MICRO CRYSTAL SWITZERLAND

RV-3049-C3

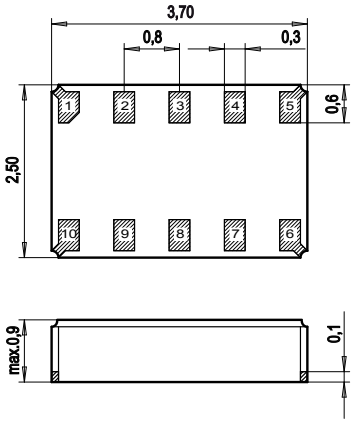
Real Time Clock Module with SPI-Bus



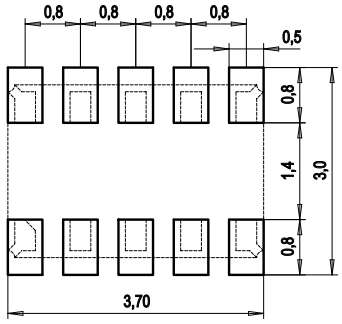
100% leadfree, RoHS - compliant

DIMENSIONS

Package:



Recommended Solder Pad:



All dimensions in mm typical

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

Option A:	**Calibrated**	
Temperature	**Time Deviation**	
@ +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**

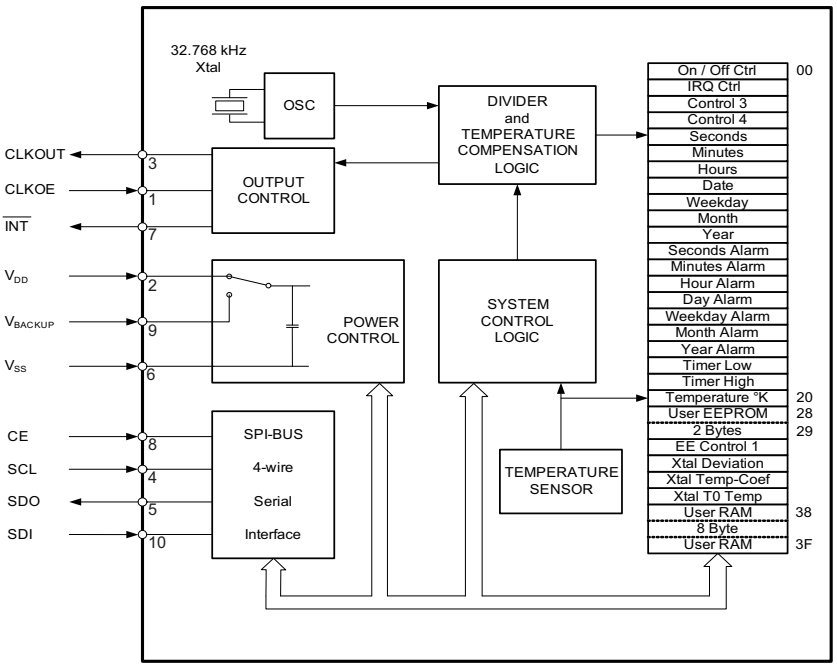
Option B:	**Default**	
Temperature	**Time Deviation**	
@ +25°C	**± 0.26 s/day**	**± 3ppm**
0°C to +50°C	**± 0.44 s/day**	**± 5ppm**
-10°C to +60°C	**± 0.87 s/day**	**±10ppm**
-40°C to +85°C	**± 2.17 s/day**	**±25ppm**
-40°C to +125°C	**± 2.60 s/day**	**±30ppm**

DESCRIPTION:

The RV-3049-C3 is an ultra miniature Real-Time-Clock Module with embedded Crystal. This RTC has an SPI Bus (4-wire Serial-Interface) 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
7” (178 mm) reel with 3'000 parts

BLOCKDIAGRAM:



ELECTRICAL CHARACTERISTICS AT 25°C:

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

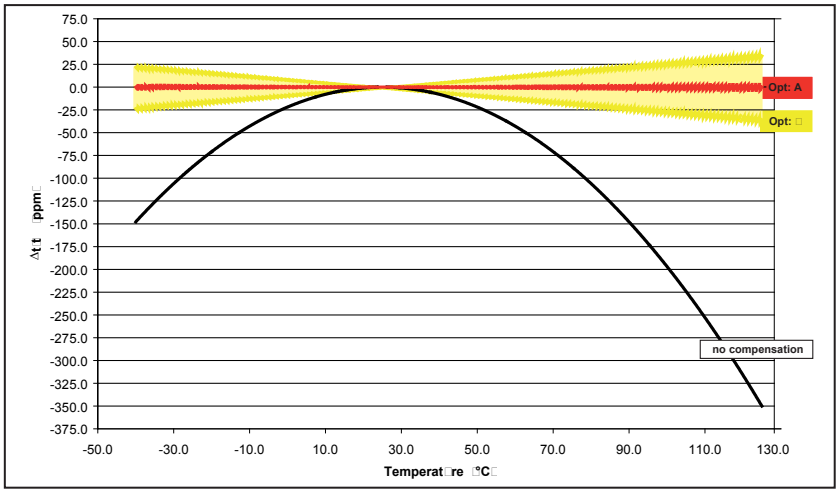
ENVIRONMENTAL CHARACTERISTICS:

		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	ΔF/F	5000 g, 0.3 ms, ½ sine	± 5 ppm
Vibration resistance	ΔF/F	20 g / 10–2000 Hz	± 5 ppm

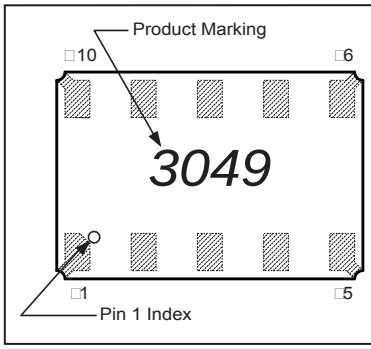
PACKAGE, TERMINATIONS AND PROCESSING:

Package-Type	Termination	Processing
SON 10-pin	For SMD mounting Au plated pads	Reflow soldering 260°C/20 s max.

FREQUENCY TEMPERATURE CHARACTERISTICS:



PIN CONNECTIONS TOP VIEW:



Pin	Connection	
1	CLKOE	CLK Output Enable
2	V_{DD}	Supply Voltage
3	CLKOUT	Clock Output
4	SCL	Serial Clock Input
5	SDO	Serial Data Output
6	V_{SS}	Ground
7	INT	Interrupt Output
8	CS	Chip Select
9	V_{BACKUP}	Backup Supply Voltage
10	SDI	Serial Data Input

All specifications subject to change without notice.

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Click to View Pricing, Inventory, Delivery & Lifecycle Information:

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202219-MG01 202670-MG01 202184-MG01 202302-MG01 202386-MG01 201734-MG01 RV-3049-C3-32.768k-OPTION-A-TB-QA RV-3049-C3-32.768kHz-OPTION-B-TA-QC RV-3049-C3-32.768kHz-OPTION-A-TA-QC RV-3049-C3-32.768kHz-OPTION-B-TB-QC RV-3049-C3-32.768kHz-OPTION-A-TB-QC RV-3049-C3-32.768k-OPTION-B-TB-QA