REAL TIME CLOCK MODULE (I²C-Bus)

Built-in EEPROM and Unique ID-ROM

RoHS Compliant

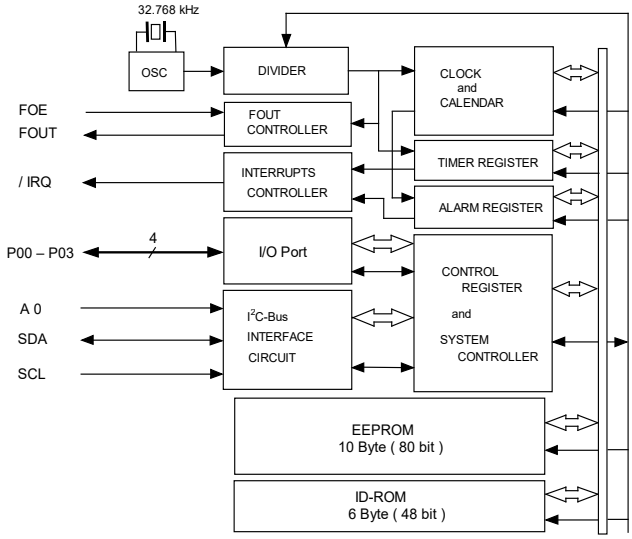
Product Number
RX-8731LC : Q418731C2000100

RX-8731LC

- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : I²C-Bus interface (400 kHz)
- Operating voltage range : 1.7 V to 5.5 V
- Wide voltage for Timekeeping : 1.3 V to 5.5 V
- Low backup current : 0.35 µA / 3 V (Typ.)
- 32.768 kHz frequency output function : C-MOS output With Control Pin
- The various functions include full calendar, alarm, timer.

* The I²C-Bus is a trademark of NXP Semiconductors

Block diagram



Overview

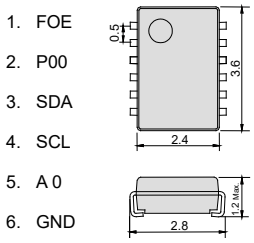
- **Built in EEPROM and ID-ROM**
  - Built in 10 Byte (80 bit) EEPROM
  - Built in 6 Byte (48 bit) ID-ROM
- **Programmable I/O ports**
  - 4 Programmable I/O ports
- **Interface Type**
  - I²C-Bus high-speed bus specifications. (400 kHz)
- **32.768 kHz frequency output function**
  - FOUT pin output (C-MOS output), CL=30 pF
  - FOE pin enables output on/off control.
  - Output frequency is selectable.
    < 32.768 kHz, 1024 Hz, 1 Hz >
- **The various interrupt function**
  - Alarm interrupt function
  - Timer interrupt function
  - Update interrupt function

Pin Function

Signal Name	Input / Output	Function
SCL	Input	Serial Clock input pin.
SDA	Bi-directional	Data input and output pin.
A 0	Input	Device address A0 input pin.
FOUT	Output	FOUT pin is 32.768 kHz clock output pin (C-MOS) that output control is possible. FOE pin control the frequency output from FOUT pin with FSEL1-bit and FSEL0-bit.
FOE	Input	
/ IRQ	Output	Interrupt output pin. (N-ch open drain)
P00 P01 P02 P03	Bi-directional	Programmable I/O ports.
VDD	—	Connected to a positive power supply.
GND	—	Connected to a ground.

Terminal connection / External dimensions (Unit:mm)

RX – 8731 LC



VSOJ – 12pin

***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 manual for details.

■ Recommended Operating Conditions

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power voltage	VDD	—	1.7	3.0	5.5	V
Clock voltage	VCLK	—	1.3	3.0	5.5	V
Operating temperature	TOPR	—	-40	+25	+85	°C

■ Frequency characteristics

Item	Symbol	Conditions	Rating	Unit
Frequency tolerance	Δf / f	Ta = +25 °C VDD = 3.0 V	B: 5 ± 23 *	× 10^{-6}
Oscillation Start-up time	tSTA	Ta = +25 °C VDD = 1.6 V	1 Max.	s
		Ta = -40 °C to +85 °C VDD = 1.6 V	3 Max.	s

*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	IBK	fSCL = 0 Hz / IRQ = OFF FOUT : output OFF (Hi - z)	VDD = 5 V	-	0.45	1.5	µA
			VDD = 3 V	-	0.35	1.4	
	I32K	fSCL = 0 Hz / IRQ = OFF FOUT : 32.768 kHz output CL = 30 pF	VDD = 5 V	-	8.0	16.0	µA
			VDD = 3 V	-	5.0	10.0	

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At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

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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IATF 16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

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	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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