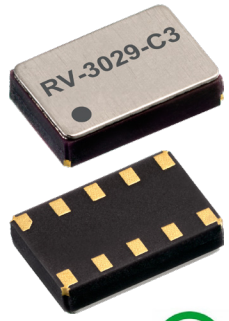
MICRO CRYSTAL SWITZERLAND

# RV-3029-C3

## Real-Time Clock Module with I²C-Bus

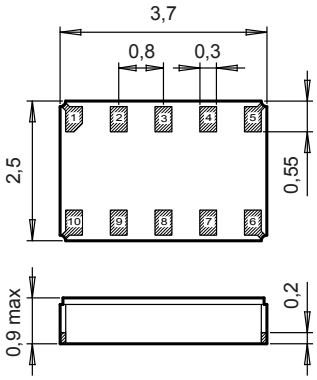



lead-free

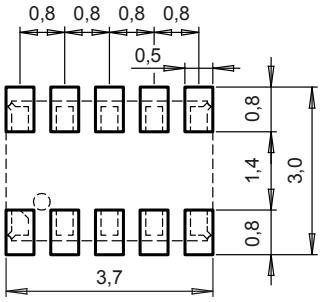
RoHS COMPLIANT

## DIMENSIONS

**Package:**




**Recommended Solder Pad:**




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

All dimensions in mm typical

## APPLICATIONS

IoT
Metering
Industrial
Portables
Automotive
Health Care

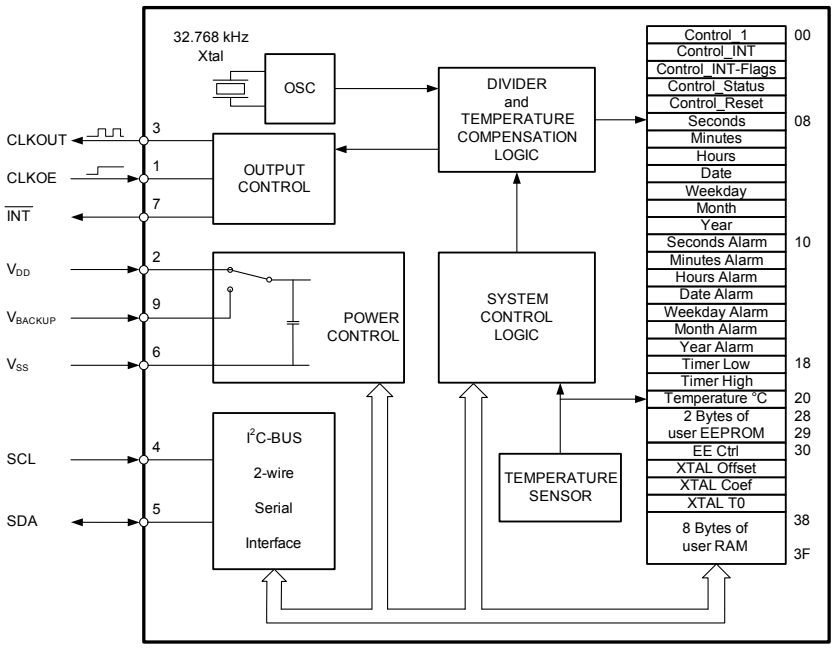
## DESCRIPTION

The RV-3029-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

Low power consumption: 800 nA @ 3 V.
Wide operating voltage range: 1.3 V to 5.5 V.
Time accuracy, temp. compensated: Option A: -40 to +85°C, ±6 ppm,
Option B: -40 to +85°C, ±25 ppm.
Extended operating temperature range: -40 to +125°C.
Automatic Backup Switchover and Trickle Charger function.
Provides year, month, weekday, date, hours, minutes and seconds.
Timer and Alarm functions.
Clock output frequencies: 32.768 kHz, 1024 Hz, 32 Hz, 1 Hz.
2 bytes non-volatile user memory, 8 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 | 1.3 | | 5.5 | V |
| Supply voltage | $V_{DD}$ | Thermom. active | 2.1 | | 5.5 | V |
| Current consumption Time keeping mode | $I_{DDO}$ | $I^2C$-bus inactive, $V_{DD}$ = 3 V | | 800 | 1000 | nA |
| Time acc. Opt. A / B | Δt/t | –40 to +85°C | ±6 / ±25 | | | ppm |
| Aging first year max. | ΔF/F | @ 25°C | ±3 | | | ppm |

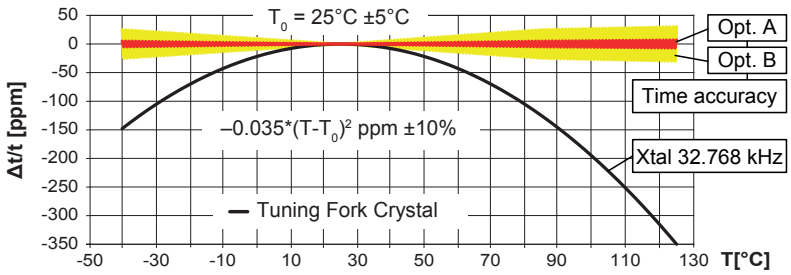
## ENVIRONMENTAL CHARACTERISTICS

| | | Conditions | Max. Dev. |
|---|---|---|---|
| Storage temp. range | | –55 to +125°C | |
| TA Operating temperature range | | –40 to +85°C | |
| TB Extended oper. temp. range | | –40 to +125°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 |

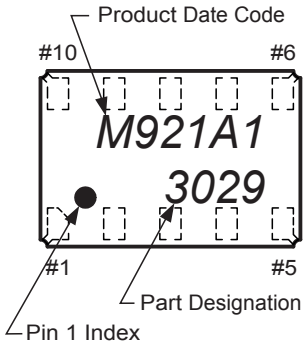
## TERMINATIONS AND PROCESSING

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

## FREQUENCY TEMPERATURE CHARACTERISTICS




## PIN CONNECTIONS TOP VIEW




| Pin | Connection | |
|---|---|---|
| 1 | CLKOE | Clock Output Enable |
| 2 | $V_{DD}$ | Power Supply Voltage |
| 3 | CLKOUT | Clock Output |
| 4 | SCL | Serial Clock Input |
| 5 | SDA | Serial Data |
| 6 | $V_{SS}$ | Ground |
| 7 | INT | Interrupt Output |
| 8 | NC | Not connected |
| 9 | $V_{BACKUP}$ | Backup Supply Voltage |
| 10 | NC | Not connected |

## ORDERING INFORMATION

**RV - 3029 - C3 Option A TA QC**

**RTC module**

**Product type**

**Package size**
**C3** = 3.7 x 2.5 x 0.9 mm

**Time accuracy**
**Option A** = ±6 ppm @ -40°C to +85°C
**Option B** = ±25 ppm @ -40°C to +85°C

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

**Temperature range**
**TA** = -40 to +85°C (Standard)
**TB** = -40 to +125°C

| 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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