

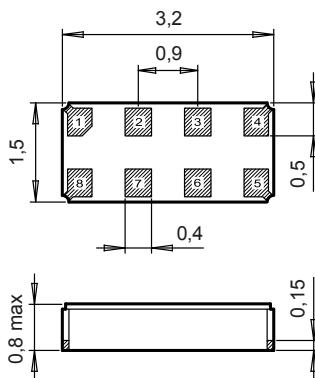
RV-3028-C7

Extreme Low Power RTC Module

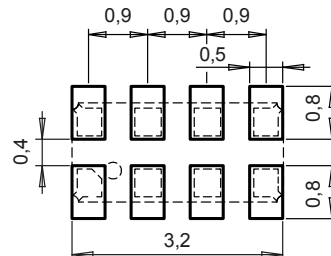


DIMENSIONS

Package:



Recommended Solder Pad:



Metal lid is connected to V_{SS} (pin #5)

All dimensions in mm typical

APPLICATIONS

IoT
Metering
Industrial
Automotive
Health Care
Wearables, Portables

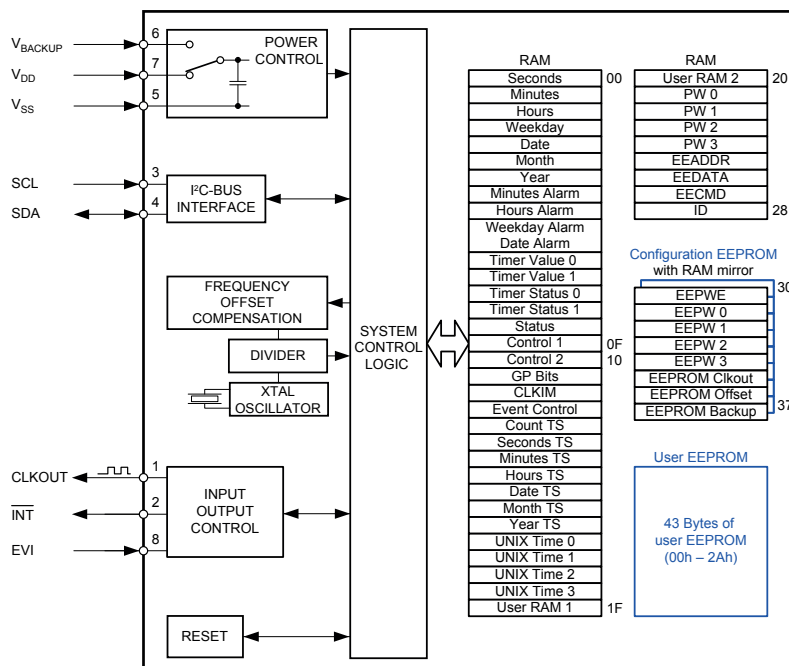
DESCRIPTION

The RV-3028-C7 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

- 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.
- I²C-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_{DD}	Time keeping	1.1		5.5	V
Supply voltage	V_{DD}	I ² C-bus active	1.2		5.5	V
Current consumption Time keeping mode	I_{DDO}	I ² C-bus inactive, $V_{DD} = 3\text{ V}$		45	60	nA
CLKOUT frequency	F_{CLKOUT}	Programmable	32768...to...1			Hz
Time accuracy	$\Delta t/t$	@ 25°C	±1			ppm
Aging first year max.	$\Delta F/F$	@ 25°C	±3			ppm

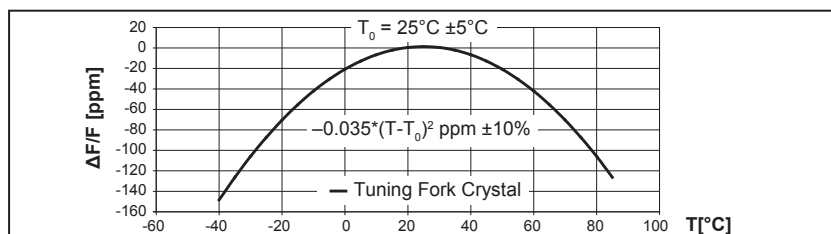
ENVIRONMENTAL CHARACTERISTICS

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

TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-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	$\overline{\text{INT}}$ Interrupt Output
3	SCL Serial Clock Input
4	SDA Serial Data
5	V_{SS} Ground
6	V_{BACKUP} Backup Supply Voltage
7	V_{DD} Power Supply Voltage
8	EVI Event Input

ORDERING INFORMATION

RV - 3028 - C7 TA QC	
RTC module	Qualification
Product type	QC = Commercial Grade (Standard)
	QA = Automotive Grade AEC-Q200
Package size	Temperature range
C7 = 3.2 x 1.5 x 0.8 mm	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
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com