

CC4V-T1A

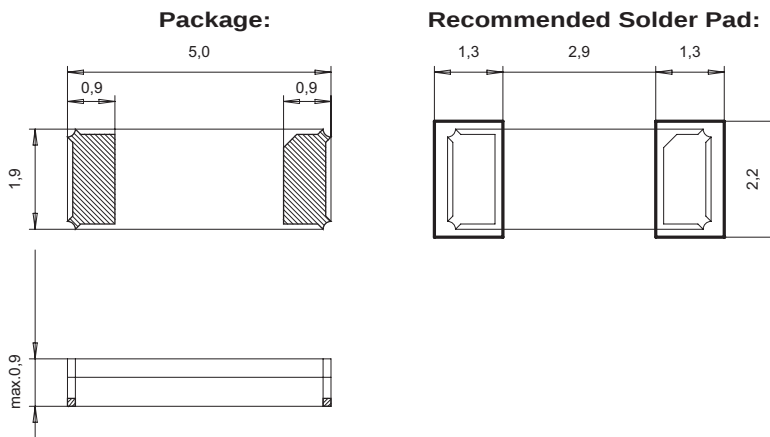
Tuning Fork Crystal 30 kHz – 1.0 MHz



100% leadfree, RoHS - compliant

Miniature SMT ceramic package
Package height 0.90 mm
SMD-package in Tape and Reel
Ind. and Ext. temperature ranges
High stability
Low aging
Low power consumption
High shock and vibration resistance

DIMENSIONS



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_L	30-200	201-560	1'000	kHz
Load capacitance ¹⁾	C_L	9.0 / 12.5	4.0	10.0	pF
Frequency tolerance ²⁾	$\Delta F/F$	+/-30	+/-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

Frequency Example ³⁾	F_L	32.768	307.200	1'000	kHz
Series resistance typ./max.	R_S	50 / 65	3.5 / 5.0	0.5 / 1.2	kΩ
Motional capacitance typ.	C_1	2.1	1.1	1.1	fF
Static capacitance typ.	C_0	1.2	1.2	1.0	pF
Turnover temperature	T_0	25 +/-5	33 +/-5	39 +/-5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2$ +/-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	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	+/-5 ppm
Vibration resistance	$\Delta F/F$	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:

<u>Crystal package</u> C = Crystal in ceramic package	<u>Package lid</u> C = Ceramic lid	<u>Package size</u> 4 = 5.0 x 1.9 x 0.90 mm	<u>Blank</u> V = Tuning fork or Length extension	<u>Frequency</u> 32.768 kHz	<u>Load capacitance C_L</u> 9.0 pF	<u>Frequency tolerance</u> +/-30 ppm
				<u>Package pad form</u> A = Pads on both ends	<u>Pad plating</u> 1 = Au flashed pads	<u>Package type</u> T = For SMD mounting

All specifications subject to change without notice. 10.08



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