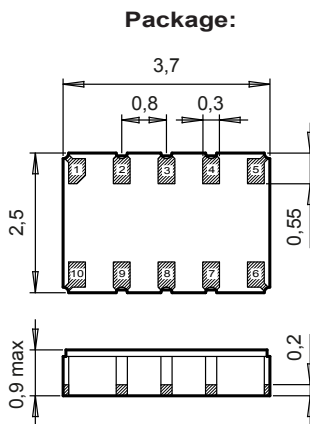


# RV-3149-C3

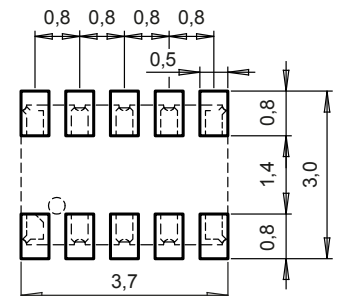
Real-Time Clock Module with SPI-Bus



## DIMENSIONS



## Recommended Solder Pad:



Metal lid is connected to  $V_{SS}$  (pin #6)

All dimensions in mm typical

## APPLICATIONS

IoT  
Metering  
Industrial  
Portables  
Automotive  
Health Care

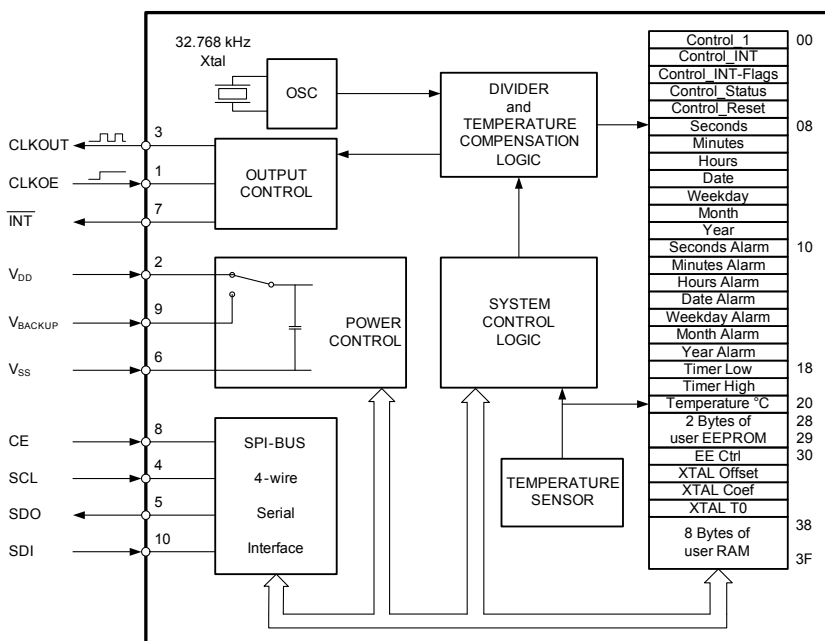
## DESCRIPTION

The RV-3149-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,  $\pm 6$  ppm,  
Option B: -40 to +85°C,  $\pm 25$  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

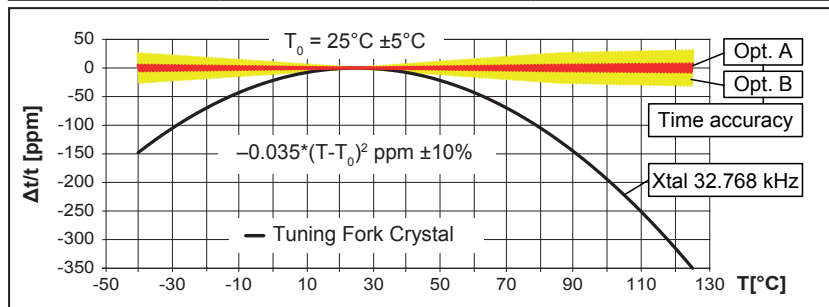
## PIN CONNECTIONS TOP VIEW

## 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	$\pm 6 / \pm 25$			ppm
Aging first year max.	$\Delta F/F$	@ 25°C	$\pm 3$			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, 1/2 sine	$\pm 5$ ppm
Vibration resistance	$\Delta F/F$ 20 g / 10–2000 Hz	$\pm 5$ 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	$V_{DD}$ Power Supply Voltage
3	CLKOUT Clock Output
4	SCL Serial Clock Input
5	SDO Serial Data Output
6	$V_{SS}$ Ground
7	$\overline{\text{INT}}$ Interrupt Output
8	CE Chip Enable
9	$V_{\text{BACKUP}}$ Backup Supply Voltage
10	SDI Serial Data Input

RV - 3149 - 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 = $\pm 6$ ppm @ -40°C to +85°C			TB = -40 to +125°C
Option B = $\pm 25$ 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.



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[OPTION B TA QC](#) [RV-3149-C3 32.768kHz OPTION B TB QA](#)