

**Built-in external event detection.**  
**SERIAL INTERFACE REAL TIME CLOCK MODULE**



Product Number (Please contact us)  
**RX-4575LC : Q414575C2000100**

**RX-4575LC**

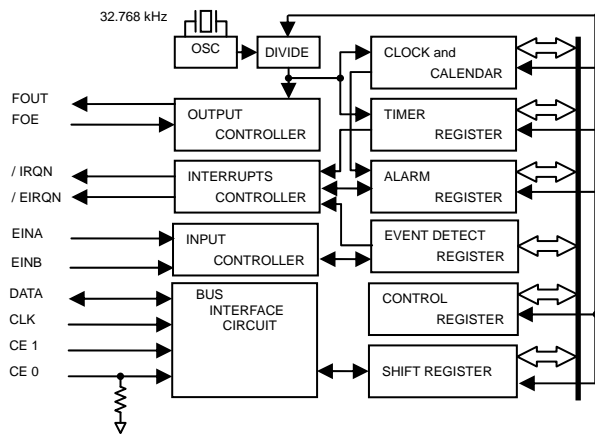
- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : 3-wire serial interface
- Operating voltage range : 1.6 V ~ 5.5 V
- Wide timekeeper voltage range : 1.3 V ~ 5.5 V
- Low backup current : 0.35  $\mu$ A / 3 V ( Typ. )
- External event detection. : Chattering free input port \* 2.  
 (The various functions include full calendar, alarm, timer.)



Actual size



**Block diagram**



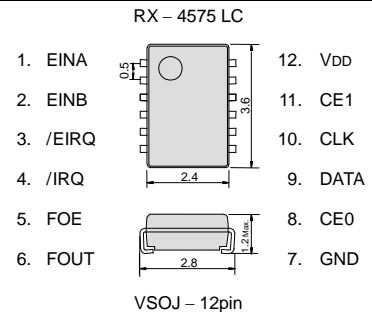
**Overview**

- **Event detection.**
  - Selectable Hi detection or Lo detection.
  - Recognition of detection is available both the hardware interrupt and the monitor via software.
  - Automatic interrupt release mode is available.
  - The all 'OR' interrupt output is possible via alarm, timer and event detection.
- **Performance of event input terminal.**
  - As for the chattering filter, following are prepared for. ( 8 ms, 31 ms, 62 ms, 125 ms )
  - Built-in resistor connect and release is possible via software. Selectable pull-up or pull-down.
- **Timer function**
  - Built in 12 bit counter.
  - Timing period are 1 min, 1 s, 64 Hz, 4096 Hz.
- **Alarm function**
  - Alarm setting is possible by combination of a day, hours, and minutes.

**Pin Function**

Signal Name	Input / Output	Functions
EINA EINB	Input	External event input pin.
CE 0 CE 1	Input	Interface is possible when both CE0 and CE1 is high level.
CLK	Input	Serial Clock input pin.
DATA	Bidirectional	Data input and output pin.
FOUT	Output	32.768 kHz clock output pin ( C-MOS ) . Output is Hi-Z when OFF.
FOE	Input	32kHz is output when input is Hi, 32 kHz is OFF when input is Lo.
/ EIRQ	Output	Interrupt output pin. ( N-ch open drain )
/ IRQ	Output	Interrupt output pin. ( N-ch open drain )
VDD	—	Connected to a positive power supply.
GND	—	Connected to a ground.

**Terminal connection / External dimensions (Unit:mm)**



**\*Stop using the glue**  
 Any glue must never use it after soldering LC-package to a circuit board. This product has glass on the back side of a package. When glue invasions between circuit board side and glass side, then glass cracks by thermal expansion of glue. In this case a crystal oscillation stops. Consider glue abolition or glue do not touch to LC-package

**Specifications (characteristics)**

**\* Refer to application**

**Recommended Operating conditions**

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power voltage	VDD	—	1.6	3.0	5.5	V
Clock voltage	VCLK	—	1.3	3.0	5.5	V
Operating Temperature	T <sub>OPR</sub>	—	-40	+25	+85	°C

**Frequency characteristics**

Item	Symbol	Conditions	Rating	Unit
Frequency tolerance	$\Delta f/f$	T <sub>a</sub> = +25 °C VDD = 3.0 V	5 ± 23 *	× 10 <sup>-6</sup>
Oscillation Start-up time	t <sub>STA</sub>	T <sub>a</sub> = +25 °C VDD = 1.6 V	1 Max.	s
		T <sub>a</sub> = -40 °C ~ +85 °C VDD = 1.6 V	3 Max.	s

\*Equivalent to 1 minute of monthly deviation

**Current consumption characteristics**

T<sub>a</sub> = -40 °C ~ +85 °C

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Current Consumption	I <sub>BK</sub>	CE0, CE1 = GND / IRQ, / EIRQ = OFF FOUT : output OFF Event detection OFF	VDD = 5 V	0.45	0.9	$\mu$ A
		VDD = 3 V	0.35	0.7		
Current Consumption	I <sub>32k</sub>	CE0, CE1 = GND / IRQ, / EIRQ = OFF FOUT ; CL = 30 pF 32.768 kHz output ON	VDD = 5 V	8.0	20.0	$\mu$ A
		VDD = 3 V	5.0	12.0		

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	► The products have been designed for high reliability applications such as Automotive.

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