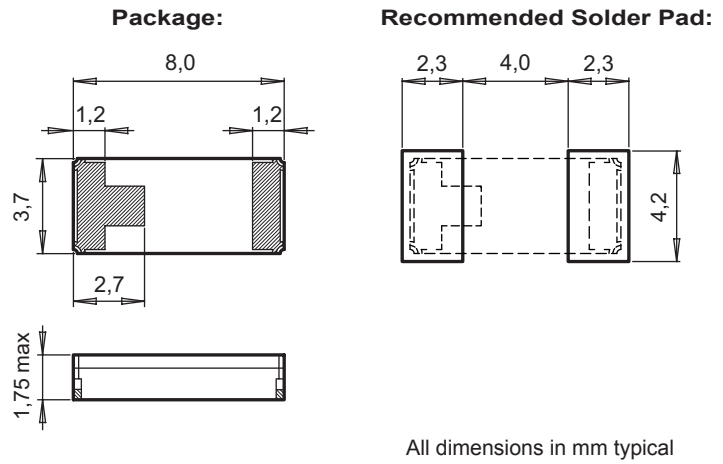


CC1V-T1A

Tuning Fork Crystal 10 kHz – 2.0 MHz



DIMENSIONS



APPLICATIONS

Metering
Industrial
Automotive
Health Care
Harsh Environments
Consumer Electronics

DESCRIPTION

The CC1V-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.

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.

ELECTRICAL CHARACTERISTICS AT 25°C

| Frequency Range | F _L | 10–200 | 201–560 | 561–2'000 | kHz |
|-----------------------------------|----------------|-------------|---------|-----------|-----|
| Load capacitance ¹⁾ | C _L | 9.0 12.5 | 4.0 | 10.0 | pF |
| Frequency tolerance ²⁾ | ΔF/F | ±20 | ±100 | ±100 | ppm |
| | ΔF/F | ±100 | ±250 | ±500 | ppm |
| Drive level max. | P | 1.0 | | | μW |
| Insulation resistance min. | R _i | 500 | | | MΩ |
| Aging first year max. | ΔF/F | ±3 | | | ppm |

| Standard Frequencies ³⁾ | F _L | 32.768 | 307.200 | 1'8432 | kHz |
|------------------------------------|-------------------|--|-----------|------------|-----|
| Series resistance typ./max. | R _S | 40 / 60 | 1.4 / 3.5 | 0.12 / 0.4 | kΩ |
| Motional capacitance typ. | C ₁ | 2.0 | 1.6 | 3.8 | fF |
| Static capacitance typ. | C ₀ | 1.6 | 2.0 | 1.6 | pF |
| Turnover temperature | T ₀ | 25 ±5 | 32 ±5 | 33 ±5 | °C |
| Frequency vs. temperature | ΔF/F ₀ | -0.035 ppm/°C² (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 | 51.200 kHz | 307.200 kHz |
| 500.000 kHz | 1.0000 MHz | 1.2288 MHz | 1.8432 MHz | 2.0000 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 |
|----------|-------------------------------------|---|
| CC1V-T1A | For SMT mounting Au flashed pads | IPC/JEDEC J-STD-020C 260°C / 20 - 40 s |

ORDERING INFORMATION

| C C 1 V - T 1 A 32.768 kHz 12.5 pF ±20 ppm TA QC | |
|--|--|
| Ceramic package | Frequency F_L |
| Ceramic lid | Load capacitance C_L |
| Package size 1 = 8.0 x 3.7 x 1.75 mm | 4.0 pF |
| Tuning fork | 9.0 pF |
| SMT Package | 10.0 pF |
| Au flashed pads | 12.5 pF |
| Pads on both ends | Other C_L on request |
| | Frequency tolerance |
| | ±20 ppm, ±100 ppm |
| | ±250 ppm |
| | ±500 ppm |
| | Tighter freq. tolerances on request |
| | Temperature range |
| | TA = -40 to +85°C (Standard) |
| | TB = -40 to +125°C |
| | TC = -55 to +125°C |
| | Qualification |
| | QC = Commercial Grade (Standard) |

| | |
|---|---------------------------------------|
| A unique part number will be generated for each product specification, i.e: | |
| 20xxxx-ML01 | 1'000 pcs (in 16 mm tape on 7" reel) |
| 20xxxx-PL04 | 4'000 pcs (in 16 mm tape on 13" reel) |

All specifications subject to change without notice.



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