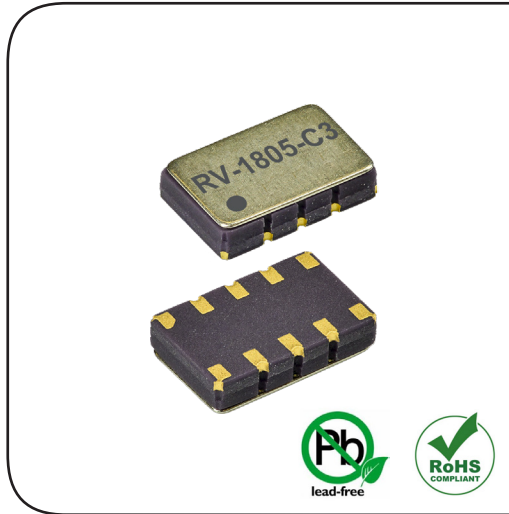
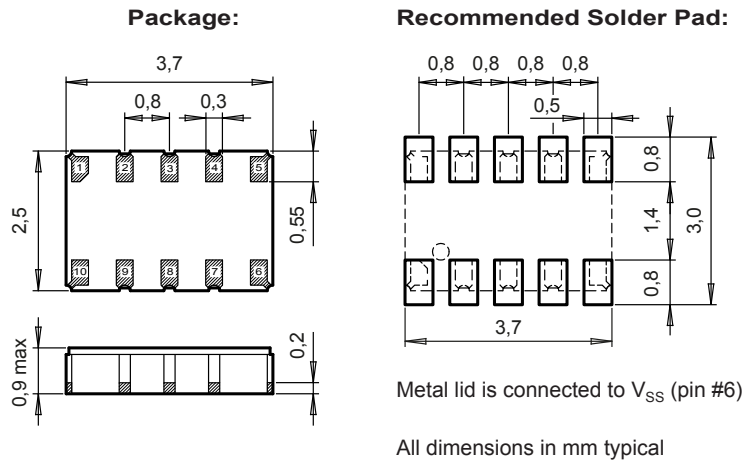


# RV-1805-C3

## Extreme Low Power RTC Module



### DIMENSIONS



### APPLICATIONS

IoT  
 Metering  
 Industrial  
 Health Care  
 Wearables, Portables

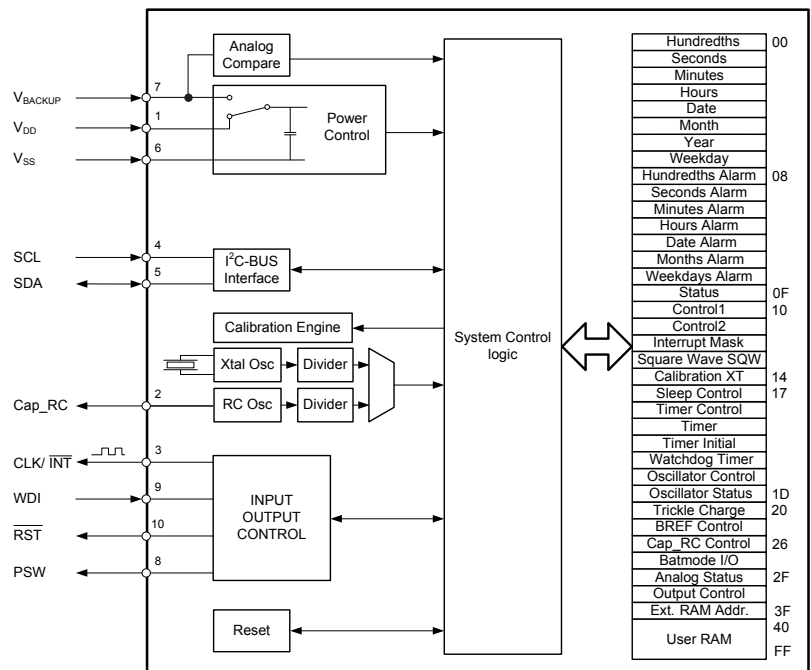
### DESCRIPTION

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	130	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

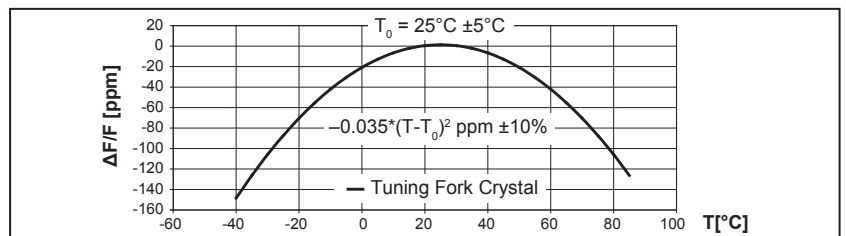
## ENVIRONMENTAL CHARACTERISTICS

	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

Pin	Connection
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

Product Date Code

#10 #6

M843A1

1805

#1 #5

Part Designation

Pin 1 Index

## ORDERING INFORMATION

RV - 1805 - C3 TA QC	Qualification
RTC module	QC = Commercial Grade (Standard)
Product type	Temperature range
Package size	TA = -40 to +85°C (Standard)
C3 = 3.7 x 2.5 x 0.9 mm	

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.



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