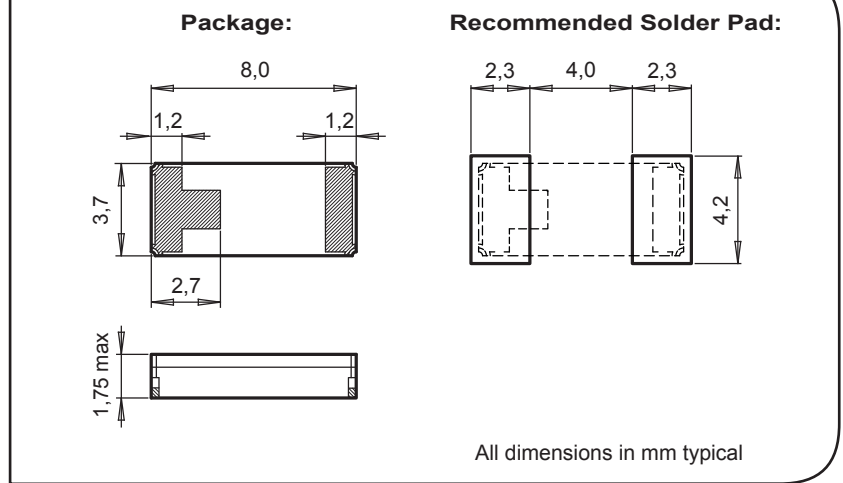




DIMENSIONS



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

C C 1 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 1 = 8.0 x 3.7 x 1.75 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-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.



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