

RV-3049-C2

Real-Time Clock Module with SPI-Bus



APPLICATIONS

- IoT
- Metering
- Industrial
- Portables
- Automotive
- Health Care

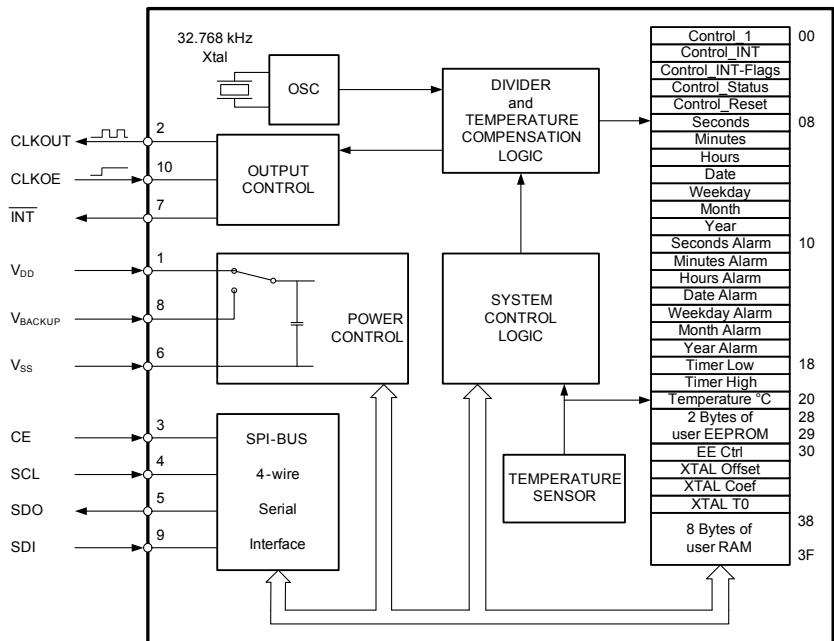
DESCRIPTION

The RV-3049-C2 is a SMT Real-Time Clock Module that incorporates an integrated CMOS circuit together with an XTAL. It operates under vacuum in a hermetically sealed ceramic package with glass lid.

FEATURES

- Low power consumption: 800 nA @ 3 V.
- Wide operating voltage range: 1.3 V to 5.5 V.
- Time accuracy, temp. compensated: Option A: -40 to +85°C, ±6 ppm, Option B: -40 to +85°C, ±25 ppm.
- Extended operating temperature range: -40 to +125°C.
- Automatic Backup Switchover and Trickle Charger function.
- Provides year, month, weekday, date, hours, minutes and seconds.
- Timer and Alarm functions.
- Clock output frequencies: 32.768 kHz, 1024 Hz, 32 Hz, 1 Hz.
- 2 bytes non-volatile user memory, 8 bytes user RAM.
- SPI-bus interface: 4-wire, 1 MHz.
- 100% Pb-free, RoHS-compliant.
- Automotive qualification according to AEC-Q200 available.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS AT 25°C

More detailed information can be found in the Application Manual.

ENVIRONMENTAL CHARACTERISTICS

TERMINATIONS AND PROCESSING

FREQUENCY TEMPERATURE CHARACTERISTICS

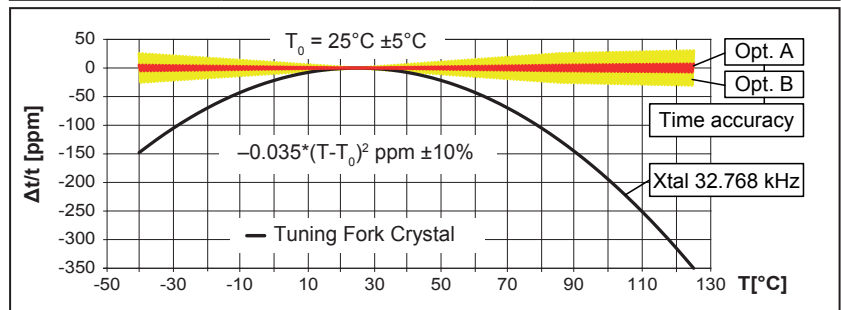
PIN CONNECTIONS TOP VIEW

ORDERING INFORMATION

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V_{DD}	Time keeping	1.3		5.5	V
Supply voltage	V_{DD}	Thermom. active	2.1		5.5	V
Current consumption Time keeping mode	I_{DDO}	SPI-bus inactive, $V_{DD} = 3\text{ V}$		800	1000	nA
Time acc. Opt. A / B	$\Delta t/t$	-40 to +85°C	±6 / ±25			ppm
Aging first year max.	$\Delta F/F$	@ 25°C	±3			ppm

	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	$\Delta F/F$ 5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	$\Delta F/F$ 20 g / 10–2000 Hz	±5 ppm

Package	Termination	Processing
SON-10	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s



Pin	Connection
1	V_{DD} Power Supply Voltage
2	CLKOUT Clock Output
3	CE Chip Enable
4	SCL Serial Clock Input
5	SDO Serial Data Output
6	V_{SS} Ground
7	$\overline{\text{INT}}$ Interrupt Output
8	V_{BACKUP} Backup Supply Voltage
9	SDI Serial Data Input
10	CLKOE Clock Output Enable

RV - 3049 - C2 Option A TA QC
RTC module
Product type
Package size C2 = 5.0 x 3.2 x 1.2 mm
Time accuracy Option A = ±6 ppm @ -40°C to +85°C Option B = ±25 ppm @ -40°C to +85°C
Qualification QC = Commercial Grade (Standard) QA = Automotive Grade AEC-Q200
Temperature range TA = -40 to +85°C (Standard) TB = -40 to +125°C

A unique part number will be generated for each product specification, i.e.:

20xxxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)
20xxxx-PG05	5'000 pcs (in 12 mm tape on 13" reel)

All specifications subject to change without notice.



A COMPANY OF THE SWATCH GROUP

Micro Crystal AG
Muehlestrasse 14
CH-2540 Grenchen
Switzerland

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