

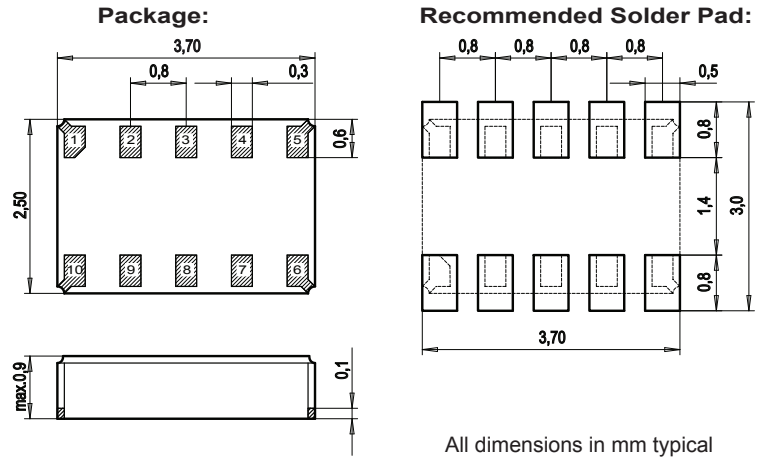
RV-8564-C3

Real Time Clock Module with I²C Bus



100% leadfree, RoHS - compliant

DIMENSIONS



Automotive qualified, according to AEC-Q200 Rev. C
 Xtal integrated solution
 Miniature SMT ceramic package
 Ultra low power consumption
 Very tight frequency tolerance
 I²C Bus Interface (400 kHz) *
 Programmable Clock-output
 Low aging
 Time keeping mode down to 1.2 V
 Programmable alarm, timer and interrupt functions

DESCRIPTION:

This miniature SMD ceramic package has been specially designed to combine the 32.768 kHz crystal unit with the CMOS-based oscillator and real-time-clock circuit.

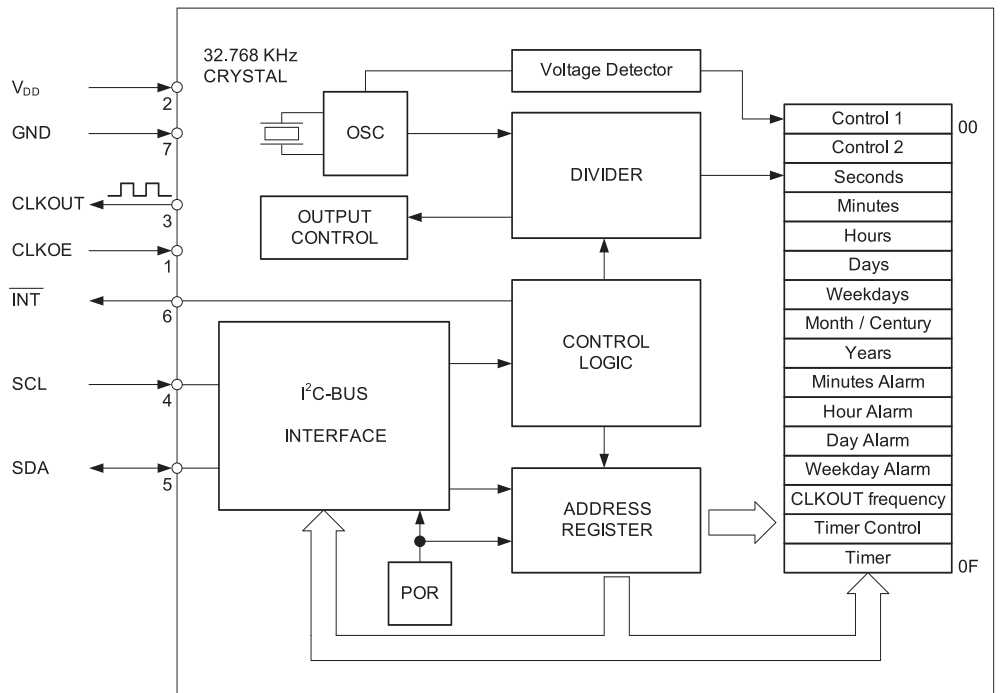
The calendar function tracks year, month, date, and day-of-the-week with built-in century and leap-year flags. The clock function tracks minute and second in 24-hour format. Programmable alarm setting and universal timer functions increase flexibility.

