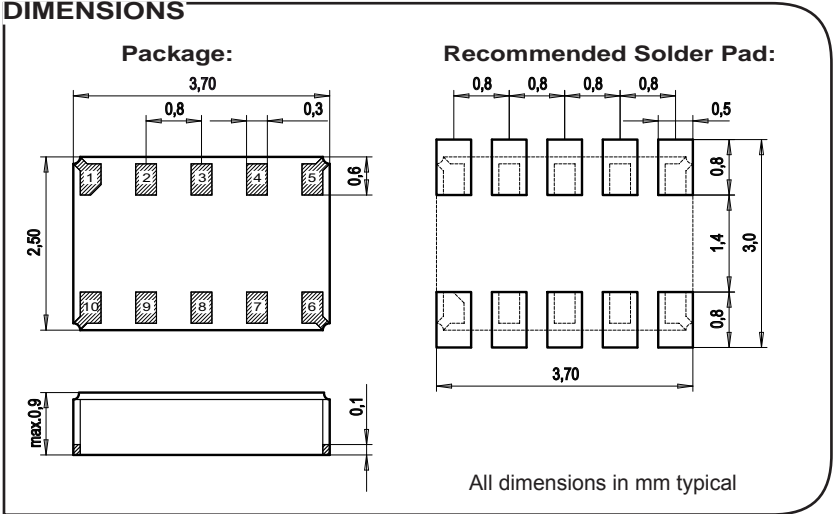
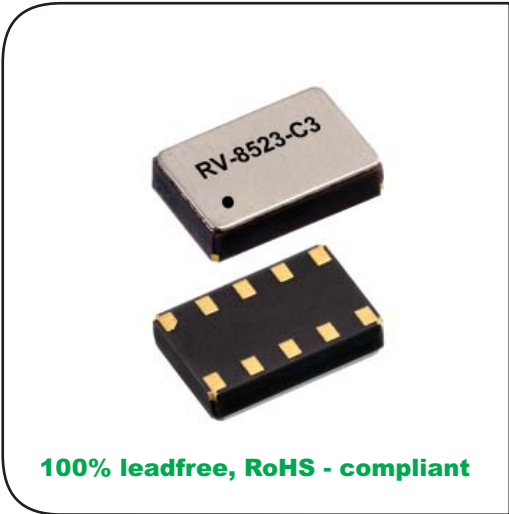


RV-8523-C3

Real Time Clock Module with I²C Bus



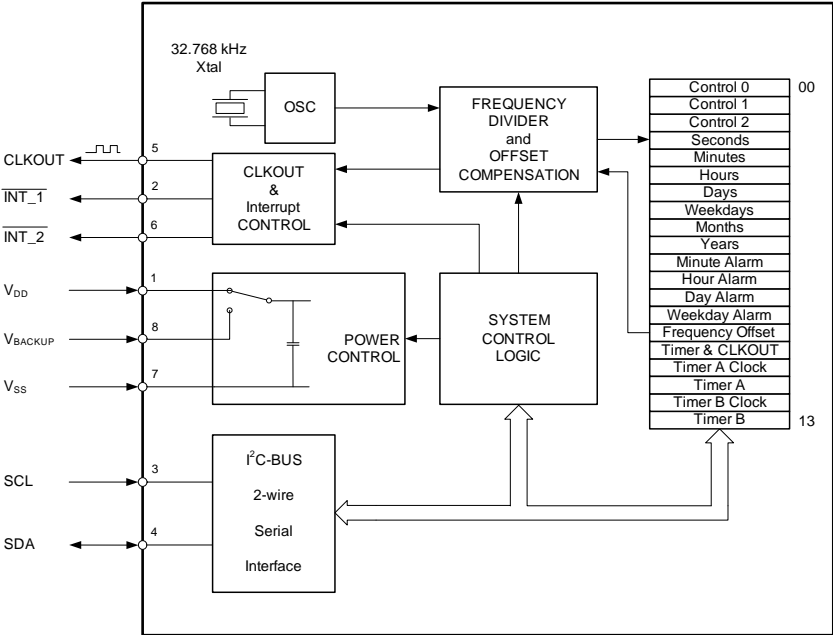
Ultra low power consumption 130nA Xtal integrated solution.
 Frequency-Offset Trimming Register
 Backup supply switchover circuitry
 Miniature SMT ceramic package
 Very tight frequency tolerance
 I²C Bus Interface (fast mode 1 MHz)
 Programmable Clock-output
 Low aging
 Time keeping mode down to 1.2 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	ΔF/F	@ 25°C	±10 / ±20 ¹⁾			ppm
Aging first year max.	ΔF/F	@ 25°C	± 3			ppm
Frequency vs. temp.	ΔF/F _O	20 ≤ T ₀ ≤ 30	-0.035 ppm/°C (T - T ₀) ² ±10%			ppm

1) Tighter and wider frequency tolerances on request.

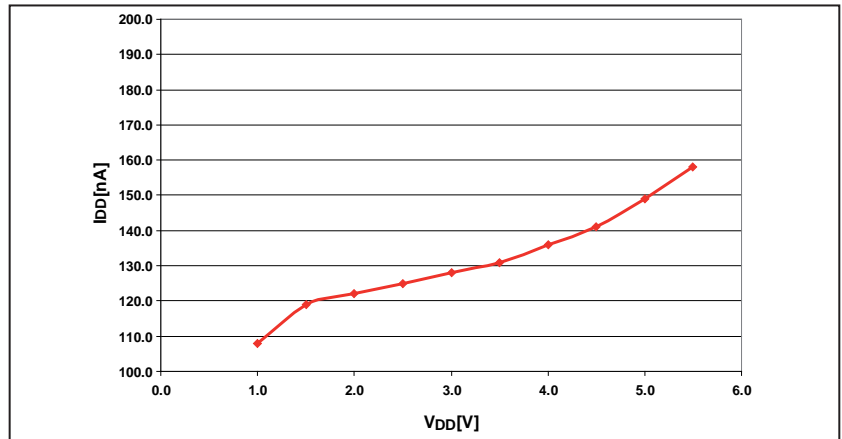
**ENVIRONMENTAL
CHARACTERISTICS:**

	Conditions	Max. Dev.
Storage temp. range	-55 to +125°C	
TA Operating temperature range	-40 to +85°C	
Shock resistance	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-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	INT_1 Interrupt_1 Output
3	SCL Serial Clock Input
4	SDA Serial Data
5	CLKOUT Clock Frequency Output
6	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.



Micro Crystal AG
Mühlestrasse 14
CH-2540 Grenchen
Switzerland

Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com