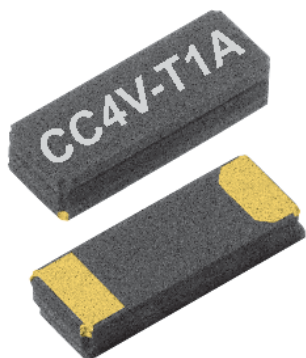


CC4V-T1A

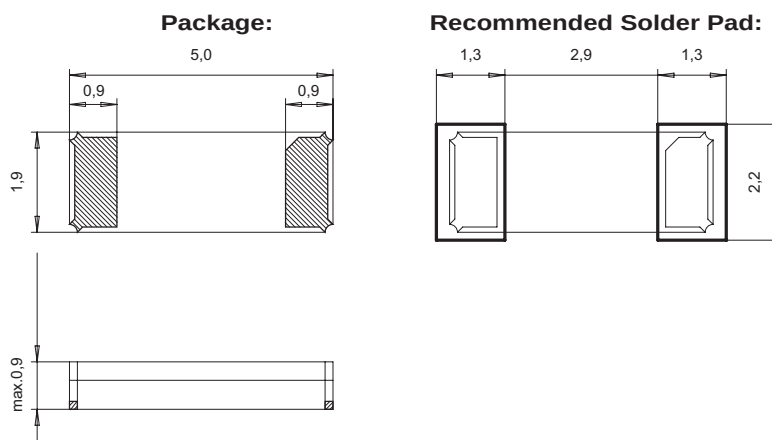
Tuning Fork Crystal 30 kHz – 1.0 MHz



100% leadfree, RoHS - compliant

Miniature SMT ceramic package
Package height 0.90 mm
SMD-package in Tape and Reel
Ind. and Ext. temperature ranges
AEC-Q200 automotive compliant
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 and telecom applications. This part is available for extended operating temperature range and is compliant with the AEC-Q200 quality standards for automotive 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	7.0 9.0 12.5	4.0	10.0	pF
Frequency tolerance ²⁾	ΔF/F	+/-20	+/-100	+/-100	ppm
	ΔF/F	+/-100	+/-250	+/-500	ppm
Drive level max.	P	1.0			μW
Insulation resistance min.	R _i	500			MΩ
Aging first year max.	ΔF/F	+/-3			ppm

Frequency Example ³⁾	F _L	32.768	240.000	1'000	kHz
Series resistance typ./max.	R _S	50 / 65	2.6 / 4.5	0.5 / 1.2	kΩ
Motional capacitance typ.	C ₁	2.1	1.8	1.1	fF
Static capacitance typ.	C ₀	1.2	1.3	1.0	pF
Turnover temperature	T ₀	25 +/-5	30 +/-5	39 +/-5	°C
Frequency vs. temperature	ΔF/F ₀	-0.035 ppm/°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
32.768	36.409	38.400	40.000	76.800	1.000
100.000	128.000	153.600	200.000	240.000	
Other frequencies between 30 kHz and 1.008 MHz 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	$\Delta F/F$	5000 g, 0.3 ms, ½ 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 plated pads	Reflow soldering 260°C / 20 s max.

PRODUCT DESCRIPTION AND ORDERING INFORMATION:

CC4V-T1A	32.768kHz	12.5pF	+/-20ppm	TA	QC
<u>Frequency F_0</u>					
<u>C_L Load Capacitance</u>					
7.0 pF					
9.0 pF					
12.5 pF					
<u>Frequency tolerance</u>					
+/- 20 ppm					
+/- 100 ppm					
Optional: if not defined, 'Standard' will apply					
			<u>Temperature Range</u>		
			TA = -40 to 85°C (Standard)		
			TB = -40 to +125°C		
			TC = -55 to +125°C		
			<u>Qualification</u>		
			QC = Commercial (Standard)		
			QA = Automotive AEC-Q200		
			QM = Medical		
A unique part number will be generated for each product specification, i.e:					
20xxx-MG02					2'000 pcs (in 12mm tape on 7" reel)
20xxx-PG10					10'000 pcs (in 12mm tape on 13" reel)
Please contact us.					

All specifications subject to change without notice.



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