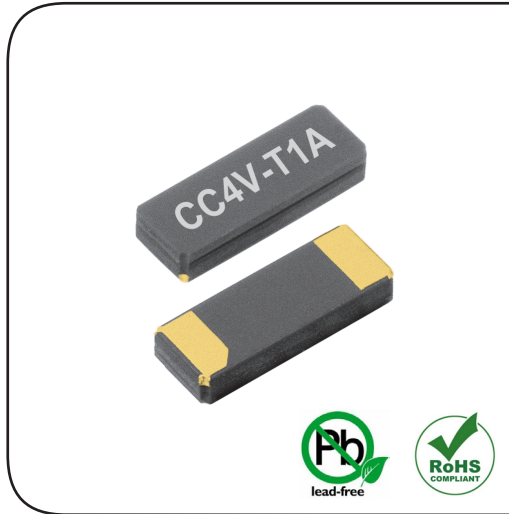
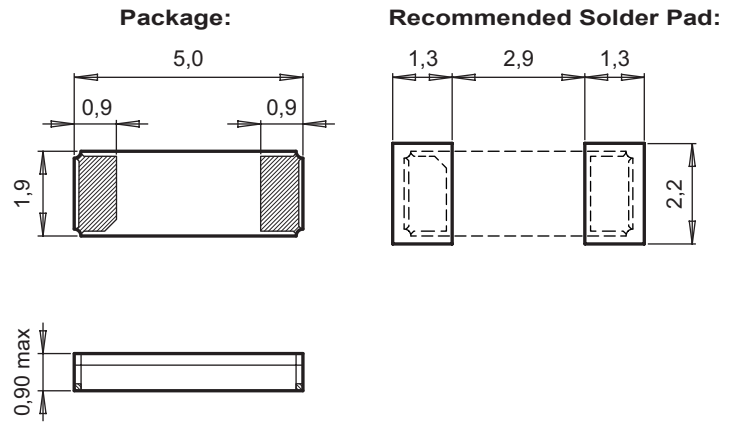


CC4V-T1A

Tuning Fork Crystal 30 kHz – 1.0 MHz



DIMENSIONS



All dimensions in mm typical

APPLICATIONS

Metering
Industrial
Automotive
Health Care
Medical Implantable
Harsh Environments

DESCRIPTION

The CC4V-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 ceramic lid.

CC4V-T1A is compatible with other suppliers' same footprint crystals.

FEATURES

Mature product for harsh environments.
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.
Automotive qualification according to AEC-Q200 available.

ELECTRICAL CHARACTERISTICS AT 25°C

| Frequency Range | F_L | 30–200 | 201–560 | 1'000 | kHz |
|-----------------------------------|--------------|--------|---------|-------|-----|
| Load capacitance ¹⁾ | C_L | 6.0 | 9.0 | 7.0 | pF |
| | | 7.0 | | | |
| | | 9.0 | | | |
| | | 10.0 | | | |
| | | 12.5 | | | |
| Frequency tolerance ²⁾ | $\Delta F/F$ | ±20 | ±100 | ±100 | ppm |
| | $\Delta F/F$ | ±100 | ±250 | ±500 | ppm |
| Drive level max. | P | 1.0 | | | μW |
| Insulation resistance min. | R_i | 500 | | | MΩ |
| Aging first year max. | $\Delta F/F$ | ±3 | | | ppm |

| Standard Frequencies ³⁾ | F_L | 32.768 | 200.000 | 1'000 | kHz |
|------------------------------------|----------------|--------------------------------------------------------------------|-----------|-----------|-----|
| Series resistance typ./max. | R_S | 50 / 65 | 3.2 / 5.0 | 0.5 / 1.0 | kΩ |
| Motional capacitance typ. | C_1 | 2.1 | 2.1 | 2.1 | fF |
| Static capacitance typ. | C_0 | 1.2 | 1.3 | 1.0 | pF |
| Turnover temperature | T_0 | 25 ±5 | 30 ±5 | 32 ±5 | °C |
| Frequency vs. temperature | $\Delta F/F_0$ | -0.035 ppm/°C ² (T - T ₀) ² ±10% | | | ppm |

1) Other load capacitances on request.

2) Tighter frequency tolerances on request.

3) Other standard frequencies, see below.

STANDARD FREQUENCIES

| Frequencies | | | |
|------------------------------|-------------|-------------|-------------|
| 32.768 kHz | 38.400 kHz | 40.000 kHz | 100.000 kHz |
| 128.000 kHz | 153.600 kHz | 200.000 kHz | 1.0000 MHz |
| 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 |
|----------|--------------------------------------------|-------------------------------------------|
| CC4V-T1A | Au flashed pads | IPC/JEDEC J-STD-020C 260°C / 20 - 40 s |
| CC4V-T2A | SnPb plated pads available only on request | |

ORDERING INFORMATION

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C C 4 V - T 1 A 32.768 kHz 12.5 pF ±20 ppm TA QC | |
| <p>Ceramic package —</p> <p>Ceramic lid —</p> <p>Package size — 4 = 5.0 x 1.9 x 0.90 mm</p> <p>Tuning fork —</p> <p>SMT Package —</p> <p>Pads — 1 = Au flashed pads 2 = SnPb plated pads</p> <p>Pads on both ends —</p> | <p>Frequency F_L —</p> <p>Load capacitance C_L 6.0 pF, 7.0 pF 9.0 pF 10.0 pF 12.5 pF Other C_L on request</p> <p>Frequency tolerance — ±20 ppm, ±100 ppm ±250 ppm, ±500 ppm Tighter freq. tolerances on request</p> <p>Temperature range — TA = -40 to +85°C (Standard) TB = -40 to +125°C TC = -55 to +125°C</p> <p>Qualification — QC = Commercial Grade (Standard) QA = Automotive Grade AEC-Q200 QM = Medical Grade</p> |
| A unique part number will be generated for each product specification, i.e: | |
| 20xxxx-MG02 | 2'000 pcs (in 12 mm tape on 7" reel) |
| 20xxxx-PG10 | 10'000 pcs (in 12 mm tape on 13" 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

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View CC4V-T1A-32.768KHZ-9PF-20PPM-TA-QC on WIN SOURCE](#)
- ⊖ [Micro Crystal AG Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management