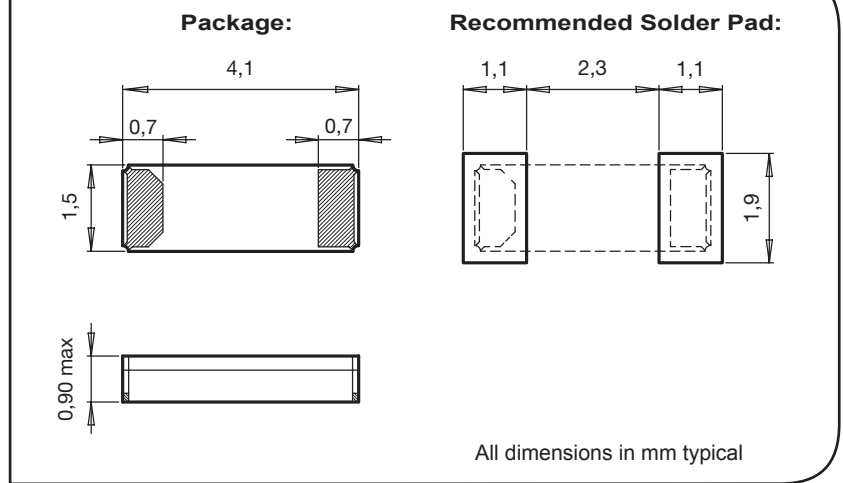


# CC5V-T1A

## Tuning Fork Crystal 32.768 kHz



### DIMENSIONS



### APPLICATIONS

Metering  
Industrial  
Automotive  
Health Care  
Medical Implantable  
Harsh Environments

### DESCRIPTION

The CC5V-T1A is a low frequency SMT Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed ceramic package with ceramic lid.

*CC5V-T1A is compatible with other suppliers' same footprint crystals.*

### FEATURES

Mature product for harsh environments.  
Outstanding hermetic sealing with gold-tin preform.  
High stability and low aging guaranteed by hermetic sealing.  
Available for extended operating temperature range.  
High shock and vibration resistant.  
100% Pb-free, RoHS-compliant.

### ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequencies 32.768 kHz / 102.400 kHz <sup>1)</sup>	F <sub>L</sub>	32.768	kHz
Load capacitance <sup>2)</sup>	C <sub>L</sub>	6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance <sup>3)</sup>	ΔF/F	±20	ppm
	ΔF/F	±100	ppm
Series resistance typ./max.	R <sub>S</sub>	50 / 70	kΩ
Motional capacitance typ.	C <sub>1</sub>	2.8	fF
Static capacitance typ.	C <sub>0</sub>	1.2	pF
Drive level max.	P	1.0	μW
Insulation resistance min.	R <sub>i</sub>	500	MΩ
Aging first year max.	ΔF/F	±3	ppm
Turnover temperature	T <sub>0</sub>	25 ±5	°C
Frequency vs. temperature	ΔF/F <sub>0</sub>	-0.035 ppm/°C · (T - T <sub>0</sub> ) <sup>2</sup> ±10%	

- 1) Other frequencies on request.  
2) Other load capacitances on request.  
3) Tighter frequency tolerances on request.

**STANDARD FREQUENCIES**

Frequencies
32.768 kHz / 102.400 kHz
Other frequencies on request

**ENVIRONMENTAL CHARACTERISTICS**

		Conditions	Max. Dev.
Storage temp. 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
CC5V-T1A	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
CC5V-T2A	SnPb plated pads available only on request	

**ORDERING INFORMATION**

<p style="text-align: center;"><b>C C 5 V - T 1 A 32.768 kHz 12.5 pF ±20 ppm TA QC</b></p> <p><b>Ceramic package</b> _____</p> <p><b>Ceramic lid</b> _____</p> <p><b>Package size</b> _____ 5 = 4.1 x 1.5 x 0.90 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</p> <p><b>Pads on both ends</b> _____</p>	<p><b>Frequency <math>F_L</math></b> _____</p> <p><b>Load capacitance <math>C_L</math></b> _____ 6.0 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 ±100 ppm Tighter freq. tolerances on request</p> <p><b>Temperature range</b> _____ <b>TA</b> = -40 to +85°C (Standard) <b>TB</b> = -40 to +125°C <b>TC</b> = -55 to +125°C</p> <p><b>Qualification</b> _____ <b>QC</b> = Commercial Grade (Standard) <b>QM</b> = Medical Grade</p>
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A unique part number will be generated for each product specification, i.e:	
20xxxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)
20xxxx-MG03	3'000 pcs (in 12 mm tape on 7" reel)
20xxxx-PG14	14'000 pcs (in 12 mm tape on 13" reel)

All specifications subject to change without notice.



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