For pick-and-place equipment, the parts are available in 12 mm tape:

7" (178 mm) reel with 1'000 parts

7" (178 mm) reel with 3'000 parts

BLOCK DIAGRAM:



* The I²C Bus is a trademark of Philips Electronics N.V.

**ELECTRICAL CHARACTERISTICS
AT 25°C:**

| | Symbol | Condition | Min. | Typ. | Max | Unit |
|---------------------------------------|----------------|-----------------------------|--|------|-----|------|
| Supply voltage | V_{DD} | I ² C Bus Active | 1.8 | | 5.5 | V |
| Supply voltage | V_{DD} | Time keeping | 1.2 | | 5.5 | V |
| Power current during access | I_{DD} | fsc1=400 kHz | | | 800 | μA |
| | | fsc1=100 kHz | | | 200 | μA |
| Current consumption Time keeping mode | I_{DDO} | fsc1=0 Hz, V_{DD} 3 V | | 250 | 500 | nA |
| | | fsc1=0 Hz, V_{DD} 2 V | | 225 | 450 | nA |
| CLKOUT frequency | | Programmable | 32768/1024/32/1 | | | Hz |
| Frequency tolerance | $\Delta F/F$ | @ 25°C | $\pm 10 / \pm 20$ ¹⁾ | | | ppm |
| Aging first year max. | $\Delta F/F$ | @ 25°C | ± 3 | | | ppm |
| Frequency vs. temp. | $\Delta F/F_0$ | $20 \leq T_0 \leq 30$ | $-0.035 \text{ ppm}/^\circ\text{C} \cdot (T - T_0)^2 \pm 10\%$ | | | ppm |

1) Tighter and wider frequency tolerances on request.

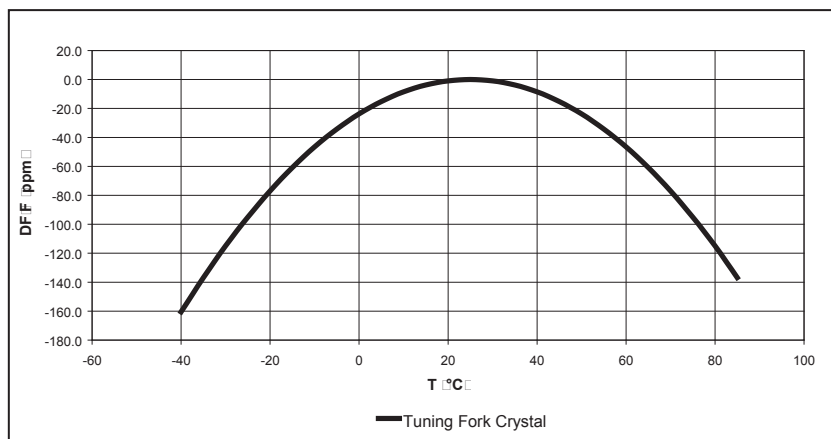
ENVIRONMENTAL CHARACTERISTICS:

| | 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, ½ sine | +/-5 ppm |
| Vibration resistance | $\Delta F/F$ 20 g / 10–2000 Hz | +/-5 ppm |

TERMINATIONS AND PROCESSING:

| Package-Type | Termination | Processing |
|--------------|------------------------------------|---------------------------------------|
| SON 10-pin | For SMD mounting Au plated pads | Reflow soldering 260°C / 20 s max. |

FREQUENCY TEMPERATURE CHARACTERISTICS:



PIN CONNECTIONS TOP VIEW:

| Pin | Connection |
|-----|--|
| 1 | CLKOE CLK Output Enable |
| 2 | V_{DD} Supply Voltage |
| 3 | CLKOUT Clock Output |
| 4 | SCL Serial Clock Input |
| 5 | SDA Serial Data |
| 6 | $\overline{\text{INT}}$ Interrupt output |
| 7 | GND Ground |

Pins 8, 9, 10 are not connected.

All specifications subject to change without notice.



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