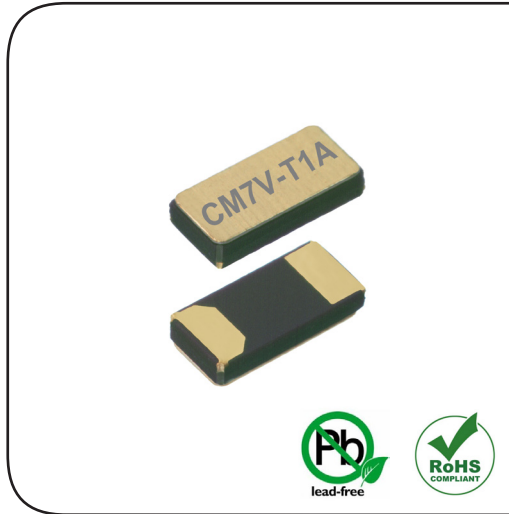
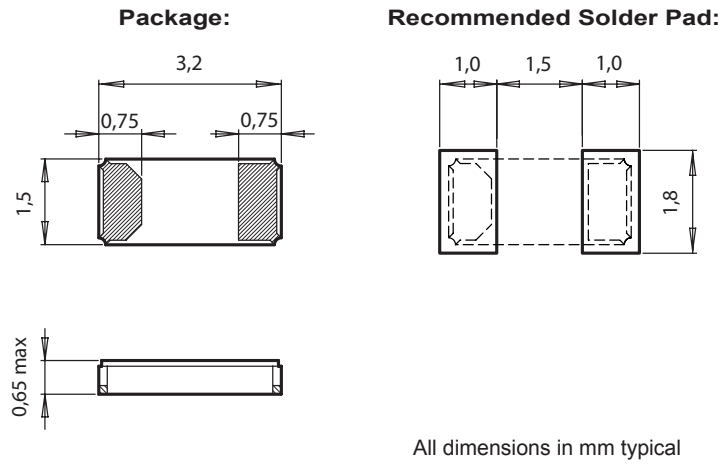


# CM7V-T1A

## Tuning Fork Crystal 32.768 kHz



### DIMENSIONS



### APPLICATIONS

IoT  
Metering  
Industrial  
Automotive  
Health Care  
Wearables, Portables

### DESCRIPTION

The CM7V-T1A is a low frequency SMT Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed ceramic package with metal lid.

### FEATURES

Outstanding hermetic sealing with gold-tin preform.  
High stability and low aging guaranteed by hermetic sealing.  
Available for extended operating temperature range.  
Small size, low profile, lightweight (10.3 mg).  
High shock and vibration resistant.  
100% Pb-free, RoHS-compliant.  
Automotive qualification according to AEC-Q200 available.

### ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequencies 32.768 kHz / 100.000 kHz <sup>1)</sup>	F <sub>L</sub>	32.768	kHz
Load capacitance <sup>2)</sup>	C <sub>L</sub>	6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance <sup>3)</sup>	ΔF/F	±20	ppm
	ΔF/F	±100	ppm
Series resistance typ./max.	R <sub>S</sub>	50 / 70	kΩ
Motional capacitance typ.	C <sub>1</sub>	3.7	fF
Static capacitance typ.	C <sub>0</sub>	1.2	pF
Drive level max.	P	1.0	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%	

- 1) Other frequencies on request.  
2) Other load capacitances on request.  
3) Tighter frequency tolerances on request.

**STANDARD FREQUENCIES**

Frequencies
32.768 kHz / 100.000 kHz
Other frequencies 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	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	For SMT mounting Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

**ORDERING INFORMATION**

<p><b>C M 7 V - T 1 A</b></p> <p><b>Ceramic package</b> _____</p> <p><b>Metal lid</b> _____</p> <p><b>Package size</b> _____ 7 = 3.2 x 1.5 x 0.65 mm</p> <p><b>Tuning fork</b> _____</p> <p><b>SMT Package</b> _____</p> <p><b>Au flashed pads</b> _____</p> <p><b>Pads on both ends</b> _____</p>	<p><b>32.768 kHz</b> _____</p> <p><b>12.5 pF</b> _____</p> <p><b>±20 ppm</b> _____</p> <p><b>TA</b> _____</p> <p><b>QC</b> _____</p> <p><b>Frequency <math>F_L</math></b></p> <p><b>Load capacitance <math>C_L</math></b> 6.0 pF 7.0 pF 9.0 pF 12.5 pF Other <math>C_L</math> on request</p> <p><b>Frequency tolerance</b> ±20 ppm ±100 ppm Tighter freq. tolerances on request</p> <p><b>Temperature range</b> <b>TA</b> = -40 to +85°C (Standard) <b>TB</b> = -40 to +125°C <b>TC</b> = -55 to +125°C</p> <p><b>Qualification</b> <b>QC</b> = Commercial Grade (Standard) <b>QA</b> = Automotive Grade AEC-Q200</p>						
<p>A unique part number will be generated for each product specification, i.e.:</p> <table border="1" style="margin: auto;"> <tr> <td>20xxx-MG01</td> <td>1'000 pcs (in 12 mm tape on 7" reel)</td> </tr> <tr> <td>20xxx-MG03</td> <td>3'000 pcs (in 12 mm tape on 7" reel)</td> </tr> <tr> <td>20xxx-PG14</td> <td>14'000 pcs (in 12 mm tape on 13" reel)</td> </tr> </table>		20xxx-MG01	1'000 pcs (in 12 mm tape on 7" reel)	20xxx-MG03	3'000 pcs (in 12 mm tape on 7" reel)	20xxx-PG14	14'000 pcs (in 12 mm tape on 13" reel)
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All specifications subject to change without notice.

