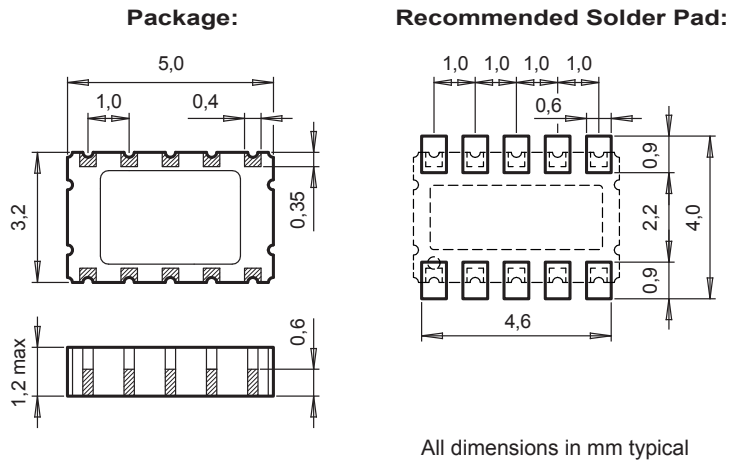


# RV-3049-C2

Real-Time Clock Module with SPI-Bus



## DIMENSIONS



## APPLICATIONS

IoT  
Metering  
Industrial  
Portables  
Automotive  
Health Care

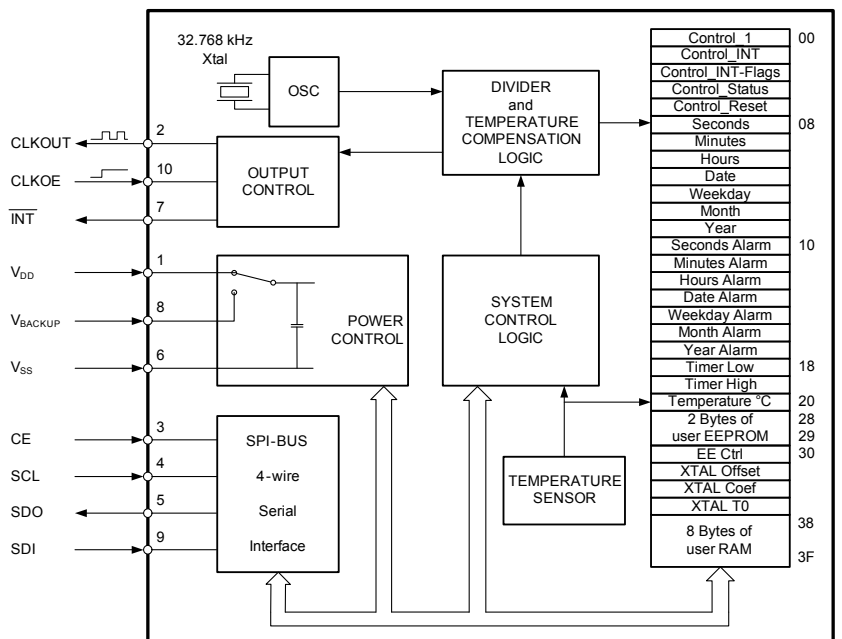
## DESCRIPTION

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

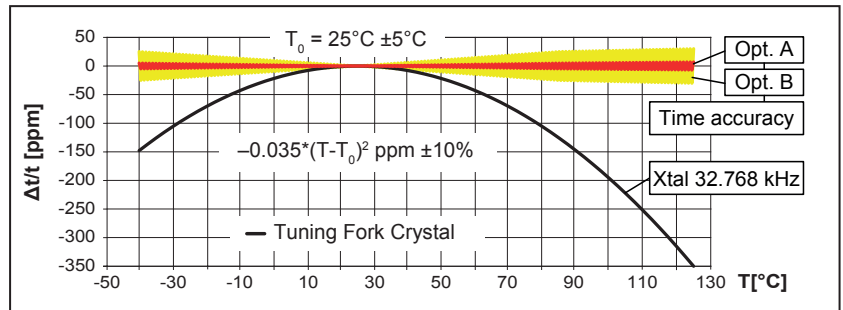
## PIN CONNECTIONS TOP VIEW

## ORDERING INFORMATION

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V <sub>DD</sub>	Time keeping	1.3		5.5	V
Supply voltage	V <sub>DD</sub>	Thermom. active	2.1		5.5	V
Current consumption Time keeping mode	I <sub>DDO</sub>	SPI-bus inactive, V <sub>DD</sub> = 3 V		800	1000	nA
Time acc. Opt. A / B	Δt/t	-40 to +85°C	±6 / ±25			ppm
Aging first year max.	ΔF/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	ΔF/F 5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	ΔF/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 <sub>DD</sub> Power Supply Voltage
2	CLKOUT Clock Output
3	CE Chip Enable
4	SCL Serial Clock Input
5	SDO Serial Data Output
6	V <sub>SS</sub> Ground
7	INT Interrupt Output
8	V <sub>BACKUP</sub> 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