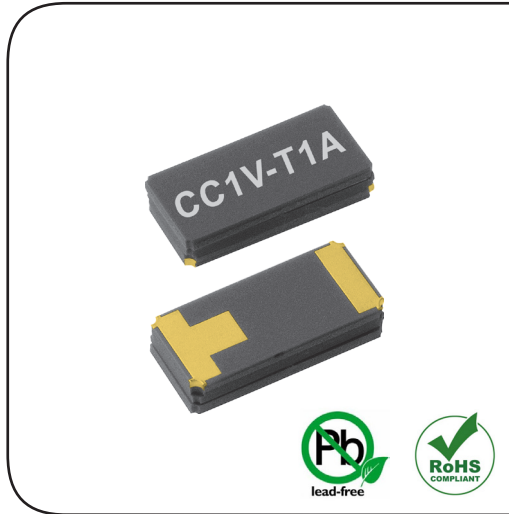
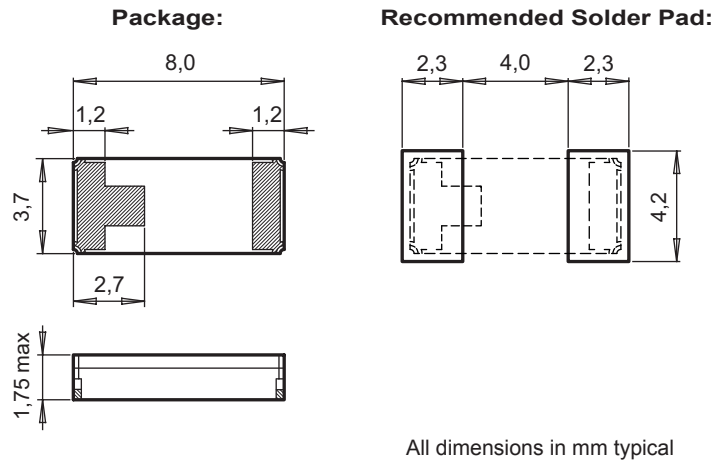


CC1V-T1A

Tuning Fork Crystal 10 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_L	10–200	201–560	561–2'000	kHz
Load capacitance ¹⁾	C_L	9.0 12.5	4.0	10.0	pF
Frequency tolerance ²⁾	$\Delta F/F$	±20	±100	±100	ppm
	$\Delta F/F$	±100	±250	±500	ppm
Drive level max.	P	1.0			μW
Insulation resistance min.	R_i	500			MΩ
Aging first year max.	$\Delta F/F$	±3			ppm

Standard Frequencies ³⁾	F_L	32.768	307.200	1'8432	kHz
Series resistance typ./max.	R_S	40 / 60	1.4 / 3.5	0.12 / 0.4	kΩ
Motional capacitance typ.	C_1	2.0	1.6	3.8	fF
Static capacitance typ.	C_0	1.6	2.0	1.6	pF
Turnover temperature	T_0	25 ±5	32 ±5	33 ±5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \pm 10\%$			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	For SMT mounting Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

ORDERING INFORMATION

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