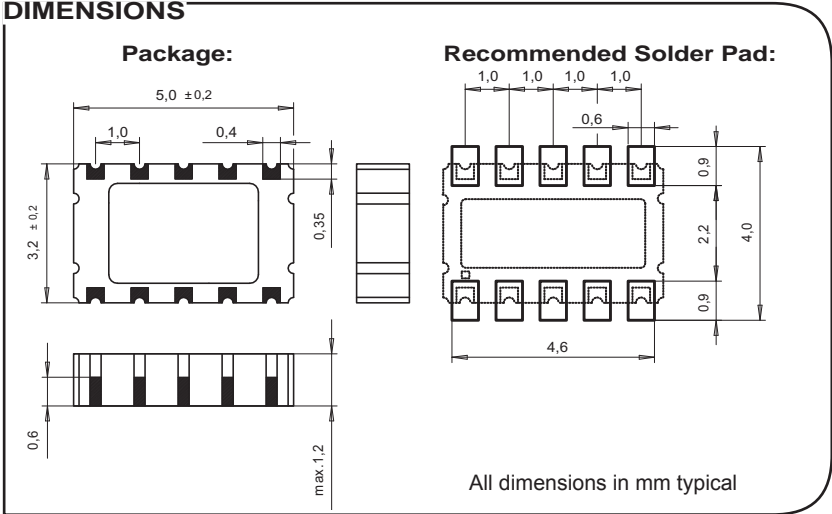
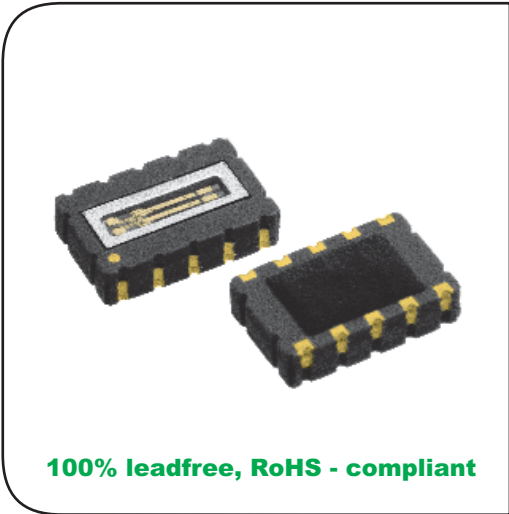


# RV-3049-C2

## Real Time Clock Module with SPI-Bus



**Extremely Accurate RTC Module with embedded Xtal. SPI Interface Temperature Compensation Automotive qualified, according to AEC-Q200 Rev. C**

| Option A:       | Calibrated     |        |
|-----------------|----------------|--------|
| Temperature     | Time Deviation |        |
| @ +25°C         | ± 0.26 s/day   | ± 3ppm |
| 0°C to +50°C    | ± 0.35 s/day   | ± 4ppm |
| -10°C to +60°C  | ± 0.44 s/day   | ± 5ppm |
| -40°C to +85°C  | ± 0.52 s/day   | ± 6ppm |
| -40°C to +125°C | ± 0.70 s/day   | ± 8ppm |

| Option B:      | Default        |         |
|----------------|----------------|---------|
| Temperature    | Time Deviation |         |
| @ +25°C        | ± 0.26 s/day   | ± 3ppm  |
| 0°C to +50°C   | ± 0.44 s/day   | ± 5ppm  |
| -10°C to +60°C | ± 0.87 s/day   | ± 10ppm |
| -40°C to +85°C | ± 2.17 s/day   | ± 25ppm |

### DESCRIPTION:

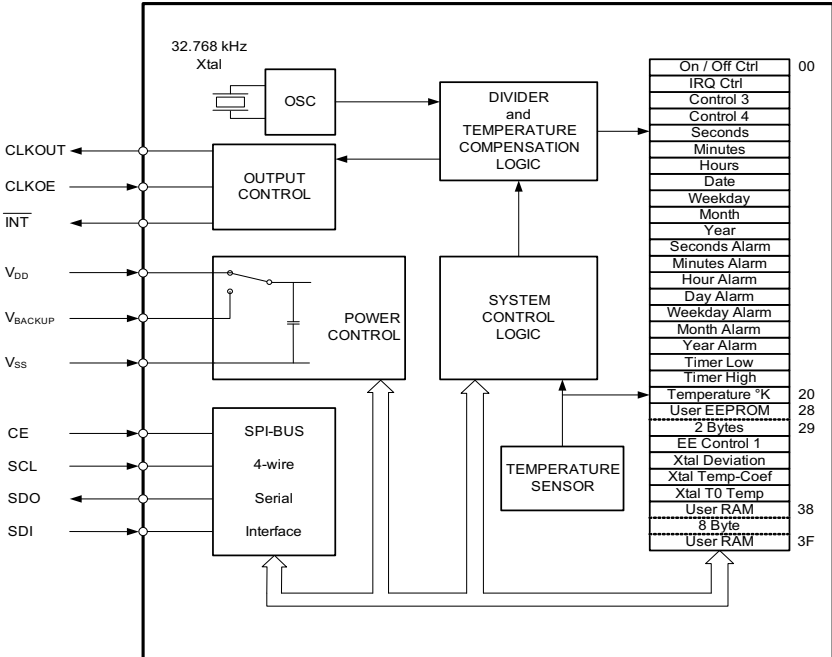
The RV-3049-C2 is a Real-Time-Clock Module with embedded Crystal. This RTC has 4-wire serial Interface (SPI-Bus) and offers temperature compensated time. The STC-Smart Temperature Compensation is calibrated in the factory and leads to a very high time-accuracy of ± 6ppm from -40°C to +85°C and ± 8ppm from -40°C to +125°C.

