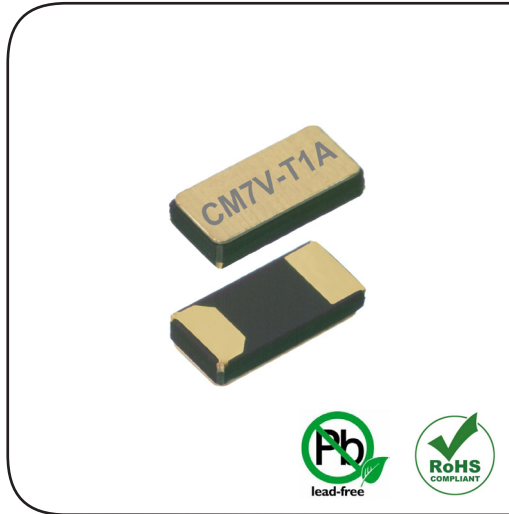
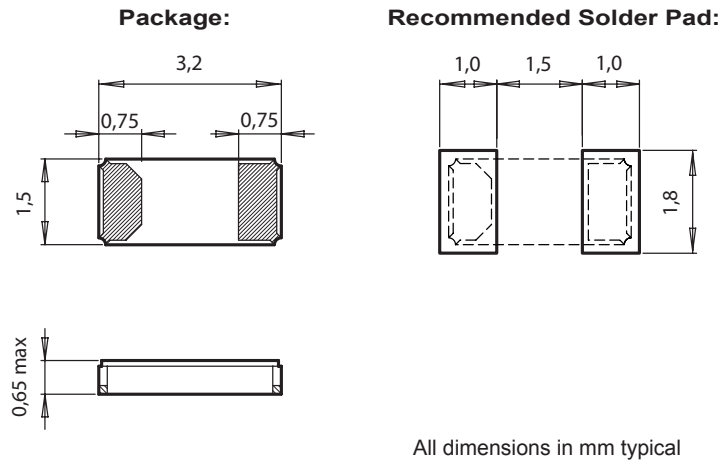


CM7V-T1A Low ESR

Tuning Fork Crystal 32.768 kHz



DIMENSIONS



APPLICATIONS

IoT
Metering
Industrial
Automotive
Health Care
Wearables, Portables

DESCRIPTION

The CM7V-T1A Low ESR 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

- Maximum ESR value of 50 kΩ for low power designs.
- 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 Frequency | ¹⁾ F _L | 32.768 | kHz |
| Load capacitance | ²⁾ C _L | 6.0 / 7.0 / 9.0 / 12.5 | pF |
| Frequency tolerance | ³⁾ ΔF/F | ±20 | ppm |
| | ΔF/F | ±100 | ppm |
| Series resistance typ./max. | R _S | 40 / 50 | kΩ |
| Motional capacitance typ. | C ₁ | 4.7 | fF |
| Static capacitance typ. | C ₀ | 1.3 | 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 frequency tolerances on request.

STANDARD FREQUENCIES

| Frequency |
|------------------------------|
| 32.768 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 Low ESR | For SMT mounting Au flashed pads | IPC/JEDEC J-STD-020C 260°C / 20 - 40 s |

ORDERING INFORMATION

| C M 7 V - T 1 A Low ESR 32.768 kHz 12.5 pF ±20 ppm TA QC | |
|--|---|
| Ceramic package | Frequency F_L |
| Metal lid | Load capacitance C_L 6.0 pF 7.0 pF 9.0 pF 12.5 pF Other C_L on request |
| Package size 7 = 3.2 x 1.5 x 0.65 mm | Frequency tolerance ±20 ppm ±100 ppm Tighter freq. tolerances on request |
| Tuning fork | Temperature range TA = -40 to +85°C (Standard) TB = -40 to +125°C TC = -55 to +125°C |
| SMT Package | Qualification QC = Commercial Grade (Standard) QA = Automotive Grade AEC-Q200 |
| Au flashed pads | |
| Pads on both ends | |
| Special feature Low ESR = 50 kΩ max. | |

| A unique part number will be generated for each product specification, i.e: | |
|---|--|
| 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-PG14 | 14'000 pcs (in 12 mm tape on 13" reel) |

All specifications subject to change without notice.



A COMPANY OF THE SWATCH GROUP

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Micro Crystal:

[CM7V-T1A-Low-ESR-32.768k-7pF-10-TB-QA](#) [CM7V-T1A-Low-ESR-32.768k-9pF-20-TB-QA](#) [CM7VT1A-LowESR-32.768kHz-12.5pF-20-TA-QC](#)