MICRO CRYSTAL SWITZERLAND

RV-3028-C7

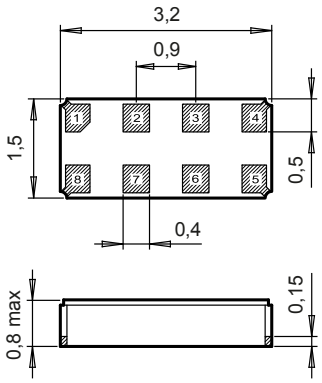
Extreme Low Power RTC Module

lead-free

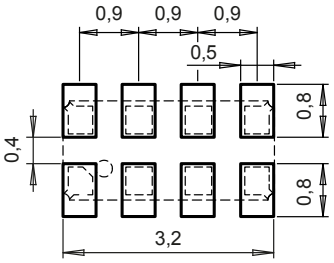
RoHS COMPLIANT

DIMENSIONS

Package:



Recommended Solder Pad:



All dimensions in mm typical

APPLICATIONS

IoT
Metering
Industrial
Automotive
Health Care
Wearables, Portables

DESCRIPTION

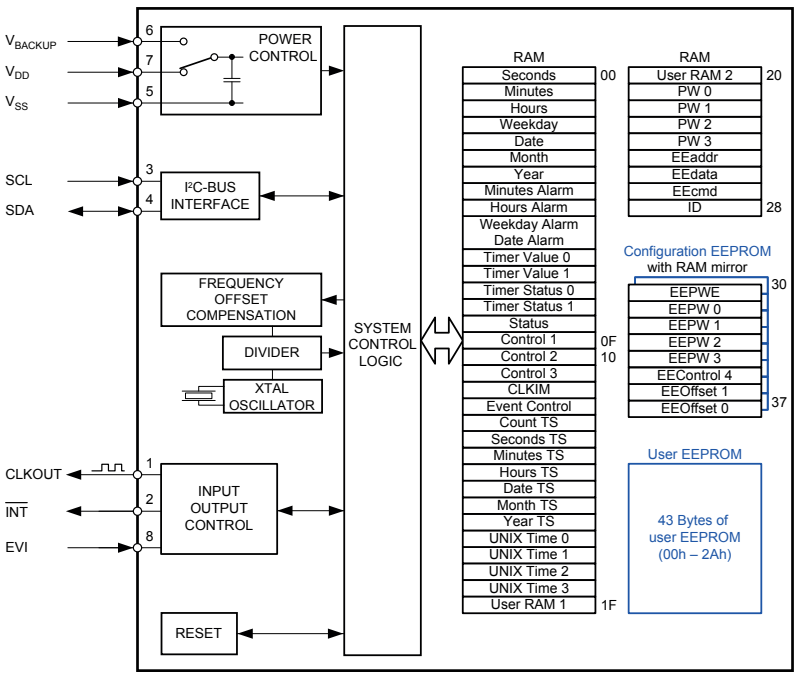
The RV-3028-C7 is a SMT Real-Time Clock Module that incorporates an integrated CMOS circuit together with an XTAL. It operates under vacuum in a hermetically sealed ceramic package with metal lid.

FEATURES

Extreme low power consumption: 40 nA @ 3 V.
Wide operating voltage range: 1.2 V to 5.5 V.
Time accuracy: Factory calibrated to ±1 ppm @ 25°C
Non-volatile configuration settings with user programmable offset value.
Backup Switch and Trickle Charge.
Provides year, month, date, weekday, hours, minutes and seconds.
32 bit UNIX time counter.
Timer, alarm and external event functions.
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.

Preliminary

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}	I²C-bus active	1.2		5.5	V
Supply voltage	V_{DD}	Time keeping	1.1		5.5	V
Current consumption Time keeping mode	I_{DDO}	I²C-bus inactive, V_{DD} = 3 V		40	60	nA
CLKOUT frequency	F_{CLKOUT}	Programmable	32768...to...1			Hz
Time accuracy	Δt/t	@ 25°C	±1			ppm
Aging first year max.	ΔF/F	@ 25°C	±3			ppm

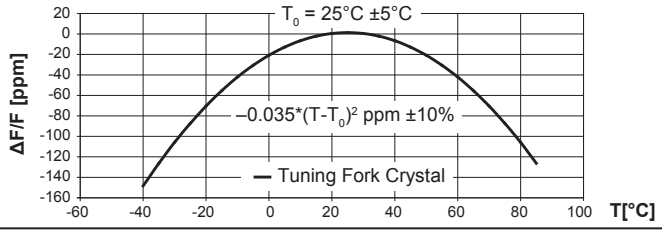
ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temp. 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

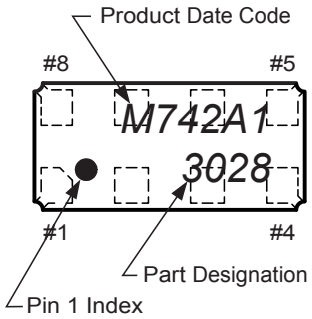
TERMINATIONS AND PROCESSING

Package	Termination	Processing
SON-8	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	$\overline{INT}$	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

Product type

Package size
C7 = 3.2 x 1.5 x 0.8 mm

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

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

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.

MICRO CRYSTAL SWITZERLAND

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Version 0.91/02.2018