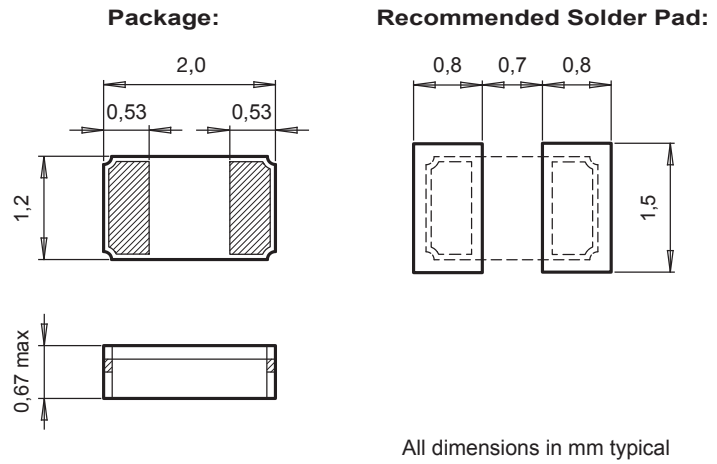


# CC8V-T1A Medical

## Tuning Fork Crystal 32 kHz – 102.4 kHz



### DIMENSIONS



### APPLICATIONS

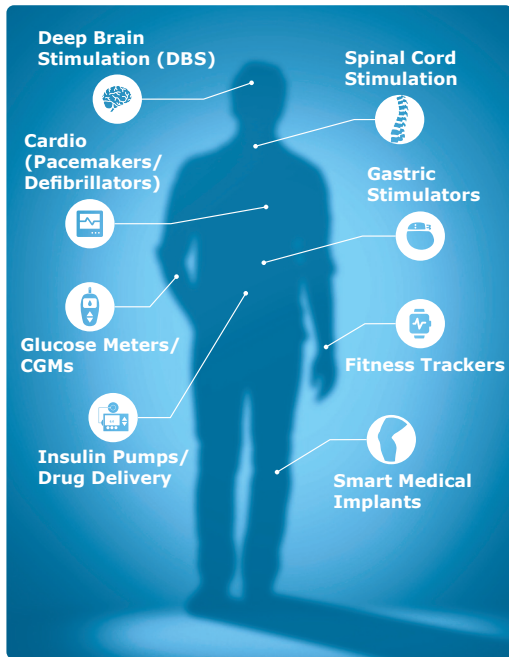
Pacemakers  
 Defibrillators  
 Neurostimulators  
 Cardiac Monitoring Devices  
 Implantable Drug Delivery Pumps  
 Infusion Pumps  
 Cochlear Implants  
 Smart Orthopedic Implants

### DESCRIPTION

The CC8V-T1A Medical Tuning Fork Crystal is manufactured specifically for use in implantable medical devices. Micro Crystal's long history in supplying medical grade timing devices ensures that the CC8V-T1A 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
- Extended operating temperature range: -55°C to +125°C
- Customer specific testing/screening on request
- Components and manufacturing traceability records retained
- Small size, low profile, lightweight (4.7 mg)



### ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequencies	<sup>1)</sup> F <sub>L</sub>	32.000 / 32.768	100.000 / 102.400	kHz
Load capacitance	<sup>1)</sup> C <sub>L</sub>	4.0 / 7.0 / 9.0 / 12.5		pF
Frequency tolerance	<sup>2)</sup> ΔF/F	±20		ppm
Series resistance typ./max.	R <sub>S</sub>	50 / 70	9 / 20	kΩ
Motional capacitance typ.	C <sub>1</sub>	4.7	3.0	fF
Static capacitance typ.	C <sub>0</sub>	1.2	1.0	pF
Drive level max.	P	0.5		μW
Insulation resistance min.	R <sub>i</sub>	500		MΩ
Aging first year max.	ΔF/F	±2		ppm
Turnover temperature	T <sub>0</sub>	25 ±5		°C
Frequency vs. temperature	ΔF/F <sub>0</sub>	-0.035 ppm/°C <sup>2</sup> (T - T <sub>0</sub> ) <sup>2</sup> ±10%		ppm

1) Other frequencies and load capacitances on request.

2) Other frequency tolerances on request.

**STANDARD FREQUENCIES**

Frequencies			
32.000 kHz	32.768 kHz	100.000 kHz	102.400 kHz
Other frequencies on request			

**ENVIRONMENTAL CHARACTERISTICS**

		Conditions	Max. Dev.
Storage temperature range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°C	
TC Extended oper. temp. range		-55 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

**TERMINATIONS AND PROCESSING**

Type	Termination	Processing
CC8V-T1A	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
CC8V-T2A	SnPb plated pads available only on request	
CC8V-T5A	ENEPIG plated pads	

**ORDERING INFORMATION**

**C C 8 V - T 1 A 32.768 kHz 12.5 pF ±20 ppm TA QM**

**Ceramic package** \_\_\_\_\_

**Ceramic lid** \_\_\_\_\_

**Package size** \_\_\_\_\_  
8 = 2.0 x 1.2 x 0.67 mm

**Tuning fork** \_\_\_\_\_

**SMT Package** \_\_\_\_\_

**Pads** \_\_\_\_\_  
1 = Au flashed pads  
2 = SnPb plated pads on request  
5 = ENEPIG plated pads

**Pads on both ends** \_\_\_\_\_

**Frequency  $F_L$**  \_\_\_\_\_

**Load capacitance  $C_L$**  \_\_\_\_\_  
4.0 pF  
7.0 pF  
9.0 pF  
12.5 pF  
Other  $C_L$  on request

**Frequency tolerance** \_\_\_\_\_  
±20 ppm  
Other freq. tolerances on request

**Temperature range** \_\_\_\_\_  
**TA** = -40 to +85°C  
**TB** = -40 to +125°C  
**TC** = -55 to +125°C

**Qualification** \_\_\_\_\_  
**QM** = Medical Grade

A unique part number will be generated for each product specification, i.e:	
20xxxx-MC00	yyy pcs (in 8 mm tape on 7" reel)
20xxxx-MC01	1'000 pcs (in 8 mm tape on 7" reel)
20xxxx-MC03	3'000 pcs (in 8 mm tape on 7" reel)

All specifications subject to change without notice.



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