

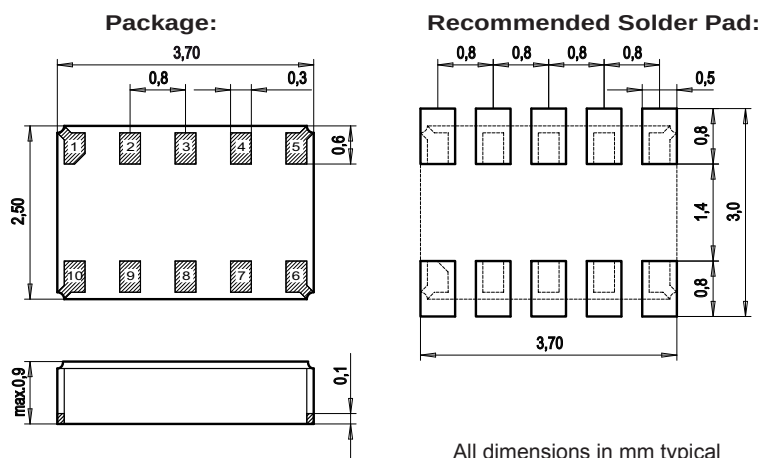
RV-8523-C3

Real Time Clock Module with I²C Bus



100% leadfree, RoHS - compliant

DIMENSIONS



Ultra low power consumption 130nA
Xtal integrated solution.
Frequency-Offset Trimming Register
Backup supply switchover circuitry
Miniature SMT ceramic package
Very tight frequency tolerance
I²C Bus Interface (fast mode 1 MHz)
Programmable Clock-output
Low aging
Time keeping mode down to 1.2 V
Programmable alarm, timer and
interrupt functions

DESCRIPTION:

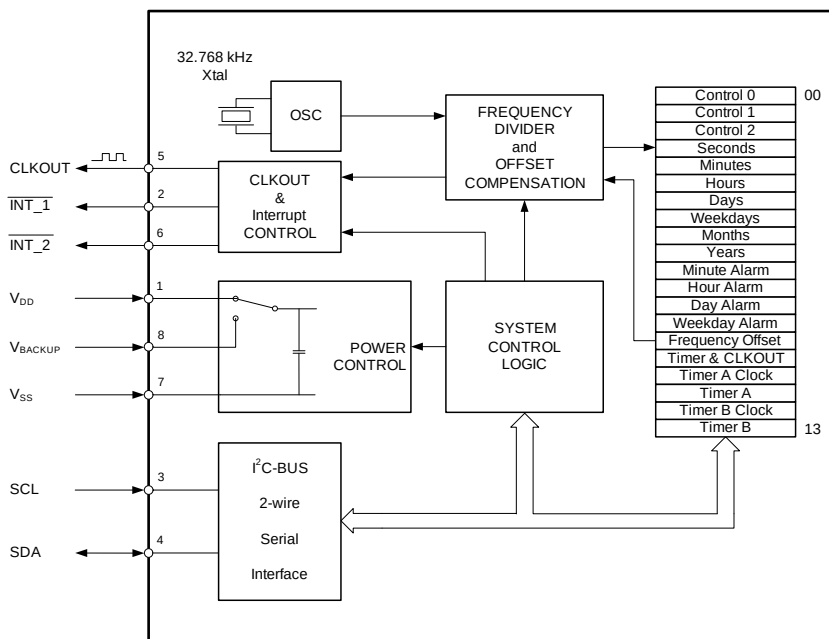
This RTC IC has been specially designed to achieve an ultra-low power consumption of typically 130nA @ V_{DD} 3.0V in time-keeping mode. The very small SMT ceramic-package combines the 32.768 kHz crystal unit with the CMOS-based oscillator and real-time-clock circuitry. The calendar function tracks year, 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, dual timer functions and integrated switch-over circuitry to backup supply voltage increase flexibility.

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

7" (178 mm) reel with 1'000 or 3'000 parts

13" (330 mm) reel with 10'000 parts

BLOCK DIAGRAM:



ELECTRICAL CHARACTERISTICS AT 25°C:

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V_{DD}	I ² C Bus Active	1.6		5.5	V
Supply voltage	V_{DD}	Power Managm.	1.8		5.5	V
Supply voltage	V_{DD}	Time keeping	1.2		5.5	V
Current consumption during access	I_{DD}	f _{scl} =1 MHz V_{DD} 3 V		100	200	μA
		f _{scl} =100 kHz V_{DD} 3 V		50	100	μA
Current consumption Time keeping mode	I_{DDO}	f _{scl} =0 Hz, V_{DD} 3 V		130	180	nA
		f _{scl} =0 Hz, V_{DD} 2 V		110	160	nA
CLKOUT frequency		Programmable	32768...to...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.	$\Delta F/F_0$	$20 \leq T_0 \leq 30$	$-0.035 \text{ ppm}/^\circ\text{C} (T - T_0)^2 \pm 10\%$			ppm

1) Tighter and wider frequency tolerances on request.

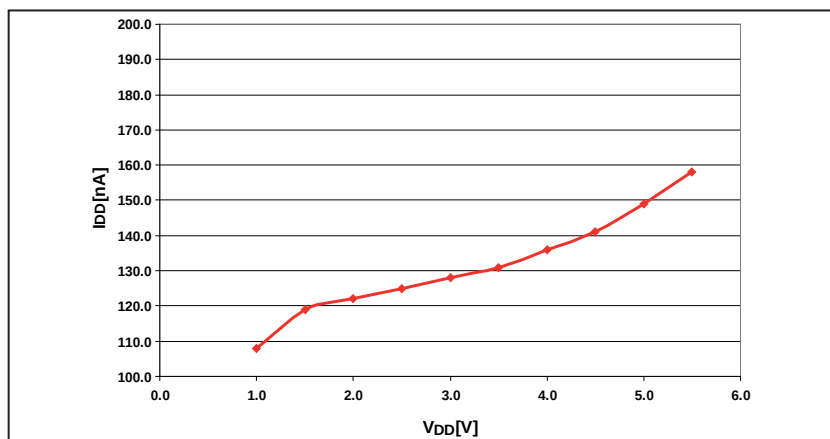
ENVIRONMENTAL CHARACTERISTICS:

		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.

CURRENT CONSUMPTION vs. POWER SUPPLY VOLTAGE:



PIN CONNECTIONS TOP VIEW:

Pin	Connection
1	V_{DD} Power Supply Voltage
2	$\overline{INT_1}$ Interrupt_1 Output
3	SCL Serial Clock Input
4	SDA Serial Data
5	CLKOUT Clock Frequency Output
6	$\overline{INT_2}$ Interrupt_2 Output
7	V_{SS} Ground
8	V_{BACKUP} Backup Supply Voltage
9	NC not connected
10	NC not connected

All specifications subject to change without notice.



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