

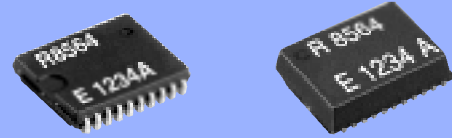


**Low current consumption**  
**I<sup>2</sup>C-Bus INTERFACE REAL TIME CLOCK MODULE**

**RTC - 8564 JE / NB**

- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : I<sup>2</sup>C-Bus Interface (400 kHz)
- Operating voltage range : 1.8 V to 5.5 V
- Timekeeper voltage range : 1.0 V to 5.5 V / -20 °C to +70 °C
- Low backup current : 275 nA / 3.0 V(Typ.)
- 32.768 kHz frequency output function : C-MOS output With Control Pin
- The various functions include full calendar, alarm, timer, and power supply voltage monitoring function

\* The I<sup>2</sup>C-Bus is a trademark of Philips Electronics N.V.

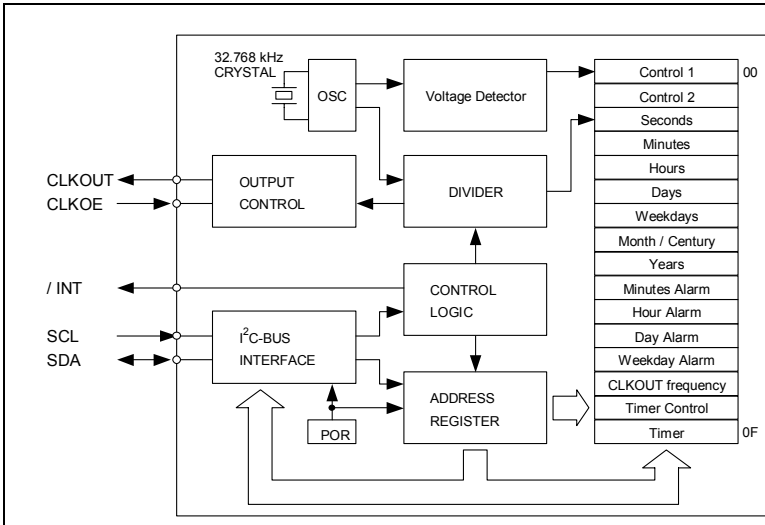


Actual size



**Block diagram**

**Overview**



**Interface Type**

- I<sup>2</sup>C hi-speed bus specifications. (400 kHz)
- \* I<sup>2</sup>C-Bus slave address : read A3h and write A2h

**Low Timekeeper voltage range**

- 1.0 V to 5.5 V / Ta = -20 °C to +70 °C
- 1.1 V to 5.5 V / Ta = -40 °C to +85 °C

**32.768 kHz frequency output function**

- CLKOUT pin output (C-MOS output), CL=30 pF
- CLKOE pin enables output on/off control.
- Output selectable  
 <32.768 kHz, 1024 Hz, 32 Hz, 1 Hz>

**The various interrupt function**

- Timer function can be set up between 1/4096 second and 255 minutes.
- Alarm function can be set to any combination of day of week, hour, or minute.

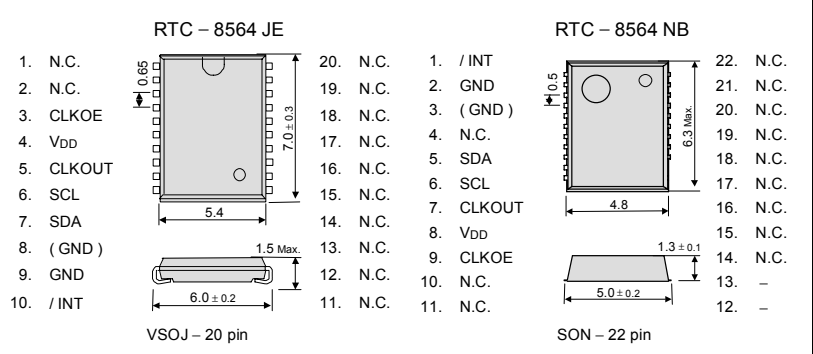
\* Functions are compatible with RX-8564 LC series.

**Pin Function**

**Terminal connection / External dimensions**

(Unit:mm)

Signal Name	Input/Output	Function											
SCL	Input	Serial clock input pin.											
SDA	Bi-directional	Data input and output pin.											
CLKOUT	Output	32.768 kHz clock output pin with the output control function. (C-MOS) CLKOE pin control the condition of CLKOUT with FE-bit, etc.											
CLKOE	Input	<table border="1"> <thead> <tr> <th>CLKOE pin input</th> <th>FE bit</th> <th>CLKOUT pin output</th> </tr> </thead> <tbody> <tr> <td>HIGH</td> <td>1</td> <td>Output (C-MOS)</td> </tr> <tr> <td rowspan="2">LOW</td> <td>0</td> <td>OFF (LOW)</td> </tr> <tr> <td>1</td> <td>OFF (LOW)</td> </tr> </tbody> </table>	CLKOE pin input	FE bit	CLKOUT pin output	HIGH	1	Output (C-MOS)	LOW	0	OFF (LOW)	1	OFF (LOW)
		CLKOE pin input	FE bit	CLKOUT pin output									
		HIGH	1	Output (C-MOS)									
		LOW	0	OFF (LOW)									
1	OFF (LOW)												
/INT	Output	Interrupt output (N-ch open drain)											
VDD	—	Connected to a positive power supply.											
GND	—	Connected to a ground.											



Metal may be exposed on the top or bottom of this product. This will not affect any quality, reliability or electrical spec.

**Specifications (characteristics)**

\* Refer to application manual for details.

**Recommended Operating Conditions**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power voltage	VDD	—	1.8	3.0	5.5	V
Clock voltage	VCLK	—	VLOW	3.0	5.5	V
Operating temperature	TOPR	—	-40	+25	+85	°C

**Low voltage detection**

Item	Symbol	Condition	Typ.	Max.	Unit
Low voltage detection	VLOW	Ta = -20 °C ~ +70 °C	0.9	1.0	V
		Ta = -40 °C ~ +85 °C	0.9	1.1	V

**Frequency characteristics**

Item	Symbol	Condition	Rating	Unit
Frequency tolerance	Δf/f	Ta = +25 °C VDD = 3.0 V	5 ± 23 *	× 10 <sup>-6</sup>

\* Please ask for tighter tolerance. (Equivalent to 1 minute of monthly deviation)

**DC characteristics**

Ta = -40 °C to +85 °C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Current Consumption	I <sub>BK</sub>	f <sub>SCL</sub> = 0 Hz CLKOE = GND	VDD = 5 V	330	800	nA
		CLKOUT ; output OFF (LOW)	VDD = 3 V	275	700	
	I <sub>S2k</sub>	f <sub>SCL</sub> = 0 Hz CLKOE = VDD	VDD = 5 V	2.5	3.4	μA
		CLKOUT ; 32.768 kHz output ON (Output=OPEN ; CL = 0 pF)	VDD = 3 V	1.5	2.2	

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In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, “Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

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ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

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QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S. automobile manufacturers based on the international ISO 9000 series.

ISO/TS 16949 is a global standard based on QS-9000, a severe standard corresponding to the requirements from the automobile industry.

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