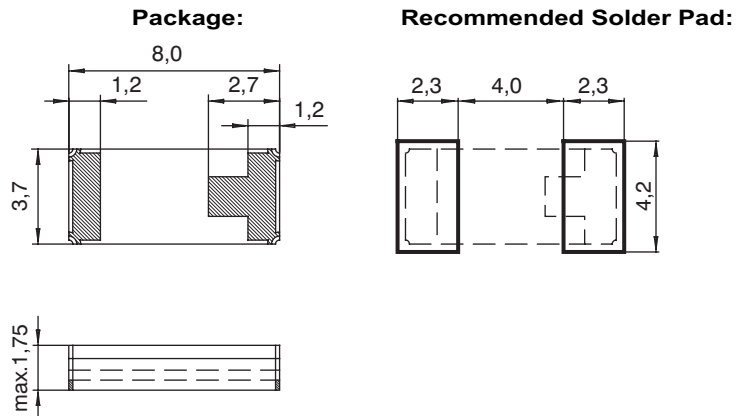


# CC1F-T1A

Inverted Mesa AT Crystal 30 MHz – 250 MHz



## DIMENSIONS



All dimensions in mm typical

**Small ceramic package**  
**Package height 1.75 mm**  
**Fundamental mode frequencies**  
**SMD-package in Tape and Reel**  
**Industrial and MIL temp. ranges**  
**High stability**  
**Low aging**  
**High shock and vibration resistance**

The CC1F-T1A is a completely leadfree product.

## DESCRIPTION:

This SMD ceramic package has been specially designed for small industrial, telecom and VCXO 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

10" (254 mm) reel with 2'000 crystals

## ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	$F_L$	30-250	MHz
Load capacitance <sup>1)</sup>	$C_L$	10.0 / $\infty$	pF
Frequency tolerance at 25°C <sup>2)</sup>	$\Delta F/F$	+/-50	ppm
Frequency versus temperature -40°C to 85°C	$\Delta F/F_0$	+/-30	ppm
Drive level max.	P	100	$\mu$ W
Insulation resistance min.	$R_i$	500	M $\Omega$
Aging first year max.	$\Delta F/F$	+/-3	ppm

Frequency Example <sup>3)</sup>	$F_L$	50.000	155.520	MHz
Series resistance typ./max.	$R_S$	15 / 50	15 / 35	$\Omega$
Motional capacitance typ.	$C_1$	5.6	5.6	fF
Static capacitance typ.	$C_0$	2.0	2.9	pF
Quality factor min.	Q	11'000	5'000	

1) Other load capacitances on request.

2) Tighter and wider frequency tolerances on request.

3) Values for other frequencies consult factory.

**STANDARD FREQUENCIES:**

Frequency MHz					
50.0000	77.7600	100.0000	106.2500	125.0000	155.5200
166.6286	200.0000	207.3600	212.5000	250.0000	
Other frequencies between 30 MHz and 250 MHz on request					

**ENVIRONMENTAL  
CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
Industrial operating temp. range		-40 to +85°C	
Military operating temp. range		-55 to +125°C	
Shock resistance	ΔF/F	5000 g, 0.3 ms, ½ sine	+/-5 ppm
Vibration resistance	ΔF/F	20 g / 10-2000 Hz	+/-5 ppm

**TERMINATIONS AND  
PROCESSING:**

Type	Termination	Processing
CC1F-T1A	For SMD mounting Au flashed pads	Reflow soldering 260°C/20 s max.
CC1F-T2A (on request)	For SMD mounting Sn plated pads	Reflow soldering 260°C/20 s max.

**PART NUMBER/  
ORDERING INFORMATION  
EXAMPLE:**

**CC1E-T1A 155.520 MHz 10.0 pF +/-50 ppm**

<u>Crystal package</u>	—	C	C	1	E	T	1	A	155.520 MHz	10.0 pF	+/-50 ppm
C = Crystal in ceramic package									Frequency $F_L$	Load capacitance $C_L$	Frequency tolerance
<u>Package lid</u>	—	C							<u>Package pad form</u>		
C = Ceramic lid									A = Pads on both ends		
<u>Package size</u>	—		1						<u>Pad plating</u>		
1 = 8.0 x 3.7 x 1.75 mm									1 = Au flashed pads		
<u>Blank</u>	—			F					2 = Sn plated pads (on request)		
F = Inverted Mesa AT									<u>Package type</u>		
									T = For SMD mounting		

All specifications subject to change without notice. 07.03



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