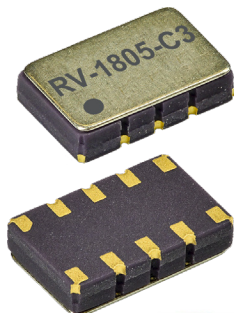
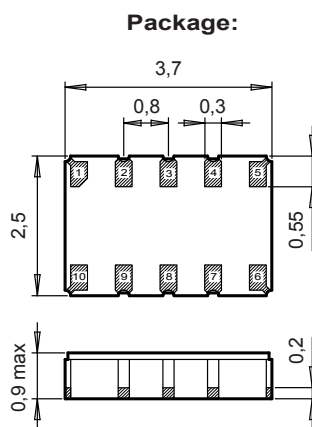


# RV-1805-C3

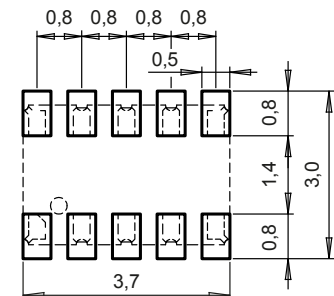
## Extreme Low Power RTC Module



### DIMENSIONS



### Recommended Solder Pad:



Metal lid is connected to  $V_{SS}$  (pin #6)

All dimensions in mm typical

### APPLICATIONS

IoT  
Metering  
Industrial  
Health Care  
Wearables, Portables

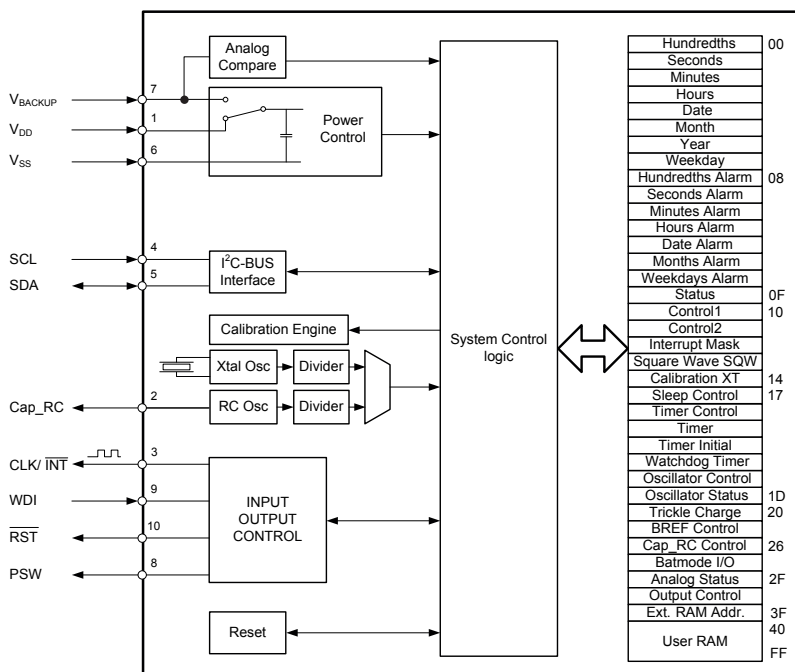
### DESCRIPTION

The RV-1805-C3 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: XTAL mode, 60 nA @ 3 V.  
RC mode, 17 nA @ 3 V. RC autocalibration mode, 22 nA @ 3 V.  
Operating voltage range: 1.5 V to 3.6 V.  
Time accuracy: Factory calibrated to  $\pm 2$  ppm @ 25°C.  
User programmable offset value.  
Automatic Backup Switchover and Trickle Charger function.  
Provides year, month, date, weekday, hours, minutes, seconds, 100th.  
Timer, Alarm, External event and Watchdog functions.  
Clock output frequencies: 32.768 kHz to 1/60 Hz.  
256 bytes user RAM.  
I<sup>2</sup>C-bus interface: 400 kHz.  
100% Pb-free, RoHS-compliant.  
Qualification according to AEC-Q200.

### 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	1.5		3.6	V
Current consumption Time keeping mode	$I_{DDO}$	XTAL mode, $V_{DD}$ 3 V		60	80	nA
		RC mode, $V_{DD}$ 3 V		17	25	
		RC autocal., $V_{DD}$ 3 V		22	32	
CLKOUT frequency	$F_{CLKOUT}$	Programmable	32'768 to 1/60			Hz
Time accuracy	$\Delta t/t$	@ 25°C	±2			ppm
Aging first year max.	$\Delta F/F$	@ 25°C	±3			ppm

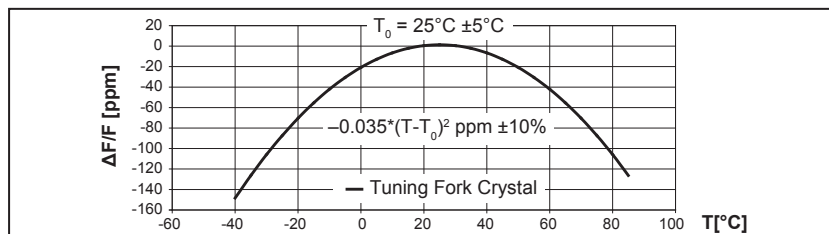
## ENVIRONMENTAL CHARACTERISTICS

		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, 1/2 sine	±5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	±5 ppm

## TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-10	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

## FREQUENCY TEMPERATURE CHARACTERISTICS



## PIN CONNECTIONS TOP VIEW

		<b>Pin</b>	<b>Connection</b>
		1	$V_{DD}$ Power Supply Voltage
		2	Cap_RC Capacitor RC Osci.
		3	CLK/INT Clock Output/Interrupt
		4	SCL Serial Clock Input
		5	SDA Serial Data
		6	$V_{SS}$ Ground
		7	$V_{BACKUP}$ Backup Supply Voltage
		8	PSW Power Switch Output
		9	WDI Watchdog Input
		10	RST Reset Output

## ORDERING INFORMATION

<b>RV - 1805 - C3 TA QC</b>	
<b>RTC module</b>	<b>Qualification</b>
<b>Product type</b>	QC = Commercial Grade (Standard)
<b>Package size</b>	<b>Temperature range</b>
C3 = 3.7 x 2.5 x 0.9 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

Version 6.1/11.2018