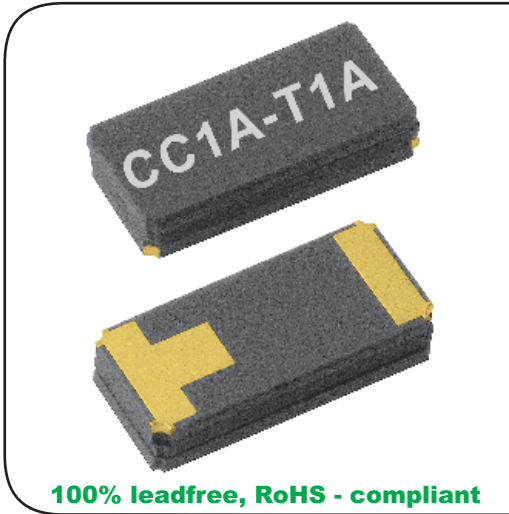
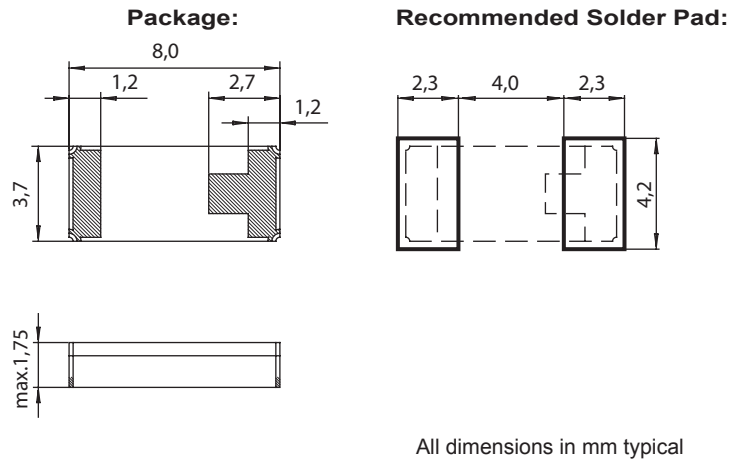


# CC1A-T1A

## AT Crystal 8 MHz – 30 MHz



### DIMENSIONS



Small SMT ceramic package  
 Package height 1.75 mm  
 Fundamental mode frequencies  
 SMD-package in Tape and Reel  
 Ind. and Ext. temperature ranges  
 High stability  
 Low aging  
 High shock and vibration resistance

### DESCRIPTION:

This SMD ceramic package has been specially designed for small industrial, telecom and electronic applications. All frequencies are generated in fundamental mode.

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

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

7" (178 mm) reel with 1'000 crystals

13" (330 mm) reel with 4'000 crystals

### ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	$F_L$	8–30	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> TB: -40 to + 85°C TC: -55 to +125°C	$\Delta F/F_0$	+/-50 +/-100	ppm
Drive level typ/max	P	100 / 500	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	$C_o$ [pF] typ
8 to < 10	60 / 100	4 / 7	2
10 to < 12	50 / 85	5 / 8	2.2
12 to < 16	40 / 75	6 / 10	2.5
16 to < 20	35 / 60	8 / 11	2.8
20 to < 24	30 / 50	9 / 13	3.2
24 to < 30	30 / 40	11 / 15	4

**STANDARD FREQUENCIES:**

Frequency MHz						
8.0000	10.0000	10.1506	11.0592	12.0000	12.288	13.56
14.3181	17.7456	16.0000	16.3840	18.432	20.0000	24.0000
Other frequencies between 8 MHz and 30 MHz on request						

**ENVIRONMENTAL  
CHARACTERISTICS:**

		Conditions	Max. Dev. [ppm]
Storage temp. range		-55 to +125°C	
TB Operating temperature range		-40 to +85°C	
TC Extended oper. temp. range		-55 to +125°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	+/-5
Vibration resistance	$\Delta F/F$	20 g / 10-2000 Hz	+/-5

**TERMINATIONS AND  
PROCESSING:**

Type	Termination	Processing
CC1A-T1A	For SMD mounting Au plated pads	Reflow soldering 260°C / 20 s max.
CC1A-T3A	For SMD mounting Sn/Ag/Cu plated	Reflow soldering 260°C / 20 s max.

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

**CC1A-T1A**    24.0 MHz    20.0pF    +/-50ppm    TB    QI

Frequency  $F_0$     \_\_\_\_\_

$C_L$  Load Capacitance  
16.0 pF  
20.0 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-ML01                      1'000 pcs (in 16mm tape on 7" reel)  
 20xxxx-PL04                      4'000 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