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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



REAL TIME CLOCK MODULE (SPI-Bus)

RTC - 4574 SA/ JE/ NB

- Built in frequency adjusted 32.768 kHz crystal unit.
- Interface Type : 3-wire serial interface
- Operating voltage range : 1.6 V to 5.5 V
- Wide Timekeeper voltage range : 1.6 V to 5.5 V
- Low backup current : 0.5 μ A / 3 V (Typ.)
- 32.768 kHz frequency output function : C-MOS output With Control Pin
- The various functions include full calendar, alarm, timer.



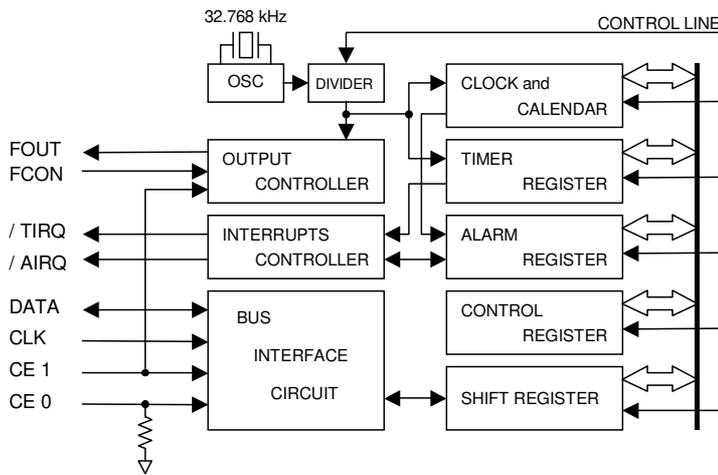
Product Number (Please contact us)
 RTC-4574SA : Q41457452000200
 RTC-4574JE : Q41457471000100
 RTC-4574NB : Q4145749x000100



Actual size



Block diagram



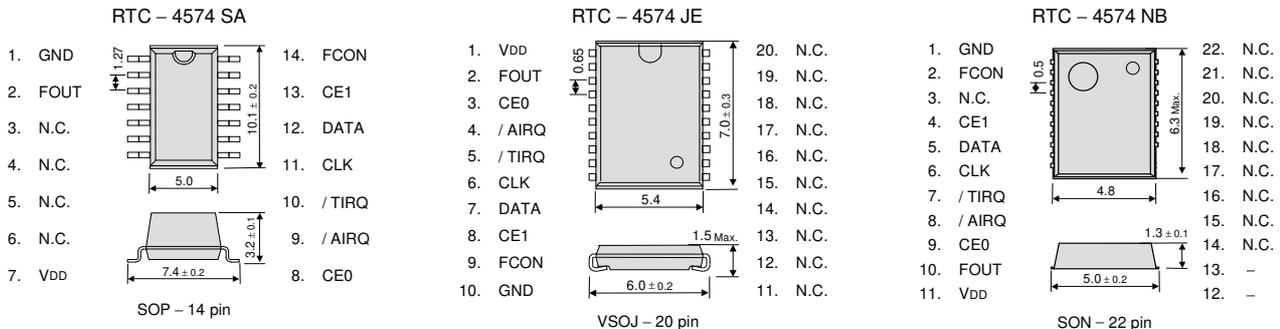
Overview

- **32.768 kHz frequency output function**
 - FOUT pin output (C-MOS output), CL=30 pF
 - Output frequency selectable from 1/30 Hz to 32.768 kHz (32 Values)
- **Timer function**
 - Timer function can be set up between 1/4096 second and 255 minutes.
 - It is recorded automatically to TF-bit at the time of event occurrence, and it's possible to output with /TIRQ pin output (open-drain output).
 - Selectable one time mode or repeat mode.
- **Alarm function**
 - Alarm function can be set to any combination of day of week, hour, or minute.
 - It is recorded automatically to AF-bit at the time of event occurrence, and it's possible to output with /AIRQ pin output (open-drain output).

* Functions are compatible with RX - 4574 LC.

Terminal connection / External dimensions

(Unit:mm)



The metal case inside of the molding compound may be exposed on the top or bottom of this product. This purely cosmetic and does not have any effect on quality, reliability or electrical specs.

Specifications (characteristics)

* Refer to application manual for details.

Recommended Operating Conditions

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|--------|------------|------|------|------|------|
| Power voltage | VDD | — | 1.6 | 3.0 | 5.5 | V |
| Clock voltage | VCLK | — | 1.6 | 3.0 | 5.5 | V |
| Operating temperature | TOPR | — | -40 | +25 | +85 | °C |

Frequency characteristics

| Item | Symbol | Conditions | Rating | Unit |
|---------------------------|----------------|----------------------------|-------------|------------------|
| Frequency tolerance | $\Delta f / f$ | Ta = +25 °C VDD = 3.0 V | B: 5 ± 23 * | $\times 10^{-6}$ |
| Oscillation start-up time | tSTA | Ta = +25 °C VDD = 1.6 V | 3 Max. | s |

* 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 | IBK | CE0, CE1 = GND FOUT ; output OFF (Hi - z) | VDD = 5 V | - | 1.0 | 2.0 | μ A |
| | | VDD = 3 V | - | 0.5 | 1.0 | | |
| Current Consumption | I32k | CE0 = GND CE1 = VDD FOUT ; 32.768 kHz output ON CL = 30 pF | VDD = 5 V | - | 8.0 | 20.0 | μ A |
| | | VDD = 3 V | - | 5.0 | 12.0 | | |

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

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.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

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ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

► 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 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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