

**Low current consumption /  
Small size, low profile model package  
I<sup>2</sup>C-Bus INTERFACE REAL TIME CLOCK MODULE**

**RX - 8564 LC**

- 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
- Wide Timekeeper voltage range : 1.0 V to 5.5 V / T<sub>a</sub> = +25 °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.

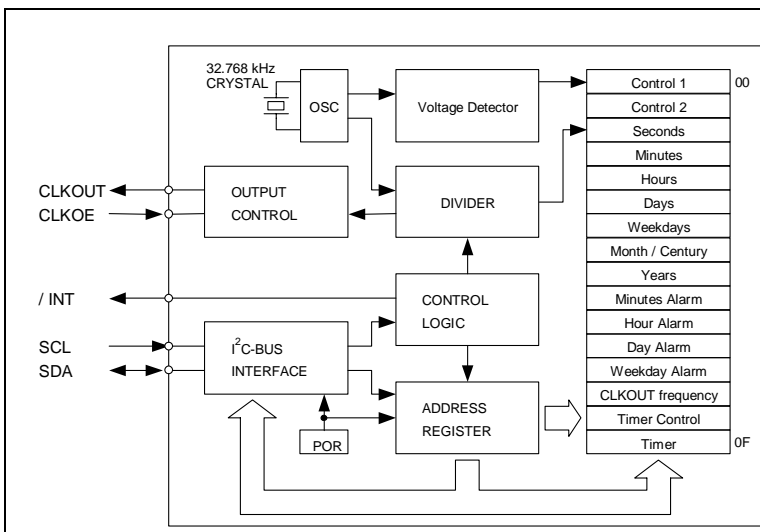


Actual size



**Block diagram**

**Overview**



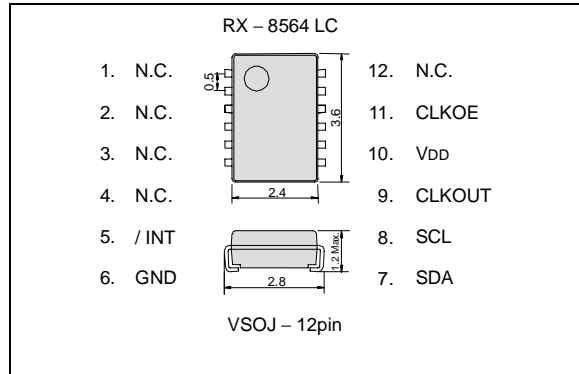
- **Interface Type**
    - I<sup>2</sup>C hi-speed bus specifications. (400 kHz)
    - I<sup>2</sup>C-Bus slave address : read A3h and write A2h
  - **Low Timekeeper voltage**
    - 1.0 V to 5.5 V / T<sub>a</sub> = +25 °C
    - 1.3 V to 5.5 V / T<sub>a</sub> = -40 °C to +85 °C
  - **32.768 kHz frequency 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 RTC-8564 JE / NB 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 pin with FE-bit, FD1-bit, FD0-bit.															
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></td> <td>0</td> <td>OFF ( LOW )</td> </tr> <tr> <td>LOW</td> <td>1</td> <td>OFF ( LOW )</td> </tr> <tr> <td></td> <td>0</td> <td>OFF ( LOW )</td> </tr> </tbody> </table>	CLKOE pin input	FE bit	CLKOUT pin output	HIGH	1	Output ( C-MOS )		0	OFF ( LOW )	LOW	1	OFF ( LOW )		0	OFF ( LOW )
CLKOE pin input	FE bit	CLKOUT pin output															
HIGH	1	Output ( C-MOS )															
	0	OFF ( LOW )															
LOW	1	OFF ( LOW )															
	0	OFF ( LOW )															
/INT	Output	Interrupt output ( N-ch open drain )															
V <sub>DD</sub>	—	Connected to a positive power supply.															
GND	—	Connected to a ground.															



**Specifications (characteristics)**

\* Refer to application manual for details.

**Recommended Operating Conditions**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power voltage	V <sub>DD</sub>	—	1.8	3.0	5.5	V
Clock voltage	V <sub>CLK</sub>	—	V <sub>LOW</sub>	3.0	5.5	V
Operating temperature	T <sub>OPR</sub>	—	-40	+25	+85	°C

**Low voltage detection**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Low voltage detection	V <sub>LOW</sub>	T <sub>a</sub> = +25 °C		0.9	1.0	V
		T <sub>a</sub> = -20 °C to +70 °C		0.9	1.2	V
		T <sub>a</sub> = -40 °C to +85 °C		0.9	1.3	V

**Frequency characteristics**

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

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

**DC characteristics**

T<sub>a</sub> = -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 CLKOUT ; output OFF ( LOW )	V <sub>DD</sub> = 5 V	330	800	nA
			V <sub>DD</sub> = 3 V	275	700	
	I <sub>32k</sub>	f <sub>SCL</sub> = 0 Hz CLKOE = V <sub>DD</sub> CLKOUT ; 32.768 kHz Output ON (Output=OPEN ; CL = 0 pF)	V <sub>DD</sub> = 5 V	2.5	3.4	μA
			V <sub>DD</sub> = 3 V	1.5	2.2	

# “3D STRATEGY” EPSON TOYOCOM

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