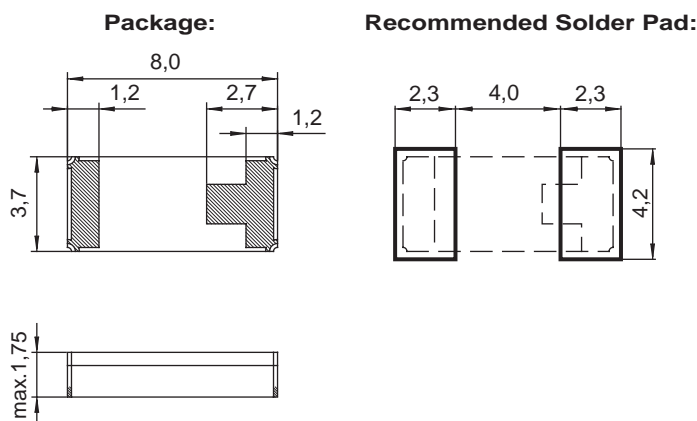




100% leadfree, RoHS - compliant

## 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 techniques

## 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	$F_L$	8–24	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 versus temperature <sup>3)</sup> TD: -55 to +175°C TG: -55 to +200°C	$\Delta F/F_0$	+/-150 +/-250	ppm
Drive level typ/max	P	100 / 200	μW
Insulation resistance min.	$R_i$	500	MΩ
Aging first year max.	$\Delta F/F$	+/-3	ppm

1) Other load capacitances on request.

2) Tighter and wider frequency tolerances on request.

3) Tighter thermal stability on request.

Frequency [MHz]	$R_s[\Omega]$ typ / max	$C_1$ [fF] typ / max	$C_0$ [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<sub>L</sub> \_\_\_\_\_

C<sub>L</sub> 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.