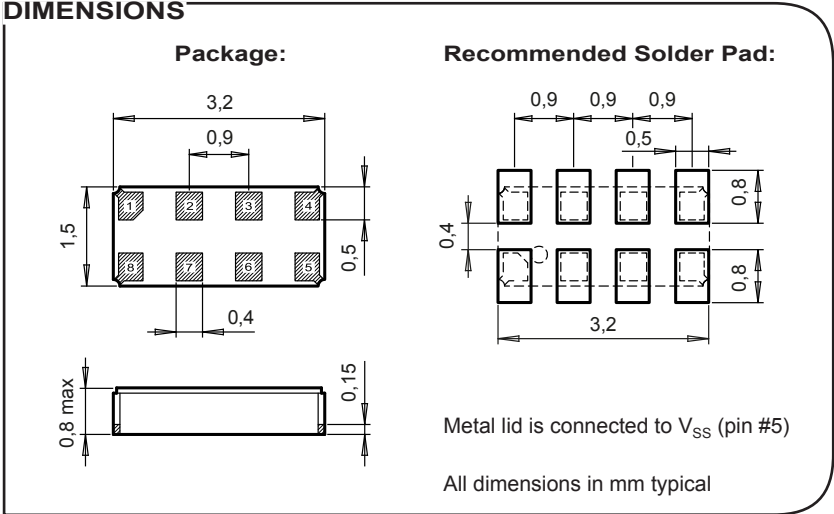
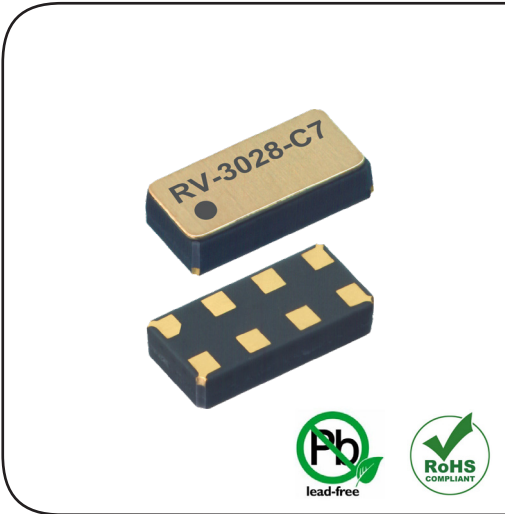


# RV-3028-C7

## Extreme Low Power RTC Module



### APPLICATIONS

- IoT
- Metering
- Industrial
- Automotive
- Health Care
- Wearables, Portables

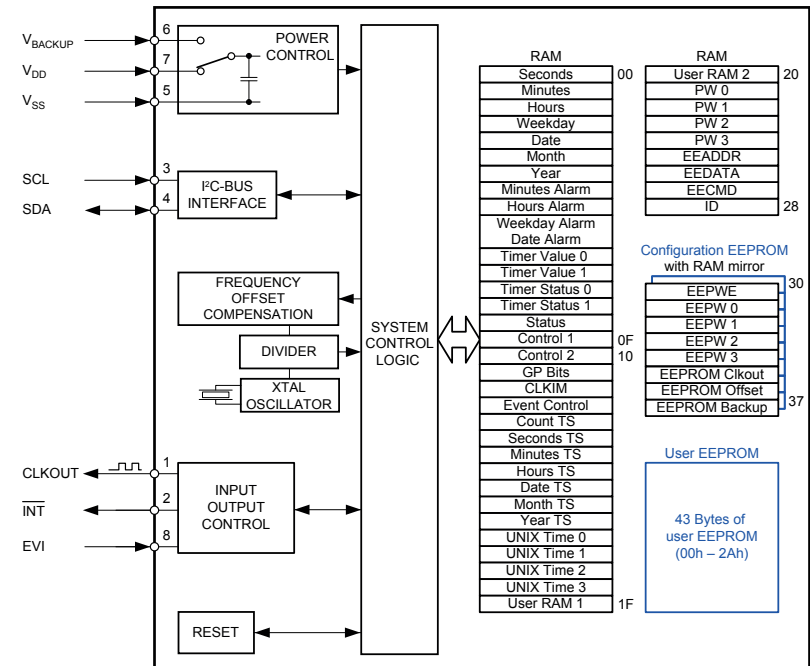
### DESCRIPTION

The RV-3028-C7 is a SMD 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

- Extreme low power consumption: 45 nA @ 3 V.
- Wide operating voltage range: 1.1 V to 5.5 V.
- Time accuracy: Factory calibrated to ±1 ppm @ 25°C
- User progr. password for write protection of time and configuration.
- Non-volatile configuration settings with user programmable offset value.
- Automatic Backup Switchover and Trickle Charger function.
- Provides year, month, date, weekday, hours, minutes, seconds, UNIX.
- Timer, Alarm and External event input with Time Stamp function.
- Clock output: 32.768 kHz, 8192 Hz, 1024 Hz, 64 Hz, 32 Hz, 1 Hz.
- 43 bytes non-volatile user memory, 2 bytes user RAM.
- I<sup>2</sup>C-bus interface: 400 kHz.
- 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.

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V <sub>DD</sub>	Time keeping	1.1		5.5	V
Supply voltage	V <sub>DD</sub>	I <sup>2</sup> C-bus active	1.2		5.5	V
Current consumption Time keeping mode	I <sub>DDO</sub>	I <sup>2</sup> C-bus inactive, V <sub>DD</sub> = 3 V		45	60	nA
CLKOUT frequency	F <sub>CLKOUT</sub>	Programmable	32768...to...1			Hz
Time accuracy	Δt/t	@ 25°C	±1			ppm
Aging first year max.	ΔF/F	@ 25°C	±3			ppm

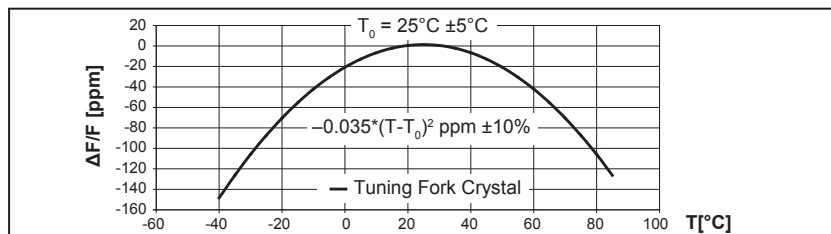
## ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		-55 to +125°C	
TA Operating temperature range		-40 to +85°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

## TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-8 (DFN-8)	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

## FREQUENCY TEMPERATURE CHARACTERISTICS



## PIN CONNECTIONS TOP VIEW

Pin	Connection
1	CLKOUT Clock Output
2	INT Interrupt Output
3	SCL Serial Clock Input
4	SDA Serial Data
5	V <sub>SS</sub> Ground
6	V <sub>BACKUP</sub> Backup Supply Voltage
7	V <sub>DD</sub> Power Supply Voltage
8	EVI Event Input

## ORDERING INFORMATION

**RV - 3028 - C7 TA QC**

**RTC module**

**Product type**

**Package size**  
C7 = 3.2 x 1.5 x 0.8 mm

**Qualification**  
QC = Commercial Grade (Standard)  
QA = Automotive Grade AEC-Q200

**Temperature range**  
TA = -40 to +85°C (Standard)

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  
sales@microcrystal.com  
www.microcrystal.com