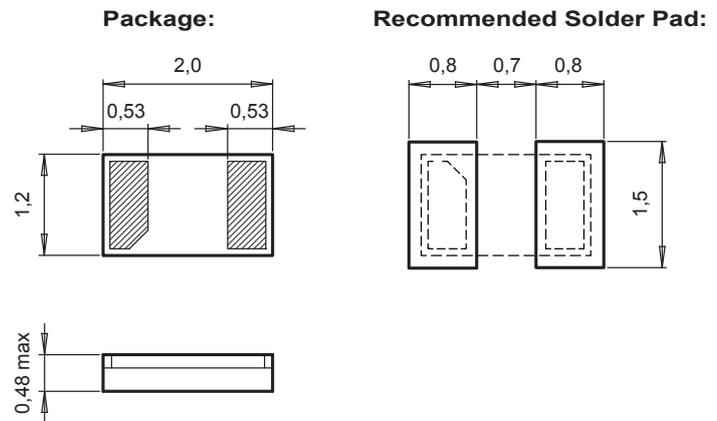


# CC8V-T1A Thin Medical Tuning Fork Crystal 32.768 kHz



## DIMENSIONS



All dimensions in mm typical

## APPLICATIONS

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

## DESCRIPTION

The CC8V-T1A Thin 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 Thin 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

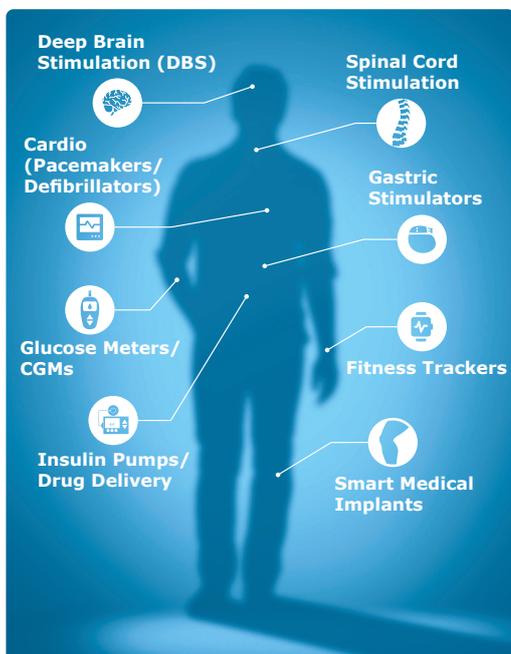
- Safe for Helium environment: Ceramic lid with gold-tin preform-seal for best long-term hermeticity and stability
- Proprietary manufacturing and testing processes
- Long-term aging stability
- Extended operating temperature range: -55°C to +125°C
- Customer specific testing/screening on request
- Components and manufacturing traceability records retained
- Ultra low profile (maximum height 0.48 mm), lightweight (3.5 mg)

## ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequencies	<sup>1)</sup> F <sub>L</sub>	32.768	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>	70 / 90	kΩ
Motional capacitance typ.	C <sub>1</sub>	4.7	fF
Static capacitance typ.	C <sub>0</sub>	1.2	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**

Frequency
32.768 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 Thin	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
CC8V-T2A Thin	SnPb plated pads available only on request	
CC8V-T5A Thin	ENEPIG plated pads	

**ORDERING INFORMATION**

**CC8V - T1A Thin 32.768 kHz 12.5 pF ±20 ppm TA QM**

<p><b>Ceramic package</b> ————</p> <p><b>Ceramic lid</b> ————</p> <p><b>Package size</b> ———— 8 = 2.0 x 1.2 x 0.48 mm</p> <p><b>Tuning fork</b> ————</p> <p><b>SMT Package</b> ————</p> <p><b>Pads</b> ———— 1 = Au flashed pads 2 = SnPb plated pads on request 5 = ENEPIG plated pads</p> <p><b>Pads on both ends</b> ————</p> <p><b>Special feature</b> ———— Thin = Ultra low profile, 0.48 mm</p>	<p><b>Frequency <math>F_L</math></b> ————</p> <p><b>Load capacitance <math>C_L</math></b> ———— 4.0 pF 7.0 pF 9.0 pF 12.5 pF Other <math>C_L</math> on request</p> <p><b>Frequency tolerance</b> ———— ±20 ppm Other freq. tolerances on request</p> <p><b>Temperature range</b> ———— TA = -40 to +85°C TB = -40 to +125°C TC = -55 to +125°C</p> <p><b>Qualification</b> ———— QM = Medical Grade</p>
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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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