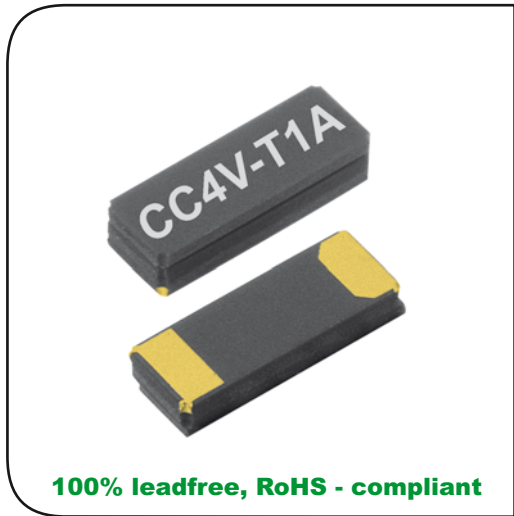
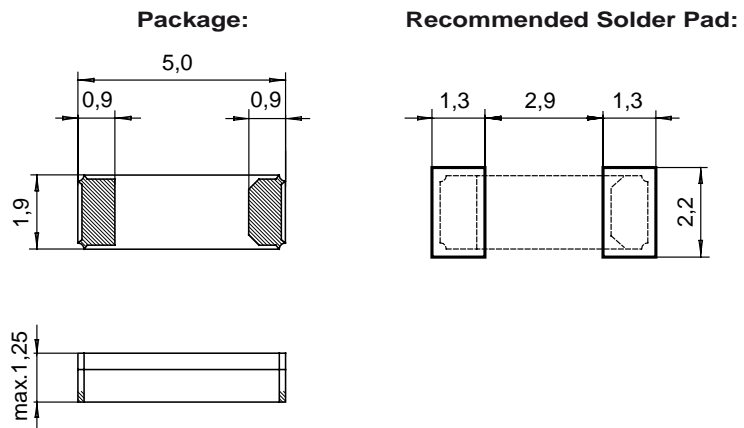


# CC4V-T1A

**Tuning Fork Crystal 30 kHz – 1.0 MHz**



## DIMENSIONS



All dimensions in mm typical

**Miniature SMT ceramic package**  
**Package height 1.25 mm**  
**SMD-package in Tape and Reel**  
**Ind. and Ext. temperature ranges**  
**High stability**  
**Low aging**  
**Low power consumption**  
**High shock and vibration resistance**

## DESCRIPTION:

This SMD ceramic package has been specially designed for miniature industrial, telecom and medical applications. The crystals are supplied in special trays (100 crystals per tray). For pick-and-place equipment, the parts are available in 12 mm tape:  
 7" (178 mm) reel with 2'000 crystals  
 13" (330 mm) reel with 10'000 crystals

## ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	F <sub>L</sub>	30-200	201-560	1'000	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	+/-30	+/-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

Frequency Example <sup>3)</sup>	F <sub>L</sub>	32.768	307.200	1'000	kHz
Series resistance typ./max.	R <sub>S</sub>	50 / 65	3.5 / 5.0	0.5 / 1.2	kΩ
Motional capacitance typ.	C <sub>1</sub>	2.1	1.1	1.1	fF
Static capacitance typ.	C <sub>0</sub>	1.2	1.2	1.0	pF
Turnover temperature	T <sub>0</sub>	25 +/-5	33 +/-5	39 +/-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 and wider frequency tolerances on request.  
 3) Values for other frequencies consult factory.

**STANDARD FREQUENCIES:**

Frequency kHz					Frequency MHz
32.000	32.768	36.409	38.400	40.000	1.000
60.000	75.000	76.800	100.000	128.000	1.008
153.600	240.000	307.200			
Other frequencies between 30 kHz and 1.008 MHz on request					

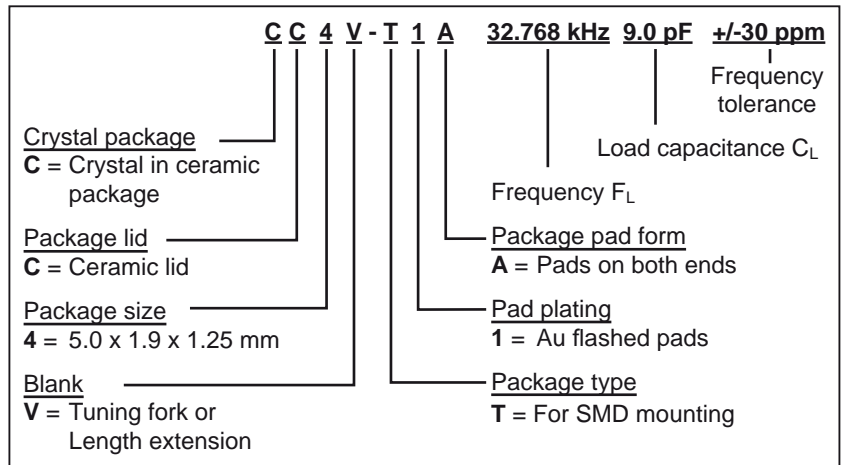
**ENVIRONMENTAL CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
Industrial operating temp. range		-40 to +85°C	
Extended operating 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
CC4V-T1A	For SMD mounting Au flashed pads	Reflow soldering 260°C / 20 s max.

**PART NUMBER/ ORDERING INFORMATION EXAMPLE:**



All specifications subject to change without notice. 03.07



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