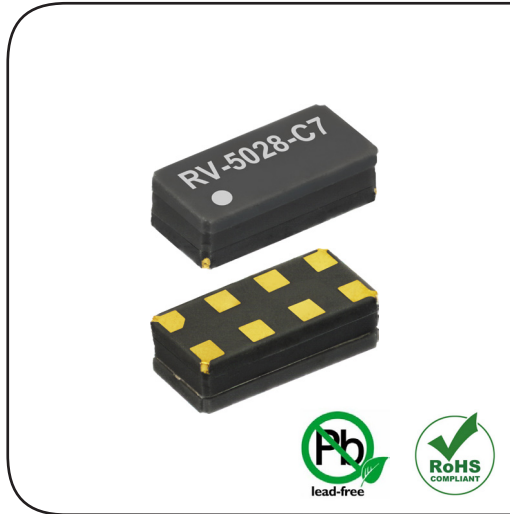
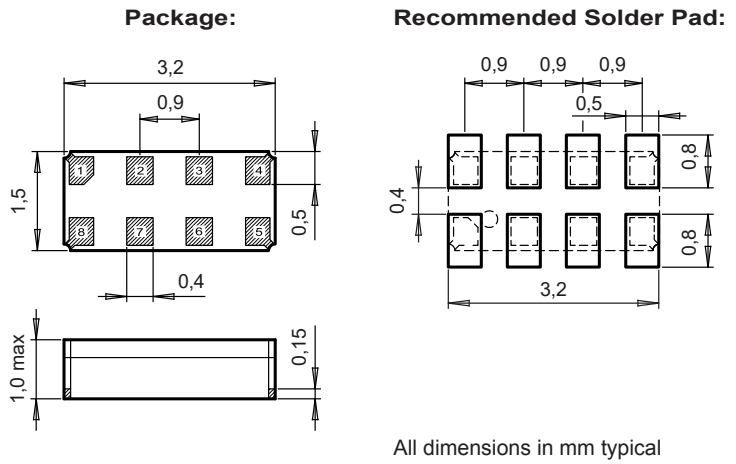


RV-5028-C7 Medical

Extreme Low Power RTC Module

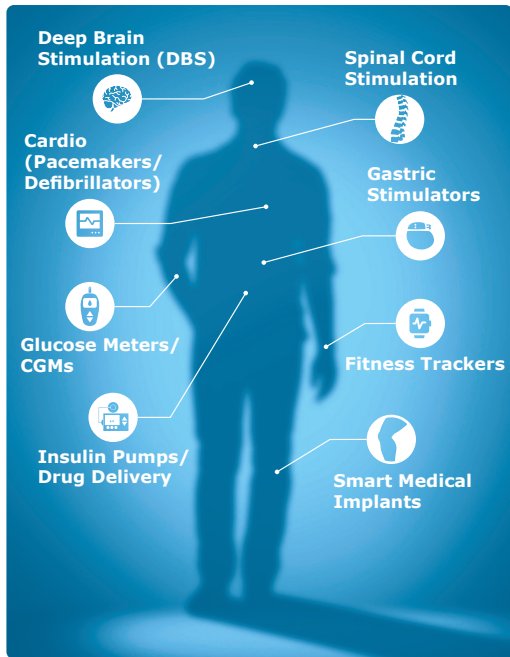


DIMENSIONS



APPLICATIONS

Neurostimulators
 Cardiac Monitoring Devices
 Infusion Pumps
 Smart Orthopedic Implants



DESCRIPTION

The RV-5028-C7 Medical Real-Time Clock Module is manufactured specifically for use in implantable medical devices. It incorporates a real-time clock CMOS circuit and built in 32.768 kHz crystal. Micro Crystal's long history in supplying medical grade timing devices ensures that the RV-5028-C7 Medical is produced in accordance with the highest quality production technologies. Long-term reliability is of utmost importance (Class III Implantable) and a hallmark of Micro Crystal's entire medical implantable grade portfolio.

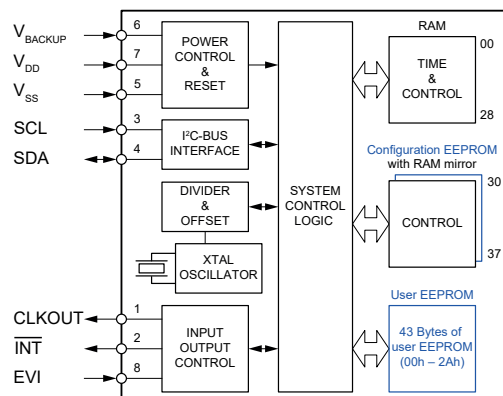
MEDICAL IMPLANTABLE KEY FEATURES

- Safe for Helium environment: Ceramic lid with gold-tin preform-seal for best long-term hermeticity and stability
- Proprietary manufacturing and testing processes
- Long-term aging stability
- Customer specific testing/screening on request
- Components and manufacturing traceability records retained
- Small size, low profile, lightweight (12.9 mg)

FEATURES

- Extreme low power consumption: 45 nA @ 3 V
- Wide operating voltage range: 1.1 V to 5.5 V
- Time accuracy: Factory calibrated to ± 1 ppm @ 25°C
- Programmable password for write protection of time and configuration
- Automatic Backup Switchover and Trickle Charger function
- Provides year to seconds and UNIX
- Timer, Alarm and External event input with Time Stamp function
- Clock output: 32.768 kHz, 8192 Hz, 1024 Hz, 64 Hz, 32 Hz, 1 Hz
- 43 bytes non-volatile user memory, 2 bytes user RAM
- I²C-bus interface: 400 kHz

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	1.1		5.5	V
Supply voltage	V _{DD}	I ² C-bus active	1.2		5.5	V
Current consumption Time keeping mode	I _{DDO}	I ² C-bus inactive, V _{DD} = 3 V		45	60	nA
CLKOUT frequency	F _{CLKOUT}	Programmable	32768...to...1			Hz
Time accuracy	Δt/t	@ 25°C	±1			ppm
Aging first year max.	ΔF/F	@ 25°C	±2			ppm
Turnover temp.	T ₀	-40 to +85°C	25 ±5			°C
Frequency vs. temp.	ΔF/F ₀		-0.035 ppm/°C ² (T-T ₀) ² ±10%			ppm

ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature 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

Type	Termination	Processing
RV-5028-C7 T1	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
RV-5028-C7 T2	SnPb plated pads available only on request	
RV-5028-C7 T5	ENEPIG plated pads	

PIN CONNECTIONS TOP VIEW

Pin	Connection
1	CLKOUT Clock Output
2	INT [¯] Interrupt Output
3	SCL Serial Clock Input
4	SDA Serial Data
5	V _{SS} Ground
6	V _{BACKUP} Backup Supply Voltage
7	V _{DD} Power Supply Voltage
8	EVI Event Input

ORDERING INFORMATION

RV - 5028 - C7 T1 TA QM	
RTC module	Qualification
Product type	QM = Medical Grade
Package size	Temperature range
C7 = 3.2 x 1.5 x 1.0 mm	TA = -40 to +85°C
Pads	
T1 = Au flashed pads	
T2 = SnPb plated pads on request	
T5 = ENEPIG plated pads	

A unique part number will be generated for each product specification, i.e:	
20xxxx-MG00	yyy pcs (in 12 mm tape on 7" reel)
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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