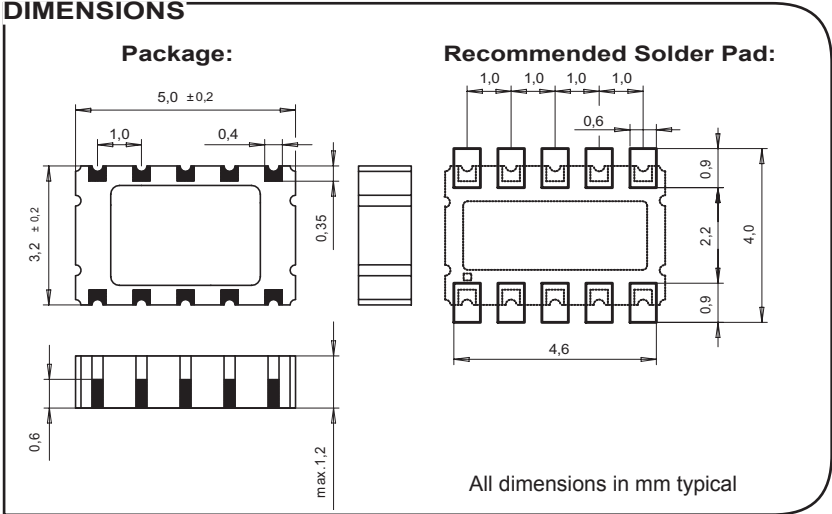


# RV-3049-C2

## Real Time Clock Module with 4-wire Bus



**Extremely Accurate RTC Module with embedded Xtal.**  
**4-wire Serial-Interface (SPI-Bus)**  
**Temperature Compensation**

**Option A: Calibrated**  
 Accuracy ± 6ppm / -40°C to +85°C  
 Accuracy ± 8ppm / -40°C to +125°C

**Option B: Default**  
 Accuracy ± 25ppm / -40°C to +85°C  
 Accuracy ± 30ppm / -40°C to +125°C

**Option C: not compensated**

**Miniature Ceramic package**  
**Very low power consumption 850nA**  
**Operating Temp. -40°C to +125°C**  
**Time keeping mode down to 1.3 V**  
**Backup Battery switchover**

### DESCRIPTION:

The RV-3049-C2 is a Real-Time-Clock Module with embedded Crystal. This RTC has a 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.

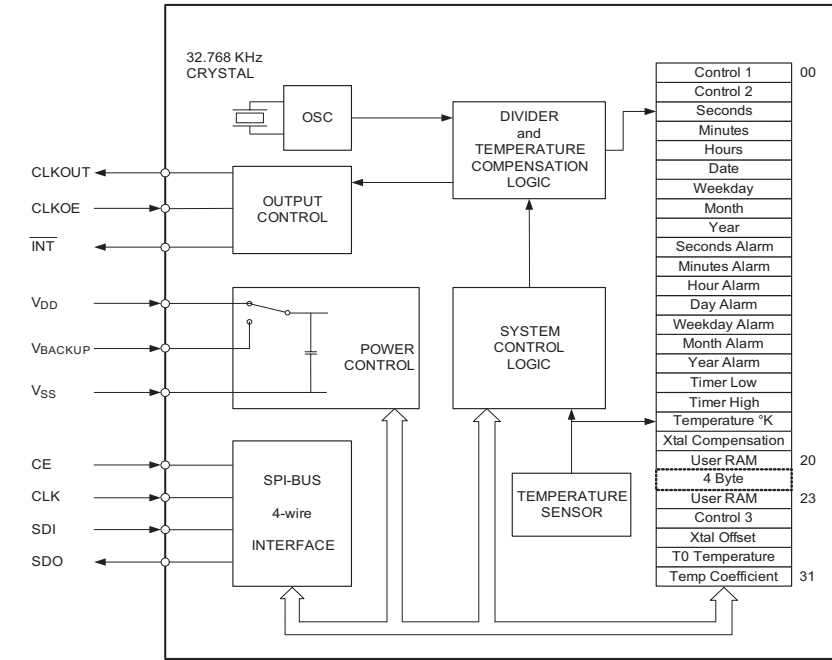
Beside standard RTC functions, it includes a Backup-Battery Input with internal switchover function, a programmable Trickle-charge circuitry, an integrated Temperature Sensor with digital-output and offers 8 Bytes RAM and 2 Bytes EEPROM for customer's application.

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  
 10" (254 mm) reel with 2'500 parts  
 13" (330 mm) reel with 5'000 parts

### BLOCKDIAGRAM:

Preliminary



**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		850	1000	nA
CLKOUT frequency		Progr.	32.768/1024/32/1			Hz
Frequency Tolerance	ΔF/F	@ 25°C		±10	±20	ppm
Aging first year max.	ΔF/F	@ 25°C			± 3	ppm
Time accuracy Opt. A	ΔF/F	-40 to +85°C			± 6	ppm
Time accuracy Opt. B	ΔF/F	-40 to +85°C			± 25	ppm
Freq.vs.Temp. Opt. C	ΔF/F <sub>OPR</sub>	20 ≤ T <sub>0</sub> ≤ 30	-0.035 ppm/°C · (T - T <sub>0</sub> ) <sup>2</sup> ±10%			ppm

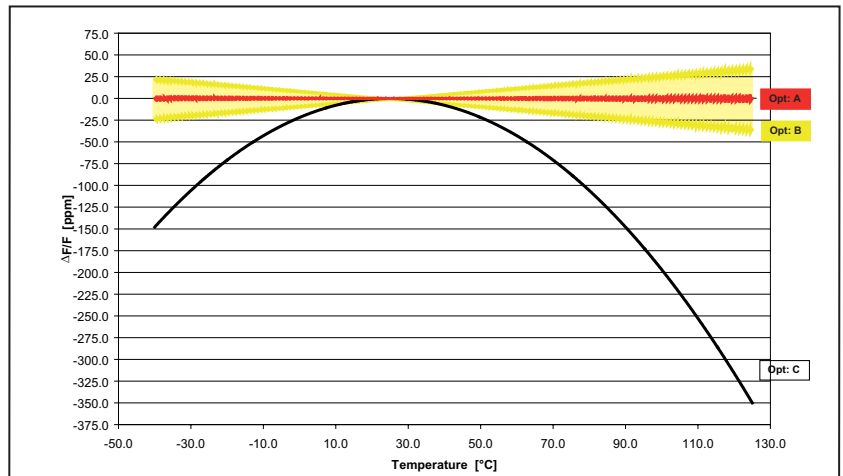
**ENVIRONMENTAL  
CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
Industrial operating temp. range		-40 to +85°C	
Extended operating temp. range		-55 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 Au flashed pads	Reflow soldering 260°C/20 s max.

**FREQUENCY TEMPERATURE  
CHARACTERISTICS:**



**PIN CONNECTIONS  
TOP VIEW:**

Pin	Connection
1	V <sub>DD</sub> Power Supply Voltage
2	CLKOUT Frequency Output
3	CS Chip select
4	SCL Serial Clock Input
5	SDO Serial Data Out
6	V <sub>SS</sub> Ground
7	INT Interrupt Output
8	V <sub>BACKUP</sub> Backup Supply Voltage
9	SDI Serial Data In
10	CLKOE CLK Output Enable

Product Marking: #10, #6, 3049, #1, #5, Pin 1 Index

All specifications subject to change without notice. 02.08



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