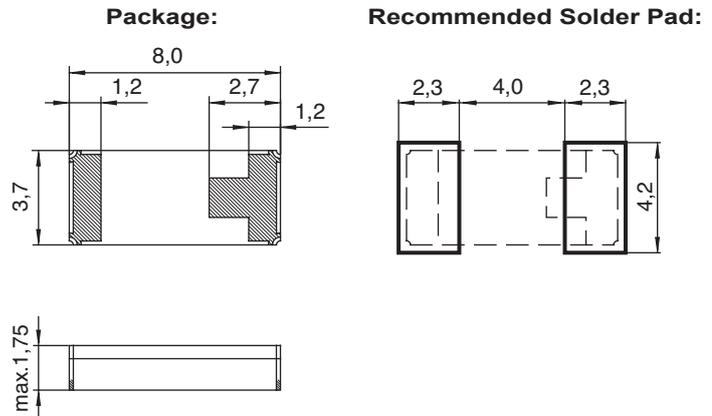




### DIMENSIONS



All dimensions in mm typical

Suitable for Downhole application  
 SMT ceramic package height 1.75 mm  
 Fundamental mode up to 24MHz  
 Extremes temperature ranges  
 High stability and low aging  
 High shock and vibration resistance  
 Hermetically sealed  
 Ultra low MSL  
 Excellent solderability  
 Swiss made quality  
 Customer specification on request

### DESCRIPTION:

This quartz Crystal in SMD ceramic package has been specially designed with Micro Crystal photolithographic process for surface mount using infrared, vapor phase or epoxy technics

### APPLICATIONS:

- Downhole and Well drilling equipments
- Avionics
- Airborne equipments
- Geothermal equipments
- Fire fighter equipments

The crystals are supplied in trays (100 crystals per tray).

For pick-and-place equipment, the parts are available in 16mm tapes:

- 7" with 1'000 crystals
- 10" with 2'000 crystals

### ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	F <sub>L</sub>	8–24	MHz
Load capacitance <sup>1)</sup>	C <sub>L</sub>	20.0	pF
Frequency tolerance at +25°C <sup>2)</sup>	ΔF/F	+/-50	ppm
Frequency versus temperature <sup>3)</sup> TD: -55 to +175°C TG: -55 to +200°C	ΔF/F <sub>0</sub>	+/-150 +/-250	ppm
Drive level typ/max	P	100 / 200	μW
Insulation resistance min.	R <sub>i</sub>	500	MΩ
Aging first year max.	ΔF/F	+/-3	ppm

1) Other load capacitances on request.

2) Tighter and wider frequency tolerances on request.

3) Tighter thermal stability on request.

Frequency [MHz]	Rs [Ω] typ / max	C1 [fF] typ / max	Co [pF] typ
8 to < 10	100 / 150	4 / 7	2
10 to < 12	70 / 120	5 / 8	2.2
12 to < 16	60 / 120	6 / 10	2.5
16 to < 20	50 / 100	8 / 11	2.8
20 to ≤ 24	50 / 100	9 / 13	3.2

**STANDARD FREQUENCIES:**

Frequency MHz						
8.0000	10.0000	10.1506	11.0592	12.0000	12.288	13.56
14.3181	14.7456	16.0000	16.3840	18.432	20.0000	24.0000
Other frequencies from 8 MHz up to 24 MHz on request						

**ENVIRONMENTAL  
CHARACTERISTICS:**

	Conditions
Storage temp. 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	For SMD mounting Au plated pads	Reflow soldering +260°C / 20 s max.
Only available with TD temperature range CC1A-T3AH	For SMD mounting Sn/Ag/Cu plated	Reflow soldering +260°C / 20 s max.

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

**CC1A-T1AH 24.0 MHz 20.0pF +/-50ppm TD QI**

Frequency  $F_0$  \_\_\_\_\_

$C_L$  Load Capacitance \_\_\_\_\_

16.0 pF  
20.0 pF

Frequency tolerance \_\_\_\_\_

+/- 50 ppm  
+/- 100 ppm

Temperature Range \_\_\_\_\_

TD = -55 to +175°C  
TG = -55 to +200°C

Optional:  
if not defined,  
,Standard' will apply

Qualification \_\_\_\_\_

QI = Industrial (Standard)  
QS = Custom Specification

A unique part number will be generated for each product specification, i.e:

20xxxx-ML01	1'000 pcs (in 16mm tape on 7" reel)
20xxxx-PL02	2'000 pcs (in 16mm tape on 13" reel)
20xxxx-DA00	xxx pcs (in foam tray)

Please contact us.

All specifications subject to change without notice.



Micro Crystal AG  
Mühlestrasse 14  
CH-2540 Grenchen  
Switzerland

Tel. +41 32 655 82 82  
Fax +41 32 655 82 83  
sales@microcrystal.com  
www.microcrystal.com