

Low current consumption

RTC - 8564 JE / NB
RX - 8564 LC

- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : I²C-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 I²C-Bus is a trademark of NXP Semiconductors



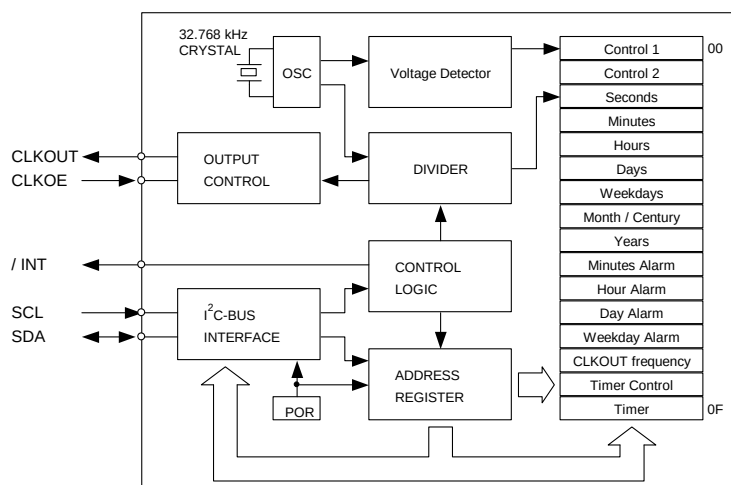
Product Number (Please contact us)
RTC-8564JE : Q41856471000100
RTC-8564NB : Q41856491000200
RX-8564LC : Q418564C2xxxx00



Actual size



Block diagram



Overview

- **Interface Type**

- I²C-Bus Interface. (Hi-speed bus specifications 400 kHz)
- * I²C-Bus slave address : read A3h and write A2h

- Low Timekeeper voltage range

- 1.0 V to 5.5 V / $T_a = -20\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$
- 1.1 V to 5.5 V / $T_a = -40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$

- 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.

Pin Function

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) (LOW)</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)	LOW	0	OFF (LOW)	1	OFF (LOW)
CLKOE pin input	FE bit	CLKOUT pin output											
HIGH	1	Output (C-MOS) (LOW)											
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.											

Terminal connection / External dimensions

RTC - 8564 JE			RTC - 8564 NB			RX - 8564 LC		
1. N.C.	20. N.C.	1. / INT	22. N.C.	1. N.C.	12. N.C.			
2. N.C.	19. N.C.	2. GND	21. N.C.	2. N.C.	11. CLKOE			
3. CLKOE	18. N.C.	3. (GND)	20. N.C.	3. N.C.	10. VDD			
4. VDD	17. N.C.	4. N.C.	19. N.C.	4. N.C.	9. CLKOUT			
5. CLKOUT	16. N.C.	5. SDA	18. N.C.	5. N.C.	8. SCL			
6. SCL	15. N.C.	6. SCL	17. N.C.	6. N.C.	7. SDA			
7. SDA	14. N.C.	7. VDD	16. N.C.	7. N.C.				
8. (GND)	13. N.C.	8. CLKOE	15. N.C.	8. N.C.				
9. GND	12. N.C.	9. N.C.	14. N.C.	9. N.C.				
10. / INT	11. N.C.	10. N.C.	13. -	10. N.C.				
		11. N.C.	12. -	11. N.C.				

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	V _{DD}	—	1.8	3.0	5.5	V
Clock voltage	V _{CLK}	—	V _{Low}	3.0	5.5	V
Operating temperature	T _{OPR}	—	-40	+25	+85	°C

- Low voltage detection

Item	Symbol		Condition	Typ.	Max.	Unit
Low voltage detection	V _{LOW}	JE,NB	Ta = -20 °C ~ +70 °C	0.9	1.0	V
			Ta = -40 °C ~ +85 °C	0.9	1.1	V
		LC	Ta = -20 °C ~ +70 °C	0.9	1.2	V
			Ta = -40 °C ~ +85 °C	0.9	1.3	V

■ Frequency characteristics

Item	Symbol	Condition	Rating	Unit
Frequency tolerance	$\Delta f/f$	Ta = +25 °C V _{DD} = 3.0 V	5 ± 23 *	× 10 ⁻⁶

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

- Current consumption characteristics

$T_a = -40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$

Item	Symbol	Condition		Min.	Typ.	Max.	Unit
Current Consumption	I _{BK}	f _{SCL} = 0 Hz CLKOE = GND	V _{DD} = 5 V		330	800	nA
		CLKOUT ; output OFF (LOW)	V _{DD} = 3 V		275	700	
	I _{32k}	f _{SCL} = 0 Hz CLKOE = V _{DD}	V _{DD} = 5 V		2.5	3.4	μA
		CLKOUT ; 32.768 kHz output ON (Output=OPEN ; CL = 0 pF)	V _{DD} = 3 V		1.5	2.2	