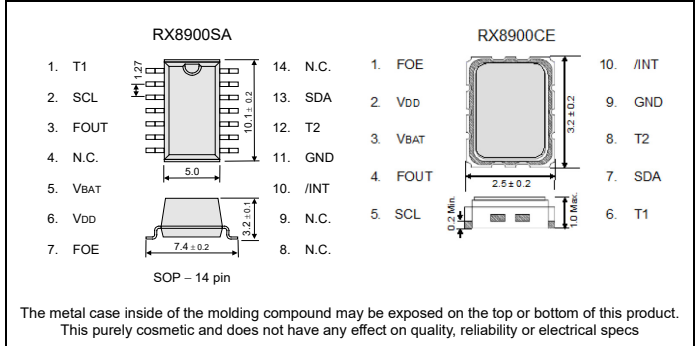
- Interface type
I²C-Bus interface Fast-Mode 400 kHz
- High stability
UA: $\pm 3.4 \times 10^{-6}$ / -40 °C to +85 °C (equiv. to ± 9 s of mo. deviation)
UB: $\pm 5.0 \times 10^{-6}$ / -40 °C to +85 °C (equiv. to ± 13 s of mo. deviation)
UC: $\pm 5.0 \times 10^{-6}$ / -30 °C to +70 °C (equiv. to ± 13 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
V _{DD}	-	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

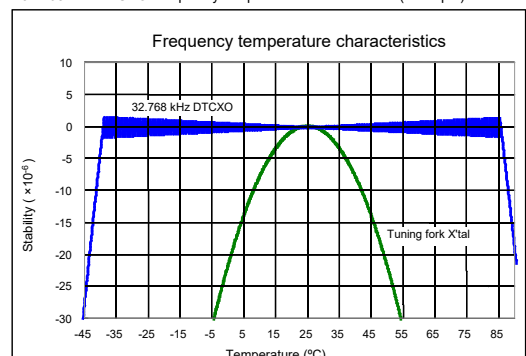


Specifications (characteristics)

* Refer to application manual for details

■ Electrical Characteristics								
Item	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	Δ f / f	UA	T _a = -40 °C to +85 °C	±3.4			x 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,		V _{DD} = 5 V	-	0.72	1.5	μA
Current consumption (2)	I _{DD2}	Temp. Compensation interval 2.0 s		V _{DD} = 3 V	-	0.70	1.4	

■ 32.768 kHz-DTCXO Frequency temperature characteristics (Example)



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	► 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.)
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