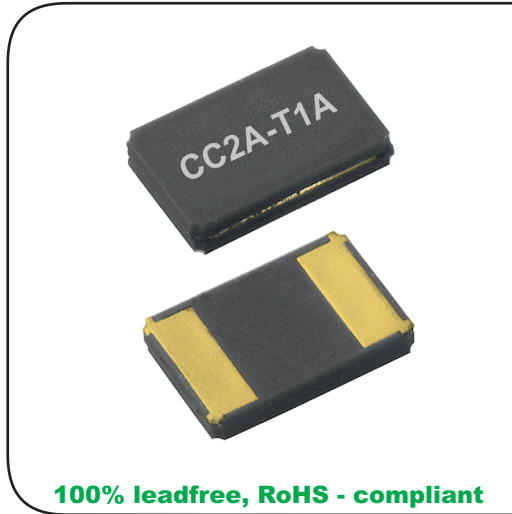
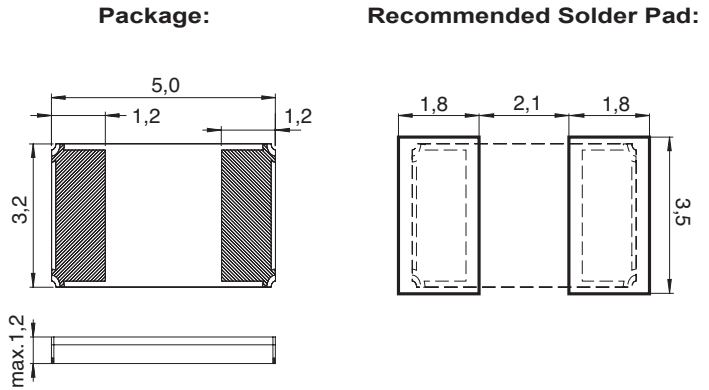


# CC2A-T1A

AT Crystal 12 MHz – 70 MHz



## DIMENSIONS



All dimensions in mm typical

**SMT ceramic package height 1.2 mm**  
**Fundamental mode up to 70MHz**  
**Ind. and Ext. 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:

- Avionics
- Radio transceiver
- Satellite communications
- Airborne equipments

The crystals are supplied in trays (128 crystals per tray).

For pick-and-place equipment, the parts are available in 12mm tapes:

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

## ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	$F_L$	10 – 70	MHz
Load capacitance <sup>1)</sup>	$C_L$	20	pF
Frequency tolerance at 25°C <sup>2)</sup>	$\Delta F/F$	+/-50	ppm
Frequency versus temperature <sup>3)</sup> TB: -40 to +85°C TC: -55 to +125°C	$\Delta F/F_0$	+/-50 +/-100	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;

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
12 to < 14	60 / 100	3 / 5	2
14 to < 18	40 / 80	5 / 8	2.5
18 to < 24	20 / 60	8 / 10	3
24 to < 40	15 / 50	10 / 12	4
40 to ≤ 70	10 / 40	12 / 14	5

**STANDARD FREQUENCIES:**

Frequency MHz					
12.0000	14.7456	16.0000	16.384	20.0000	24.0000
24.576	25.0000	25.6	32.768	40.0000	
Other frequencies from 12 MHz up to 70 MHz on request					

**ENVIRONMENTAL  
CHARACTERISTICS:**

	Conditions
Storage temp. range	-55 to +125°C
TB Operating temperature range	-40 to +85°C
TC Extended operating temp. range	-55 to +125°C
Shock resistance	5000 g, 0.3 ms, ½ sine
Vibration resistance	20 g / 10–2000 Hz

**TERMINATIONS AND  
PROCESSING:**

Type	Termination	Processing
CC2A-T1A	For SMD mounting Au plated pads	Reflow soldering +260°C / 20 s max.
CC2A-T3A	For SMD mounting Sn/Ag/Cu plated	Reflow soldering +260°C / 20 s max.

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

**CC2A-T1A 20.0 MHz 20 pF +/-50ppm TB QI**

Frequency F<sub>0</sub> \_\_\_\_\_

C<sub>L</sub> Load Capacitance \_\_\_\_\_  
16 pF  
20 pF

Frequency tolerance \_\_\_\_\_  
+/- 50 ppm  
+/- 100 ppm

Temperature Range \_\_\_\_\_  
TB = -40 to +85°C (Standard)  
TC = -55 to +125°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-MG01	1'000 pcs (in 12mm tape on 7" reel)
20xxxx-MG02	2'000 pcs (in 12mm tape on 10" reel)
20xxxx-EA00	xxx pcs (in ESD plastic 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