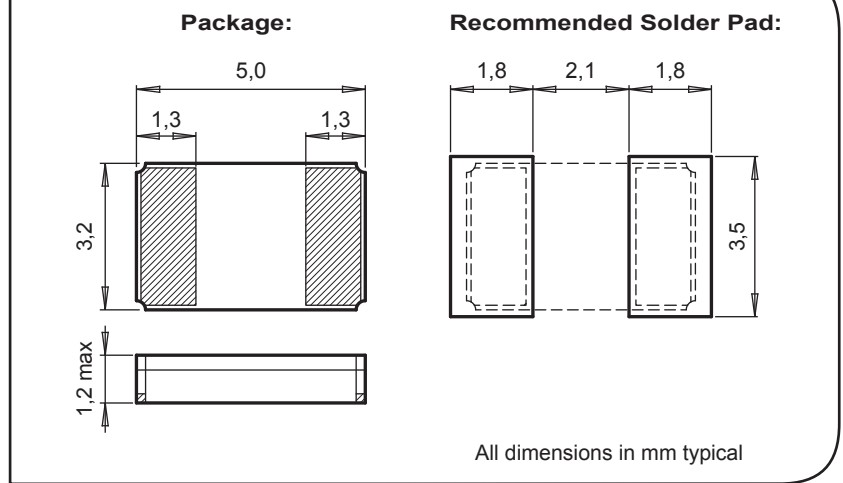


DIMENSIONS



APPLICATIONS

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

DESCRIPTION

The CC2A-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 | 14 – 40 | 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. |
|--------------------------|--------------------|--------------------|---------------|
| 14.000 MHz to 17.999 MHz | 70 Ω / 120 Ω | 5 fF / 8 fF | 2.5 pF |
| 18.000 MHz to 23.999 MHz | 50 Ω / 100 Ω | 8 fF / 10 fF | 3.0 pF |
| 24.000 MHz to 40.000 MHz | 40 Ω / 80 Ω | 10 fF / 12 fF | 4.0 pF |

STANDARD FREQUENCIES

| Frequencies | | | | |
|------------------------------|-------------|-------------|-------------|-------------|
| 14.7456 MHz | 16.0000 MHz | 16.3840 MHz | 20.0000 MHz | 24.0000 MHz |
| 24.5760 MHz | 25.0000 MHz | 25.6000 MHz | 32.7680 MHz | 40.0000 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 |
|-----------|---|---|
| CC2A-T1AH | Au flashed pads | IPC/JEDEC J-STD-020C 260°C / 20 - 40 s |
| CC2A-T3AH | SnAgCu solder dipped pads. Only available with TC and TD temperature ranges. | |

ORDERING INFORMATION

| C C 2 A - T 1 A H 24.000 MHz 20.0 pF ±50 ppm TC QI | |
|---|---|
| Ceramic package | Frequency F_L |
| Ceramic lid | Load capacitance C_L 20.0 pF Other C_L on request |
| Package size 2 = 5.0 x 3.2 x 1.2 mm | Frequency tolerance ±50 ppm Tighter freq. tolerances on request |
| AT-cut | Temperature range |
| SMT package | TC = -55 to +125°C TD = -55 to +175°C TG = -55 to +200°C |
| Pads 1 = Au flashed pads 3 = SnAgCu solder dipped pads | Qualification |
| Pads on both ends | QI = Industrial Grade (Standard) QS = Custom Specification |
| High temperature | |

| | |
|---|--------------------------------------|
| 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-MG02 | 2'000 pcs (in 12 mm tape on 7" reel) |
| 20xxxx-EA00 | xxx pcs (in ESD plastic tray) |

All specifications subject to change without notice.



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