

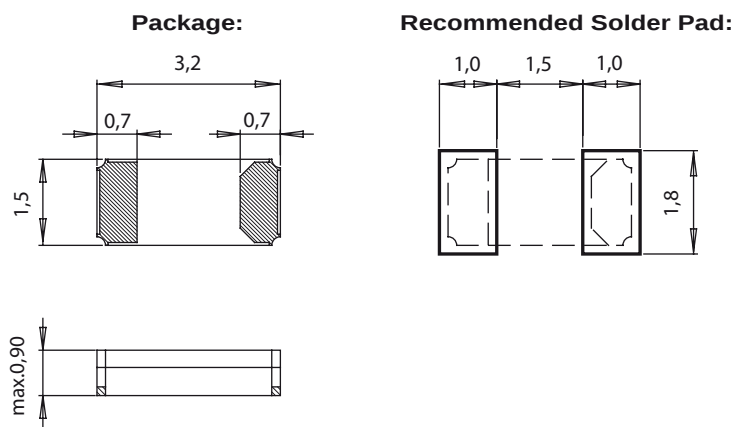
CC7V-T1A

Tuning Fork Crystal 32.768 kHz



100% leadfree, RoHS - compliant

DIMENSIONS



All dimensions in mm typical

Smallest 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

DESCRIPTION:

This SMD ceramic package has been specially designed for miniature telecom and portable applications. A special crystal manufacturing process is used to achieve improved electrical characteristics and a miniaturized blank size.

The crystals are supplied in special trays (200 crystals per tray).

For pick-and-place equipment, the parts are available in 12 mm tape:

- 7" (178 mm) reel with 3'000 crystals
- 10" (254 mm) reel with 7'000 crystals
- 13" (330 mm) reel with 14'000 crystals

ELECTRICAL CHARACTERISTICS AT 25°C:

Nominal Frequency ¹⁾	F _L	32.768	kHz
Load capacitance ²⁾	C _L	9.0 / 12.5	pF
Frequency tolerance ³⁾	ΔF/F	+/-30	ppm
	ΔF/F	+/-100	ppm
Series resistance typ./max.	R _s	50 / 70	kΩ
Motional capacitance typ.	C ₁	4.0	fF
Static capacitance typ.	C ₀	1.2	pF
Drive level max.	P	1.0	μW
Insulation resistance min.	R _i	500	MΩ
Aging first year max.	ΔF/F	+/-3	ppm
Turnover temperature	T ₀	25 +/-5	°C
Frequency vs. temperature	ΔF/F ₀	-0.035 ppm/°C ² (T - T ₀) ² +/-10%	ppm

1) Other frequencies on request.

2) Other load capacitances on request.

3) Tighter and wider frequency tolerances on request.

STANDARD FREQUENCIES:

Frequency kHz
32.768
Other frequencies 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
CC7V-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> 7 = 3.2 x 1.5 x 0.90 mm	<u>Blank</u> V = Tuning fork	<u>Frequency</u> 32.768 kHz	<u>Load capacitance</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. 03.07



Micro Crystal
Div. of ETA SA
Mühlestrasse 14
CH-2540 Grenchen
Switzerland

Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.ch
www.microcrystal.com