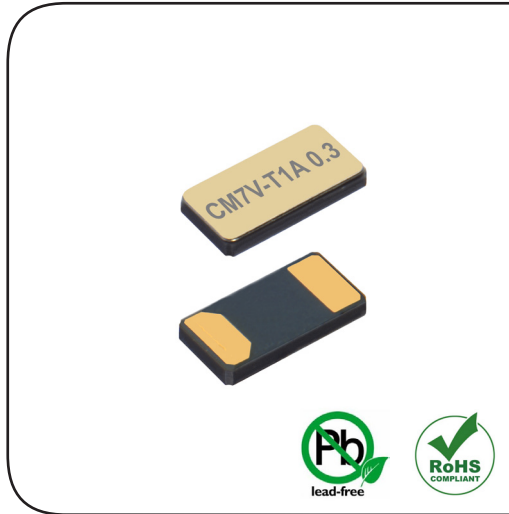
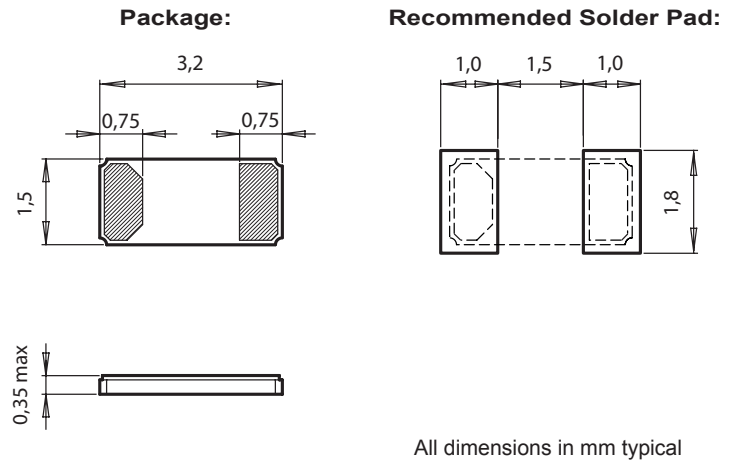


# CM7V-T1A 0.3

## Tuning Fork Crystal 32.768 kHz



### DIMENSIONS



### APPLICATIONS

IoT  
Industrial  
Health Care  
Smart Cards  
Ultra Thin Devices  
Wearables, Portables

### DESCRIPTION

The CM7V-T1A 0.3 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

Ultra low profile (maximum height 0.35 mm).  
Outstanding hermetic sealing with gold-tin preform.  
High stability and low aging guaranteed by hermetic sealing.  
Available for extended operating temperature range.  
High shock and vibration resistant.  
100% Pb-free, RoHS-compliant.

### ELECTRICAL CHARACTERISTICS AT 25°C

|                             |                            |  |     |
|-----------------------------|----------------------------|--|-----|
| Standard Frequency          | <sup>1)</sup> $F_L$        | 32.768   | kHz |
| Load capacitance            | <sup>2)</sup> $C_L$        | 6.0 / 7.0 / 9.0 / 12.5                                     | pF  |
| Frequency tolerance         | <sup>3)</sup> $\Delta F/F$ | ±20  | ppm |
|                             | $\Delta F/F$               | ±100   | ppm |
| Series resistance typ./max. | $R_S$                      | 45 / 60  | kΩ  |
| Motional capacitance typ.   | $C_1$                      | 3.6  | fF  |
| Static capacitance typ.     | $C_0$                      | 1.4  | pF  |
| Drive level max.            | P                          | 0.5  | μW  |
| Insulation resistance min.  | $R_i$                      | 500  | MΩ  |
| Aging first year max.       | $\Delta F/F$               | ±3   | ppm |
| Turnover temperature        | $T_0$                      | 25 ±5  | °C  |
| Frequency vs. temperature   | $\Delta F/F_0$             | $-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \pm 10\%$ | ppm |

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

**STANDARD FREQUENCIES**

|                              |
|------------------------------|
| <b>Frequency</b>             |
| 32.768 kHz                   |
| Other frequencies on request |

**ENVIRONMENTAL CHARACTERISTICS**

|                                |      | <b>Conditions</b>      | <b>Max. Dev.</b> |
|--------------------------------|------|------------------------|------------------|
| 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**

| <b>Type</b>  | <b>Termination</b>                  | <b>Processing</b>                         |
|--------------|-------------------------------------|---|
| CM7V-T1A 0.3 | For SMT mounting<br>Au flashed pads | IPC/JEDEC J-STD-020C<br>260°C / 20 - 40 s |

**ORDERING INFORMATION**

|  |   |             |                                      |             |                                      |
|--|---|-------------|--------------------------------------|-------------|--------------------------------------|
| <b>C M 7 V - T 1 A 0.3 32.768 kHz 12.5 pF ±20 ppm TA QC</b>  |   |             |                                      |             |                                      |
| <p><b>Ceramic package</b> ————</p> <p><b>Metal lid</b> ————</p> <p><b>Package size</b> ————<br/>7 = 3.2 x 1.5 x 0.35 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>Special feature</b> ————<br/>0.3 = Lowest profile, 0.35 mm</p> | <p><b>Frequency <math>F_L</math></b></p> <p><b>Load capacitance <math>C_L</math></b><br/>6.0 pF<br/>7.0 pF<br/>9.0 pF<br/>12.5 pF<br/>Other <math>C_L</math> on request</p> <p><b>Frequency tolerance</b> ————<br/>±20 ppm<br/>±100 ppm<br/>Tighter freq. tolerances on request</p> <p><b>Temperature range</b> ————<br/><b>TA</b> = -40 to +85°C (Standard)<br/><b>TB</b> = -40 to +125°C<br/><b>TC</b> = -55 to +125°C</p> <p><b>Qualification</b> ————<br/><b>QC</b> = Commercial Grade (Standard)</p> |             |                                      |             |                                      |
| <p>A unique part number will be generated for each product specification, i.e:</p> <table border="1" style="margin: auto;"> <tr> <td>20xxxx-MG01</td> <td>1'000 pcs (in 12 mm tape on 7" reel)</td> </tr> <tr> <td>20xxxx-MG03</td> <td>3'000 pcs (in 12 mm tape on 7" reel)</td> </tr> </table>                                       |   | 20xxxx-MG01 | 1'000 pcs (in 12 mm tape on 7" reel) | 20xxxx-MG03 | 3'000 pcs (in 12 mm tape on 7" reel) |
| 20xxxx-MG01  | 1'000 pcs (in 12 mm tape on 7" reel)  |             |                                      |             |                                      |
| 20xxxx-MG03  | 3'000 pcs (in 12 mm tape on 7" reel)  |             |                                      |             |                                      |

All specifications subject to change without notice.



Micro Crystal AG  
Muehlestrasse 14  
CH-2540 Grenchen  
Switzerland

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