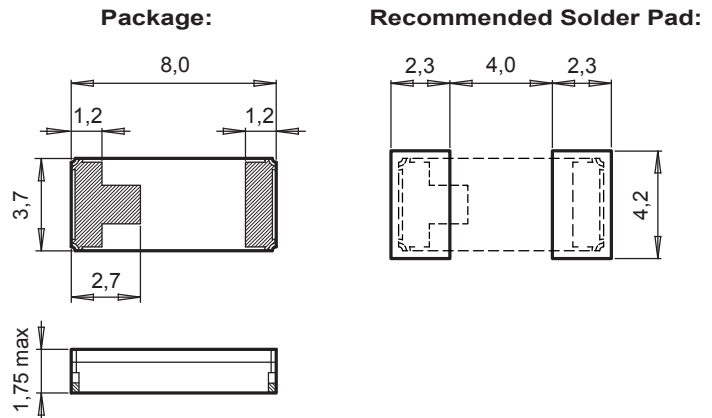


CC1A-T1AH up to 200°C

AT-Cut Crystal 8 MHz – 24 MHz



DIMENSIONS



All dimensions in mm typical

APPLICATIONS

Telemetry
Optical Network
Airborne Equipment
Geothermal Equipment
Radio Communications
Down Hole and Well Drilling

DESCRIPTION

The CC1A-T1AH is a high frequency SMT Quartz Crystal Unit that incorporates an AT-cut Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed ceramic package with ceramic lid.

FEATURES

Outstanding hermetic sealing with gold-tin preform.
High stability and low aging guaranteed by hermetic sealing.
For extreme operating temperature ranges up to 200°C.
Operates in fundamental mode.
High shock and vibration resistant.
100% Pb-free, RoHS-compliant.

ELECTRICAL CHARACTERISTICS AT 25°C

| Frequency Range | F_L | 8 – 24 | MHz |
|--|----------------|----------------------|-----|
| Load capacitance ¹⁾ | C_L | 20.0 | pF |
| Frequency tolerance at +25°C ²⁾ | $\Delta F/F$ | ±50 | ppm |
| Frequency vs. temperature ³⁾ TC: -55 to +125°C TD: -55 to +175°C TG: -55 to +200°C | $\Delta F/F_0$ | ±100 ±150 ±250 | ppm |
| Drive level typ./max. | P | 100 / 250 | μW |
| Insulation resistance min. | R_i | 500 | MΩ |
| Aging first year max. | $\Delta F/F$ | ±3 | ppm |

1) Other load capacitances on request; e.g. C_L : 9.0 pF.

2) Tighter frequency tolerances on request; e.g. ±20 ppm.

3) Tighter thermal stability on request; e.g. ±10 ppm from 0°C to +55°C.

| Frequency | R_s typ./max. | C_1 typ./max. | C_0 typ. |
|--------------------------|--------------------|--------------------|---------------|
| 8.000 MHz to 9.999 MHz | 100 Ω / 150 Ω | 4 fF / 7 fF | 2.0 pF |
| 10.000 MHz to 11.999 MHz | 70 Ω / 120 Ω | 5 fF / 8 fF | 2.2 pF |
| 12.000 MHz to 15.999 MHz | 60 Ω / 120 Ω | 6 fF / 10 fF | 2.5 pF |
| 16.000 MHz to 19.999 MHz | 50 Ω / 100 Ω | 8 fF / 11 fF | 2.8 pF |
| 20.000 MHz to 24.000 MHz | 50 Ω / 100 Ω | 9 fF / 13 fF | 3.2 pF |

STANDARD FREQUENCIES

| Frequencies | | | | |
|------------------------------|-------------|-------------|-------------|-------------|
| 8.0000 MHz | 10.0000 MHz | 10.1506 MHz | 11.0592 MHz | 12.0000 MHz |
| 12.2880 MHz | 13.5600 MHz | 14.3181 MHz | 14.7456 MHz | 16.0000 MHz |
| 16.3840 MHz | 18.4320 MHz | 20.0000 MHz | 24.0000 MHz | |
| Other frequencies on request | | | | |

ENVIRONMENTAL CHARACTERISTICS

| | Conditions |
|--------------------------------|-------------------------|
| Storage temp. range | -55 to +125°C |
| TC Operating temperature range | -55 to +125°C |
| TD Operating temperature range | -55 to +175°C |
| TG Operating temperature range | -55 to +200°C |
| Shock resistance | 10000 g, 0.3 ms, ½ sine |
| Vibration resistance | 40 g / 10–2000 Hz |

TERMINATIONS AND PROCESSING

| Type | Termination | Processing |
|-----------|---|---|
| CC1A-T1AH | Au flashed pads | IPC/JEDEC J-STD-020C 260°C / 20 - 40 s |
| CC1A-T3AH | SnAgCu solder dipped pads. Only available with TC and TD temperature ranges. | |

ORDERING INFORMATION

| | |
|---|--|
| CC1A-T1AH 24.000 MHz 20.0 pF ±50 ppm TC QI | |
| Ceramic package Ceramic lid Package size 1 = 8.0 x 3.7 x 1.75 mm AT-cut SMT package Pads 1 = Au flashed pads 3 = SnAgCu solder dipped pads Pads on both ends High temperature | Frequency F_L Load capacitance C_L 20.0 pF Other C_L on request Frequency tolerance ±50 ppm Tighter freq. tolerances on request Temperature range TC = -55 to +125°C TD = -55 to +175°C TG = -55 to +200°C Qualification QI = Industrial Grade (Standard) QS = Custom Specification |
| 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-EA00 | xxx pcs (in ESD plastic tray) |

All specifications subject to change without notice.