

REAL TIME CLOCK MODULE (I²C-Bus)

Low current consumption

Product Number
RX-8564LC : Q418564C2000100

RX-8564LC

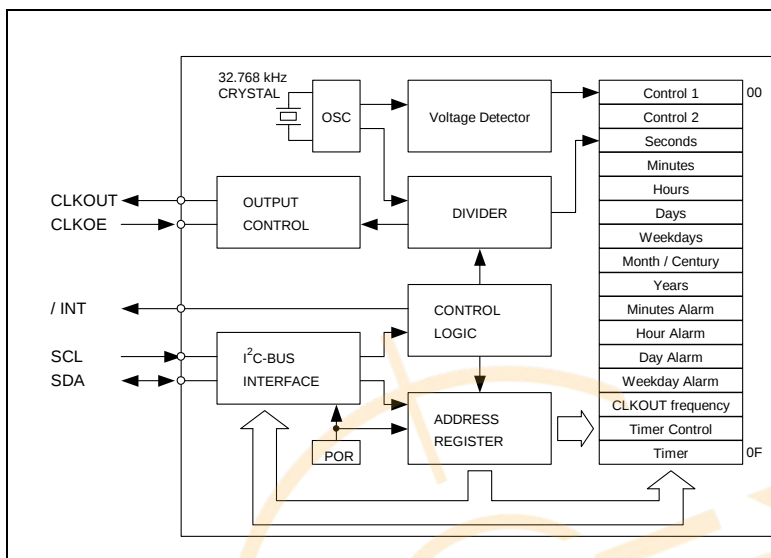
- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : I²C-Bus Interface (400 kHz)
- Operating voltage range : 1.8V to 5.5 V
- Timekeeper voltage range : 1.0V to 5.5 V / -20 °C to +70 °C
- Low backup current : 275nA / 3.0 V(Typ.)
- 32.768 kHz frequency output function : C-MOS output With Control Pin
- The various functions include full calendar, alarm, timer, and power supply voltage monitoring function



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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 / 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

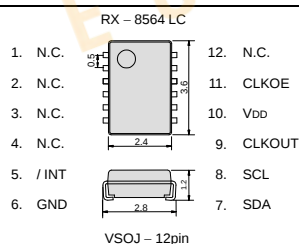
- Timer function can be set up between 1/4096 second and 255 minutes.
- Alarm function can be set to any combination of day of week, hour, or minute.

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)</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)															
VDD	—	Connected to a positive power supply.															
GND	—	Connected to a ground.															

Terminal connection / External dimensions

(Unit:mm)



Prohibition of use of glue after a mount of a product

LC package product cannot use glue and resin coating.

When such a processing is necessary, please examine a CE package product.

Specifications (characteristics)

* Refer to application manual for details.

■ Recommended Operating Conditions

Item	Symbol	Conditions	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	Conditions	Typ.	Max.	Unit
Low voltage detection	VLOW	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	Conditions	Rating	Unit
Frequency tolerance	Δf/f	Ta = +25 °C VDD = 3.0 V	B: 5 ± 23 *	× 10 ⁻⁶

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

■ Current consumption characteristics

Ta = -40 °C to +85 °C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Current Consumption	I _{BK}	f _{SCL} = 0 Hz CLKOE = GND	VDD = 5 V	-	330	800 nA
		CLKOUT ; output OFF (LOW)	VDD = 3 V	-	275	700 nA
	I _{32k}	f _{SCL} = 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 μA

► Explanation of the mark that are using it for the catalog

	► 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.)
	► Designed for automotive general equipment.
	► Designed for automotive applications related to driving and safety.

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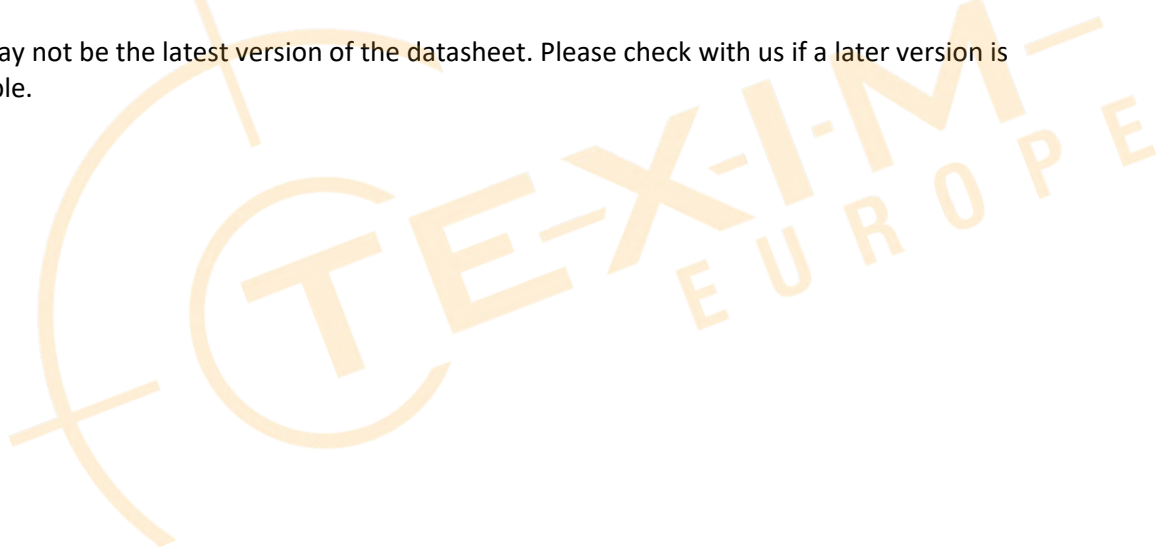
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Headquarters & Warehouse

Elektrostraat 17
NL-7483 PG Haaksbergen
The Netherlands

T: +31 (0)53 573 33 33
E: info@texim-europe.com
Homepage: www.texim-europe.com



The Netherlands

Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
E: nl@texim-europe.com



Belgium

Zuiderlaan 14, box 10
B-1731 Zellik

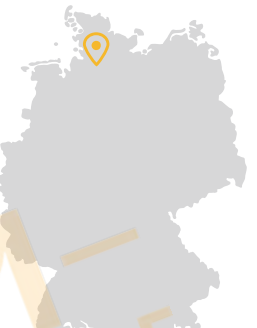
T: +32 (0)2 462 01 00
E: belgium@texim-europe.com



UK & Ireland

St Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
E: uk@texim-europe.com



Germany

Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
E: germany@texim-europe.com



Germany

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: muenchen@texim-europe.com



Austria

Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
E: austria@texim-europe.com



Nordic

Stockholmsgade 45
2100 Copenhagen

T: +45 88 20 26 30
E: nordic@texim-europe.com



Italy

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: italy@texim-europe.com