Beside standard RTC functions, it includes a Backup-Battery Input with internal switchover function, a programmable Trickle-charge circuitry, an integrated Temperature Sensor with digital-output and offers 8 Bytes RAM and 2 Bytes EEPROM for customer's application.

The calendar function tracks year and leap-year flags. The clock tracks second, minute and hour in 24-hour format. Programmable alarm setting and universal timer functions increase flexibility.

For pick-and-place equipment, the parts are available in 12 mm tape:  
 7" (178 mm) reel with 1'000 parts  
 13" (330 mm) reel with 5'000 parts

### BLOCKDIAGRAM:



**ELECTRICAL CHARACTERISTICS AT 25°C:**

|                      | Symbol               | Condition                | Min.  | Typ. | Max   | Unit  |
|----------------------|----------------------|--------------------------|---|------|-------|-------|
| Supply voltage       | V <sub>DD</sub>      | Time keeping             | 1.3   |      | 5.5   | V     |
| Supply voltage       | V <sub>DD</sub>      | Temp. comp.              | 1.8   |      | 5.5   | V     |
| Current consumption  | I <sub>DDO</sub>     | V <sub>DD</sub> = 3V     |   | 800  | 1000  | nA    |
| CLKOUT frequency     |                      | Progr.                   | 32.768/1024/32/1                                      |      |       | Hz    |
| Frequency Tolerance  | ΔF/F                 | @ 25°C                   |   | ±10  | ±20   | ppm   |
| Freq.vs.Temp.        | ΔF/F <sub>TOPR</sub> | 20 ≤ T <sub>0</sub> ≤ 30 | -0.035 ppm/°C (T - T <sub>0</sub> ) <sup>2</sup> ±10% |      |       | ppm   |
| Aging first year     | ΔF/F                 | @ 25°C                   |   |      | ± 3   | ppm   |
| Time accuracy Opt. A | Δt/t                 | @ 25°C                   |   |      | ±0.26 | s/day |
|                      |                      | -40 to +85°C             |   |      | ±0.52 | s/day |
| Time accuracy Opt. B | Δt/t                 | @ 25°C                   |   |      | ±0.26 | s/day |
|                      |                      | -40 to +85°C             |   |      | ±2.17 | s/day |

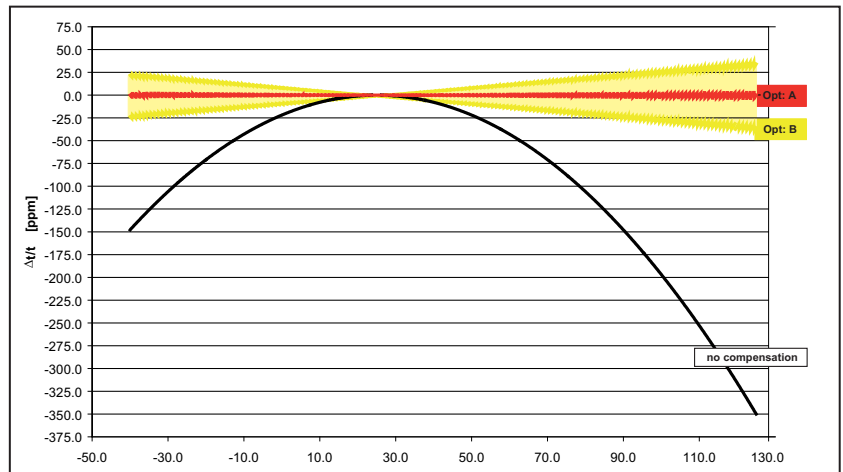
**ENVIRONMENTAL CHARACTERISTICS:**

|                                | Conditions                  | Max. Dev. |
|--------------------------------|-----------------------------|-----------|
| Storage temp. range            | -55 to +125°C               |           |
| TA Operating temperature range | -40 to +85°C                |           |
| TB Extended oper. temp. range  | -40 to +125°C               |           |
| Shock resistance               | ΔF/F 5000 g, 0.3 ms, ½ sine | ± 5 ppm   |
| Vibration resistance           | ΔF/F 20 g / 10–2000 Hz      | ± 5 ppm   |

