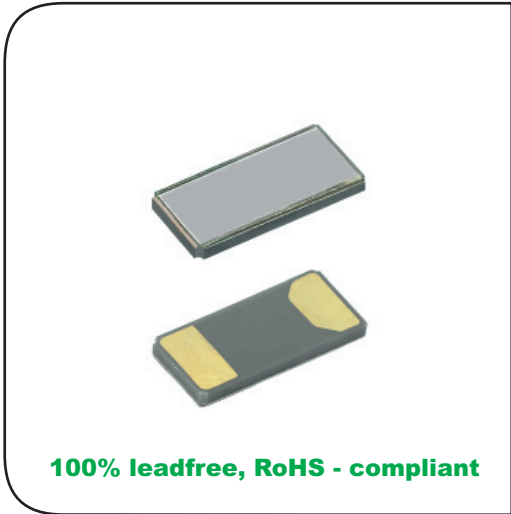
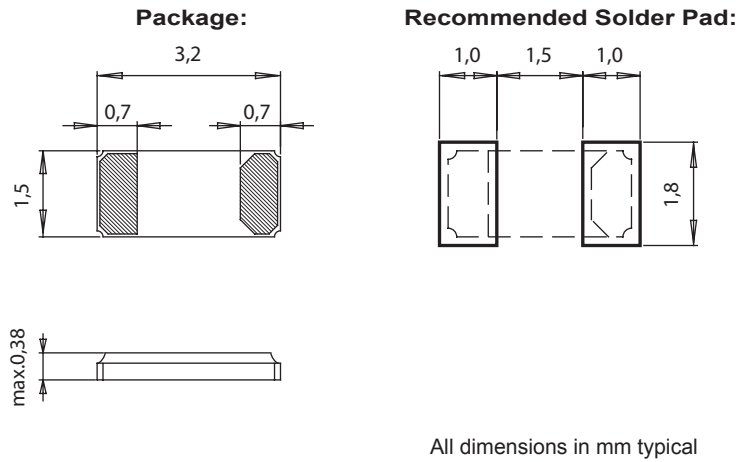


# CM7V-T1A 0.4

## Tuning Fork Crystal 32.768 kHz



### DIMENSIONS



**Lowest profile SMT ceramic pack.**  
**Ultra low profile: 0.38 mm height**  
**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 ultra low profile telecom and smart-card applications. A special crystal manufacturing process is used to achieve improved electrical characteristics and a miniaturized blank size.

For pick-and-place equipment, the parts are available in 12 mm tape:  
 7" (178 mm) reel with 3'000 crystals  
 13" (330 mm) reel with 14'000 crystals

### ELECTRICAL CHARACTERISTICS AT 25°C:

Nominal Frequency	<sup>1)</sup> F <sub>L</sub>	32.768	kHz
Load capacitance	<sup>2)</sup> C <sub>L</sub>	7.0 / 9.0 / 12.5	pF
Frequency tolerance	<sup>3)</sup> ΔF/F	+/-20	ppm
		+/-100	ppm
Series resistance typ./max.	R <sub>S</sub>	55 / 80	kΩ
Motional capacitance typ.	C <sub>1</sub>	4.4	fF
Static capacitance typ.	C <sub>0</sub>	1.6	pF
Drive level max.	P	0.5	μW
Insulation resistance min.	R <sub>i</sub>	500	MΩ
Aging first year max.	ΔF/F	+/-3	ppm
Turnover temperature	T <sub>0</sub>	25 +/-5	°C
Frequency vs. temperature	ΔF/F <sub>0</sub>	-0.035 ppm/°C <sup>2</sup> (T - T <sub>0</sub> ) <sup>2</sup> +/-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

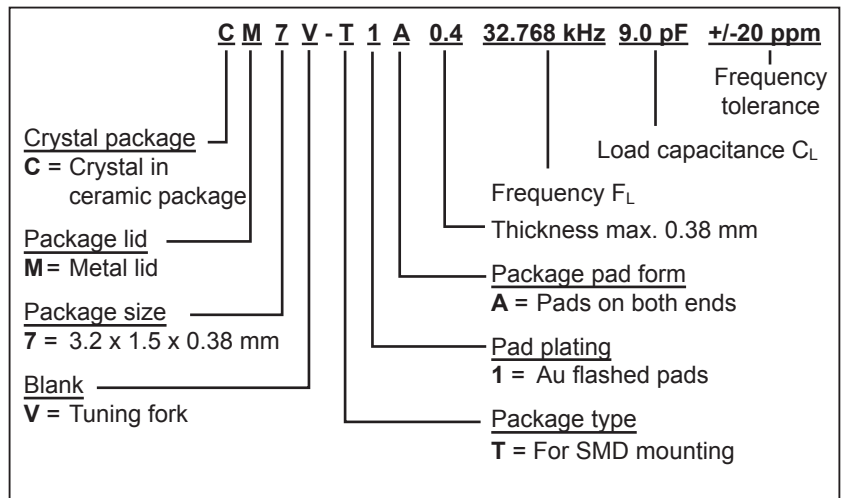
**ENVIRONMENTAL CHARACTERISTICS:**

		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	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
CM7V-T1A 0.4	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. 10.09



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