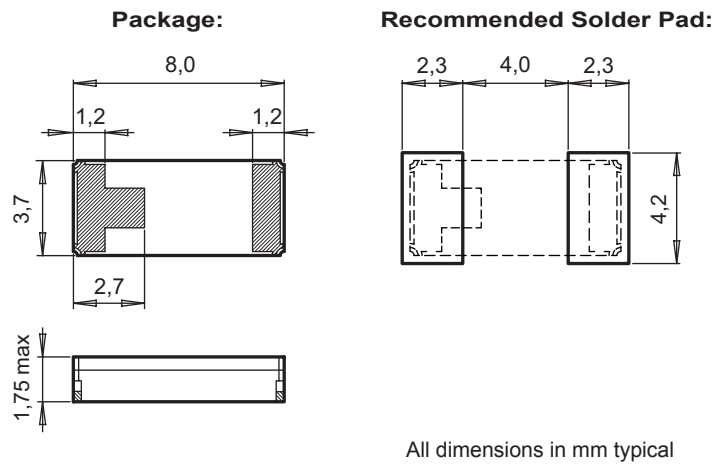


# CC1V-T1A

Tuning Fork Crystal 30 kHz – 2.0 MHz



## DIMENSIONS



## APPLICATIONS

Metering  
Industrial  
Automotive  
Health Care  
Harsh Environments  
Consumer Electronics

## DESCRIPTION

The CC1V-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.

## 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

Frequency Range	F <sub>L</sub>	30–200	201–560	561–2'000	kHz
Load capacitance <sup>1)</sup>	C <sub>L</sub>	9.0 12.5	4.0	10.0	pF
Frequency tolerance <sup>2)</sup>	ΔF/F	±20	±100	±100	ppm
	ΔF/F	±100	±250	±500	ppm
Drive level max.	P	1.0			μW
Insulation resistance min.	R <sub>i</sub>	500			MΩ
Aging first year max.	ΔF/F	±3			ppm

Standard Frequencies <sup>3)</sup>	F <sub>L</sub>	32.768	307.200	1'843.2	kHz
Series resistance typ./max.	R <sub>S</sub>	40 / 60	1.4 / 3.5	0.12 / 0.4	kΩ
Motional capacitance typ.	C <sub>1</sub>	2.0	1.6	3.8	fF
Static capacitance typ.	C <sub>0</sub>	1.6	2.0	1.6	pF
Turnover temperature	T <sub>0</sub>	25 ±5	32 ±5	33 ±5	°C
Frequency vs. temperature	ΔF/F <sub>0</sub>	-0.035 ppm/°C² (T - T <sub>0</sub> )² ±10%			ppm

- 1) Other load capacitances on request.  
2) Tighter frequency tolerances on request.  
3) Other standard frequencies, see below.

**STANDARD FREQUENCIES**

Frequencies				
32.768 kHz	38.400 kHz	40.000 kHz	51.200 kHz	307.200 kHz
500.000 kHz	1.0000 MHz	1.2288 MHz	1.8432 MHz	2.0000 MHz
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
CC1V-T1A	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

**ORDERING INFORMATION**

<b>CC1V-T1A 32.768 kHz 12.5 pF ±20 ppm TA QC</b>	
<b>Ceramic package</b>	<b>Frequency <math>F_L</math></b>
<b>Ceramic lid</b>	<b>Load capacitance <math>C_L</math></b>
<b>Package size</b> 1 = 8.0 x 3.7 x 1.75 mm	4.0 pF 9.0 pF 10.0 pF 12.5 pF Other $C_L$ on request
<b>Tuning fork</b>	<b>Frequency tolerance</b>
<b>SMT Package</b>	±20 ppm, ±100 ppm ±250 ppm ±500 ppm Tighter freq. tolerances on request
<b>Au flashed pads</b>	<b>Temperature range</b>
<b>Pads on both ends</b>	<b>TA</b> = -40 to +85°C (Standard) <b>TB</b> = -40 to +125°C <b>TC</b> = -55 to +125°C
	<b>Qualification</b>
	<b>QC</b> = Commercial Grade (Standard)

A unique part number will be generated for each product specification, i.e:	
20xxxx-ML01	1'000 pcs (in 16 mm tape on 7" reel)
20xxxx-PL04	4'000 pcs (in 16 mm tape on 13" reel)

All specifications subject to change without notice.



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