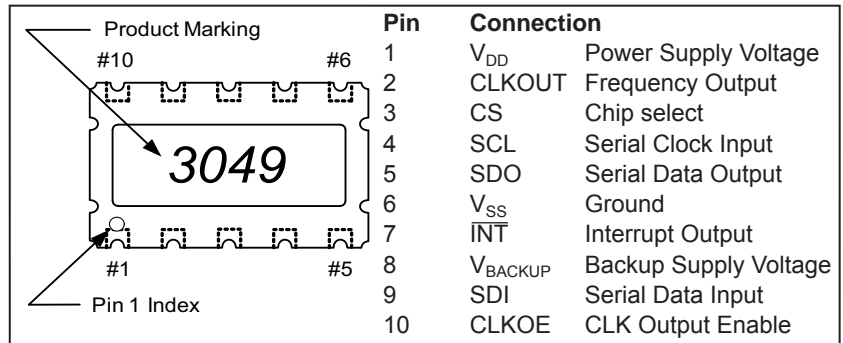
**PACKAGE, TERMINATIONS AND PROCESSING:**

| Package-Type | Termination                        | Processing                          |
|--------------|------------------------------------|-------------------------------------|
| SON 10-pin   | For SMD mounting<br>Au plated pads | Reflow soldering<br>260°C/20 s max. |

**FREQUENCY TEMPERATURE CHARACTERISTICS:**



**PIN CONNECTIONS TOP VIEW:**



All specifications subject to change without notice.



Micro Crystal AG  
Mühlestrasse 14  
CH-2540 Grenchen  
Switzerland

Tel. +41 32 655 82 82  
Fax +41 32 655 82 83  
sales@microcrystal.com  
www.microcrystal.com

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [micro crystal manufacturer](#):*

Other Similar products are found below :

[RV-8523-C3-EVALUATION-BOARD](#) [RV-3028-C7 ON BOARD 32.768kHz TA QC](#) [RV-3049-C2-EVALUATION-BOARD-OPTION-B](#) [RV-3029-C2-EVALUATION-BOARD-OPTION-B](#) [RV-8803-C7-32.768k-3PPM-TA-QA](#) [RV-8803-C7-EVALUATION-BOARD](#) [OV-7604-C7-EVALUATION-BOARD](#) [RV-8263-C7-EVALUATION-BOARD](#) [CM7V-T1A-32.768kHz-9pF-20PPM-TC-QC](#) [RV-2251-C3-EVALUATION-BOARD](#) [RV-3029-C3-32.768k-OPTION-B-TB-QA](#) [RV-3029-C3-TB-QA-OPT.B](#) [CC4V-T1A-32.768kHz-9pF-20PPM-TA-QC](#) [RV-2123-C2-TA-QC-020](#) [CC4V-T1A 32.768KHZ +-20PPM 9PF](#) [MS1V-T1K-32.768kHz-7pF-20PPM-TA-QC-Au](#) [CC7V-T1A-32.768k-12.5pF-20PPM-TA-QA](#) [CC4V-T1A 32.768KHZ 12.5PF +-20PPM](#) [CM7V-T1A-32.768k-6pF-20PPM-TB-QA](#) [RV-3029-C2-TB-QA-OPT.A](#) [OM-0100-C8-100.00kHz-20PPM-TA-QC](#) [CM7V-T1A-32.768k-9pF-20PPM-TA-QA](#) [CM8V-T1A-32.768kHz-7pF-20PPM-TB-QC](#) [RV-3049-C3-TB-QA-OPT.A](#) [CC5V-T1A 32.768KHZ +-20PPM 9PF](#) [RV-8564-C3-TA-QC-020](#) [MS1V-T1K 32.768KHZ +-20PPM 10PF](#) [CC7V-T1A-32.768k-9pF-20PPM-TC-QA](#) [CM7V-T1A-32.768kHz-12.5pF-100PPM-TC-QC](#) [RV-3029-C3-32.768k-OPTION-A-TB-QA](#) [CM7V-T1A-32.768k-9pF-20PPM-TC-QA](#) [CC7V-T1A-32.768kHz-7pF-20PPM-TB-QC](#) [CM7V-T1A-100.000kHz-9pF-100PPM-TA-QC](#) [RV-4162-C7-TA-QC-020](#) [CC7V-T1A-32.768k-9pF-20PPM-TA-QA](#) [RV-3029-C2-32.768k-OPTION-A-TB-QA](#) [RV-3049-C3-32.768kHz-OPTION-B-TA-QC](#) [RV-8564-C2-32.768kHz-20PPM-TA-QC](#) [CC7V-T1A-32.768kHz-7pF-10PPM-TA-QC](#) [CM7V-T1A-32.768k-9pF-20PPM-TB-QA](#) [OM-7605-C8-20PPM-TA-QA](#) [CC7V-T1A-32.768k-12.5pF-20PPM-TB-QA](#) [CC7V-T1A-32.768kHz-12.5pF-10PPM-TA-QC](#) [OV-7604-C7](#) [RV-3149-C3 32.768kHz OPTION B TA QC](#) [RV-3049-C3-32.768k-OPTION-B-TB-QA](#) [CC4V-T1A-32.768kHz-7pF-20PPM-TA-QC](#) [CM9V-T1A-32.768kHz-7pF-100PPM-TA-QC](#) [CM7V-T1A-32.768k-7pF-100PPM-TB-QA](#) [CM7V-T1A-0.3-32.768kHz-9pF-20PPM-TA-QC](#)