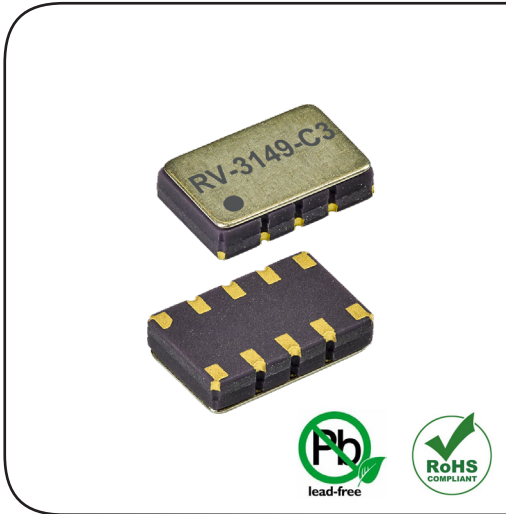
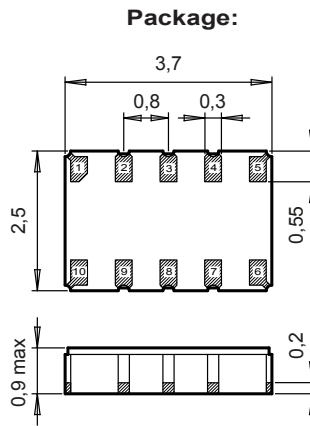


RV-3149-C3

Real-Time Clock Module with SPI-Bus



DIMENSIONS



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

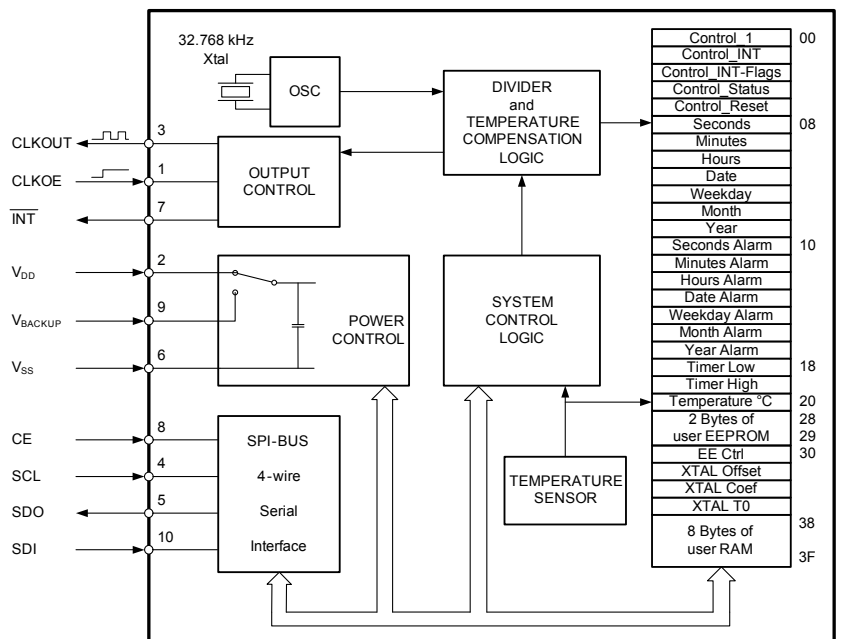
DESCRIPTION

The RV-3149-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.
- SPI-bus interface: 4-wire, 1 MHz.
- 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.

ENVIRONMENTAL CHARACTERISTICS

TERMINATIONS AND PROCESSING

FREQUENCY TEMPERATURE CHARACTERISTICS

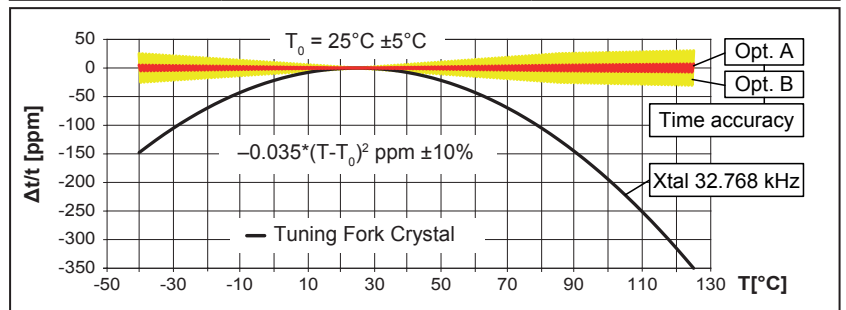
PIN CONNECTIONS TOP VIEW

ORDERING INFORMATION

| | 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} | SPI-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 |

| | 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 |

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



| Pin | Connection |
|-----|---|
| 1 | CLKOE Clock Output Enable |
| 2 | V _{DD} Power Supply Voltage |
| 3 | CLKOUT Clock Output |
| 4 | SCL Serial Clock Input |
| 5 | SDO Serial Data Output |
| 6 | V _{SS} Ground |
| 7 | INT Interrupt Output |
| 8 | CE Chip Enable |
| 9 | V _{BACKUP} Backup Supply Voltage |
| 10 | SDI Serial Data Input |

| RV - 3149 - C3 | Option A | TA | QC |
|-------------------------------------|----------|----|----------------------------------|
| RTC module | | | Qualification |
| Product type | | | QC = Commercial Grade (Standard) |
| Package size | | | QA = Automotive Grade AEC-Q200 |
| C3 = 3.7 x 2.5 x 0.9 mm | | | Temperature range |
| Time accuracy | | | TA = -40 to +85°C (Standard) |
| Option A = ±6 ppm @ -40°C to +85°C | | | TB = -40 to +125°C |
| Option B = ±25 ppm @ -40°C to +85°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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