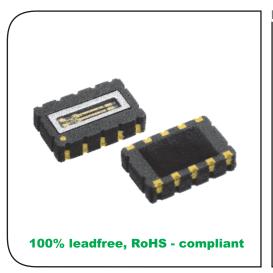
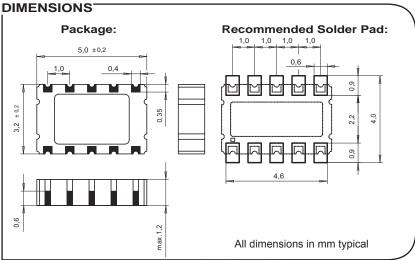


**RV-3049-C2** Real Time Clock Module with SPI-Bus





Extremely Accurate RTC Module with embedded Xtal. SPI Interface Temperature Compensation Automotive qualified, according to AEC-Q200 Rev. C

Option A:	Calibrated		
Temperature	<b>Time Deviation</b>		
@ +25°C	± 0.26 s/day	±	3ppm
0°C to +50°C	± 0.35 s/day	±	4ppm
-10°C to +60°C	± 0.44 s/day	±	5ppm
-40°C to +85°C	± 0.52 s/day	±	6ppm
-40°C to +125°C	± 0.70 s/day	±	8ppm
Option B:	Default		
Temperature	<b>Time Deviation</b>		
@ +25°C	± 0.26 s/day	±	3ppm
0°C to +50°C	± 0.44 s/day	±	5ppm

± 0.87 s/day

± 2.17 s/day

±10ppm

#### **DESCRIPTION:**

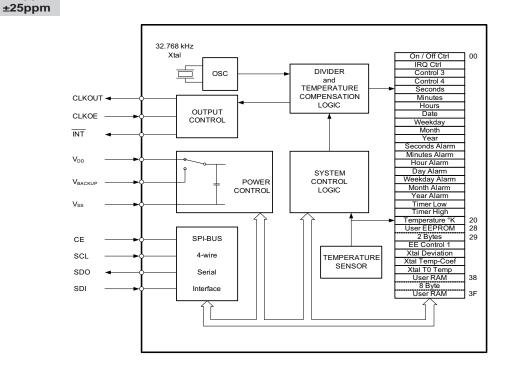
The RV-3049-C2 is a Real-Time-Clock Module with embedded Crystal. This RTC has 4-wire serial Interface (SPI-Bus) and offers temperature compensated time. The STC-Smart Temperature Compensation is calibrated in the factory and leads to a very high time-accuracy of  $\pm$  6ppm from -40°C to +85°C and  $\pm$  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
- 13" (330 mm) reel with 5'000 parts



#### **BLOCKDIAGRAM:**

-10°C to +60°C

-40°C to +85°C

## ELECTRICAL CHARACTERISTICS AT 25°C:

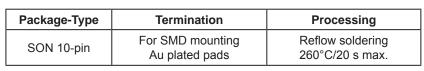
	Symbol	Condition	Min.	Тур.	Max	Unit
Supply voltage	$V_{DD}$	Time keeping	1.3 5.5		V	
Supply voltage	$V_{DD}$	Temp. comp.	1.8 5.5		5.5	V
Current consumption	I <sub>DDO</sub>	$V_{DD} = 3V$	800		1000	nA
CLKOUT frequency		Progr.	32.768/1024/32/1			Hz
Frequency Tolerance	$\Delta F/F$	@ 25°C	±10		±20	ppm
Freq.vs.Temp.	$\Delta F/F_{TOPR}$	$20 \le T_0 \le 30$	$-0.035 ^{\text{ppm}/_{\text{C}^2}}(\text{T}-\text{T}_0)^2 \pm 10\%$		ppm	
Aging first year	$\Delta F/F$	@ 25°C			± 3	ppm
Time accuracy Opt. A	∆t/t	@ 25°C			±0.26	s/day
		-40 to +85°C			±0.52	s/day
Time accuracy Opt. B	∆t/t	@ 25°C			±0.26	s/day
		-40 to +85°C			±2.17	s/day

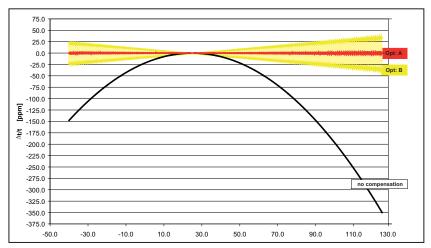
#### ENVIRONMENTAL CHARACTERISTICS:

		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

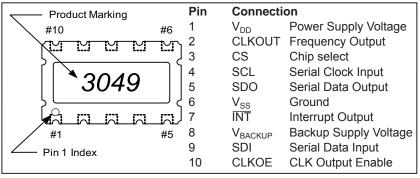
# PACKAGE, TERMINATIONS AND PROCESSING:

### FREQUENCY TEMPERATURE CHARACTERISTICS:





#### PIN CONNECTIONS TOP VIEW:



All specifications subject to change without notice.

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