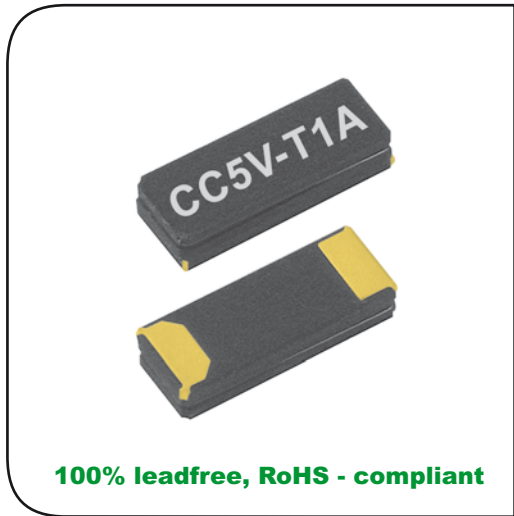
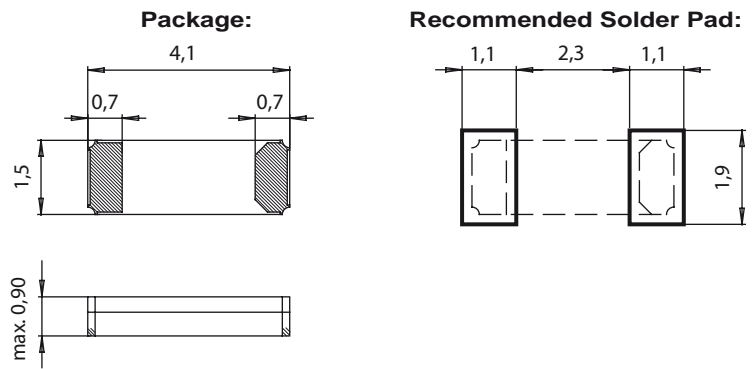


# CC5V-T1A

## Tuning Fork Crystal 32.768 kHz



### DIMENSIONS



All dimensions in mm typical

**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**

### DESCRIPTION:

This SMD ceramic package has been specially designed for miniature industrial, telecom and medical applications.

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	<sup>1)</sup> $F_L$	32.768	kHz
Load capacitance	<sup>2)</sup> $C_L$	9.0 / 12.5	pF
Frequency tolerance	<sup>3)</sup> $\Delta F/F$	+/-30	ppm
		+/-100	ppm
Series resistance typ./max.	<sup>4)</sup> $R_S$	60 / 80	k $\Omega$
Motional capacitance typ.	$C_1$	2.1	fF
Static capacitance typ.	$C_0$	1.4	pF
Drive level max.	P	1.0	$\mu$ W
Insulation resistance min.	$R_i$	500	M $\Omega$
Aging first year max.	$\Delta F/F$	+/-3	ppm
Turnover temperature	$T_0$	25 +/-5	°C
Frequency vs. temperature	$\Delta F/F_0$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \text{ +/-} 10\%$	ppm

- 1) Other frequencies on request.
- 2) Other load capacitances on request.
- 3) Tighter and wider frequency tolerances on request.
- 4) On request 70 k $\Omega$  max.

**STANDARD FREQUENCIES:**

Frequency kHz
32.768
Other frequencies on request

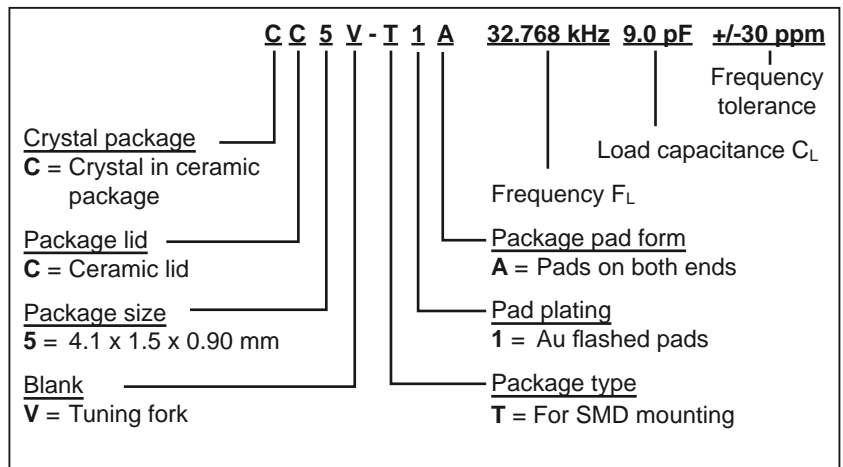
**ENVIRONMENTAL CHARACTERISTICS:**

		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	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
CC5V-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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