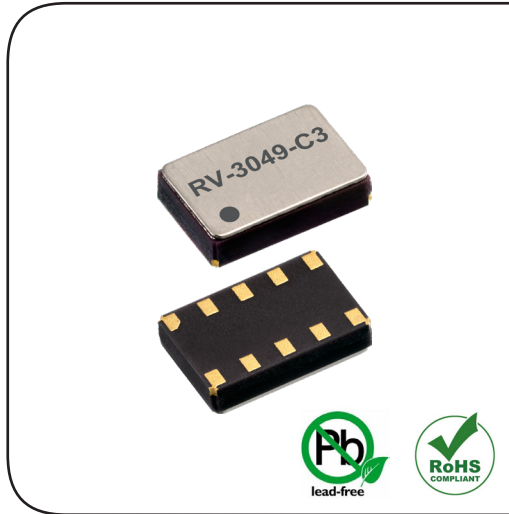
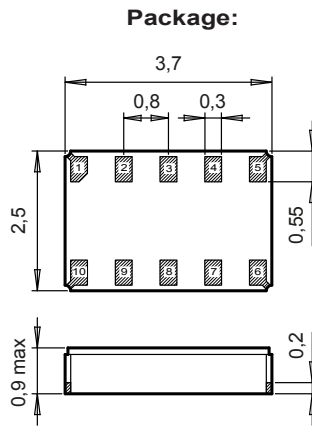


# RV-3049-C3

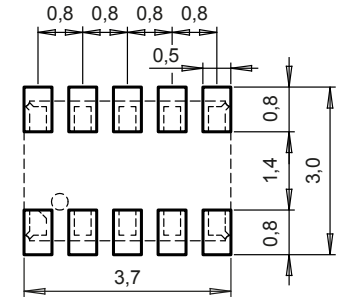
Real-Time Clock Module with SPI-Bus



## DIMENSIONS



## Recommended Solder Pad:



Metal lid is connected to V<sub>SS</sub> (pin #6)

All dimensions in mm typical

## APPLICATIONS

IoT  
Metering  
Industrial  
Portables  
Automotive  
Health Care

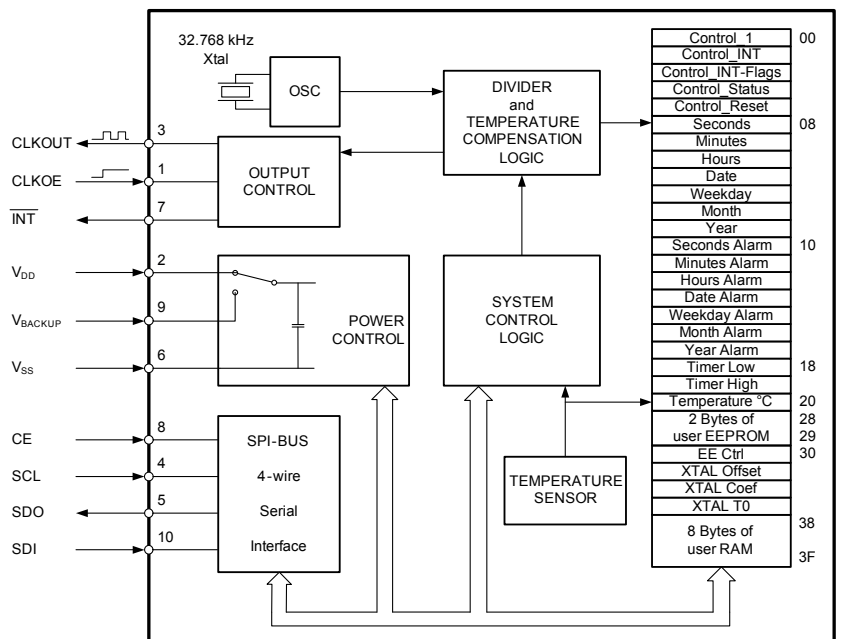
## DESCRIPTION

The RV-3049-C3 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 metal 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

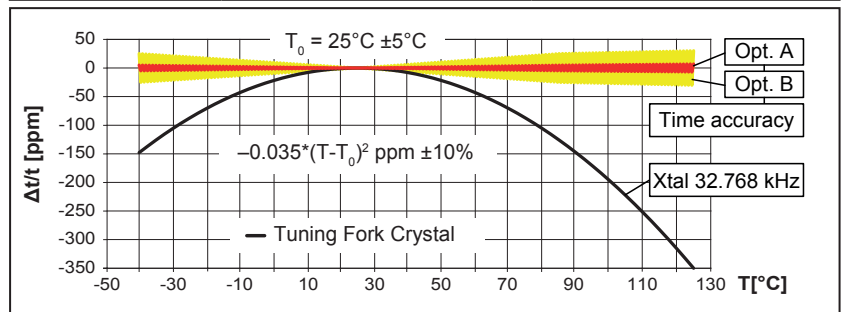
## PIN CONNECTIONS TOP VIEW

## 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	CLKOE Clock Output Enable
2	V <sub>DD</sub> Power Supply Voltage
3	CLKOUT Clock Output
4	SCL Serial Clock Input
5	SDO Serial Data Output
6	V <sub>SS</sub> Ground
7	INT Interrupt Output
8	CE Chip Enable
9	V <sub>BACKUP</sub> Backup Supply Voltage
10	SDI Serial Data Input

RV - 3049 - C3	Option A	TA	QC
RTC module			Qualification
Product type			QC = Commercial Grade (Standard)
Package size			QA = Automotive Grade AEC-Q200
C3 = 3.7 x 2.5 x 0.9 mm			Temperature range
Time accuracy			TA = -40 to +85°C (Standard)
Option A = ±6 ppm @ -40°C to +85°C			TB = -40 to +125°C
Option B = ±25 ppm @ -40°C to +85°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-MG03	3'000 pcs (in 12 mm tape on 7" 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