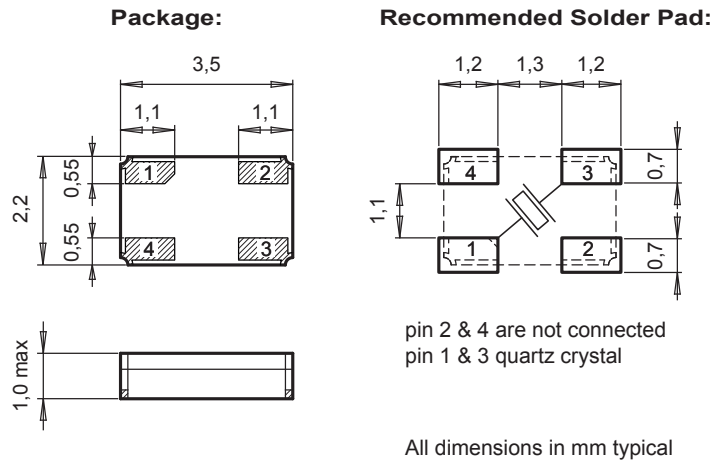


### DIMENSIONS



### APPLICATIONS

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

### DESCRIPTION

The CC6A-T1DH 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	$F_L$	16 – 40	MHz
Load capacitance <sup>1)</sup>	$C_L$	20.0	pF
Frequency tolerance at +25°C <sup>2)</sup>	$\Delta F/F$	±50	ppm
Frequency vs. temperature <sup>3)</sup> 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.
16.000 MHz to 19.999 MHz	80 Ω / 200 Ω	2.0 fF / 4.0 fF	1.5 pF
20.000 MHz to 23.999 MHz	60 Ω / 120 Ω	3.0 fF / 5.0 fF	2.0 pF
24.000 MHz to 40.000 MHz	50 Ω / 100 Ω	4.0 fF / 6.0 fF	2.5 pF

**STANDARD FREQUENCIES**

Frequencies				
16.000 MHz	16.384 MHz	18.432 MHz	20.000 MHz	24.000 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
CC6A-T1DH	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
CC6A-T3DH	SnAgCu solder dipped pads. Only available with TC and TD temperature ranges.	

**ORDERING INFORMATION**

C C 6 A - T 1 D H 24.000 MHz 20.0 pF ±50 ppm TC QI	
<b>Ceramic package</b>	<b>Frequency <math>F_L</math></b>
<b>Ceramic lid</b>	<b>Load capacitance <math>C_L</math></b> 20.0 pF Other $C_L$ on request
<b>Package size</b> 6 = 3.5 x 2.2 x 1.0 mm	<b>Frequency tolerance</b> ±50 ppm Tighter freq. tolerances on request
<b>AT-cut</b>	<b>Temperature range</b> TC = -55 to +125°C TD = -55 to +175°C TG = -55 to +200°C
<b>SMT package</b>	<b>Qualification</b> QI = Industrial Grade (Standard) QS = Custom Specification
<b>Pads</b> 1 = Au flashed pads 3 = SnAgCu solder dipped pads	
<b>4-pads</b>	
<b>High temperature</b>	

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-MG03	3'000 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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