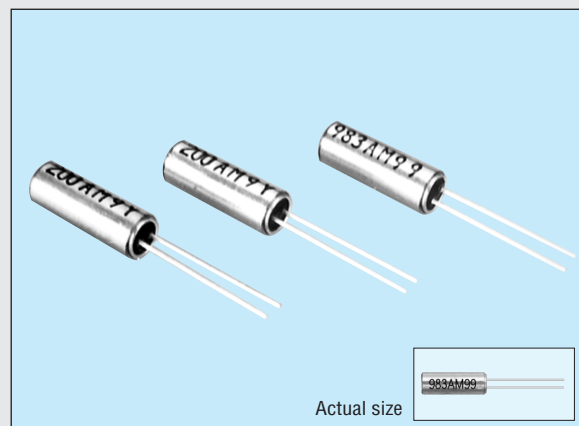


CYLINDER HIGH-FREQUENCY CRYSTAL UNIT

CA-301

- Compact design with case as small as 3 mm in diameter while still maintaining excellent characteristics of AT-cut.
- Excellent shock resistance.
- High-stability assured with tight vacuum sealing.
- Capable of covering a frequency range from 4 MHz to 64 MHz.



■ Specifications (characteristics)

Item		Symbol	Specifications	Remarks
Nominal frequency range		f	4.000 MHz to 29.999 MHz *1	Fundamental mode
			26.000 MHz to 64.000 MHz	3rd overtone mode
Temperature range	Storage temperature	T _{STG}	-40 °C to +85 °C	The operating temperature range is -10 °C to +60 °C for 5.5 MHz and below
	Operating temperature	T _{OPR}	-20 °C to +70 °C	
Drive level	Maximum drive level	GL	2 mW Max.	Only crystal oscillation is guaranteed
	Recommended level	DL	10 μW to 100 μW	
Soldering condition (only lead part)		T _{SOL}	Under +260 °C within 10 s	Do not heat the package at more than +150 °C
Frequency tolerance (standard)		Δf/f	±30 x 10 ⁻⁶ (Under 5.5 MHz: ±50 x 10 ⁻⁶ , ±100 x 10 ⁻⁶)	Ta=+25 °C
Frequency temperature characteristics (standard)			Under 5.5 MHz: ±50 x 10 ⁻⁶	-10 °C to +60 °C
			Over 5.5 MHz: ±30 x 10 ⁻⁶	-20 °C to +70 °C
Load capacitance		C _L	Fundamental: 10 pF to ∞. Over tone: 5 pF to ∞	Please specify
Series resistance		R ₁	As per below table	-20 °C to +70 °C, DL=100 μW
Shunt capacitance		C ₀	5 pF Max.	
Insulation resistance		IR	500 MΩ Min.	
Aging		fa	±5 x 10 ⁻⁶ /year Max.	Ta=+25 °C±3 °C, first year
Shock resistance		S.R.	±10 x 10 ⁻⁶ Max.	Three drops on a hard board from 750 mm height or excitation test with 29400 m/s ² x 0.3 ms x 1/2 sine wave x 3 directions

*1 8.0 MHz < f < 8.2 MHz: Unavailable.

26.000 MHz ≤ f : If not specified, 3rd overtone will be delivered.

■ Series resistance

Frequency (MHz)	Series resistance (Ω)	mode
4.0 ≤ f < 5.5	150 Ω Max.	Fundamental
5.5 ≤ f < 6.0	100 Ω Max.	
6.0 ≤ f < 10.0	80 Ω Max.	
10.0 ≤ f < 12.0	60 Ω Max.	
12.0 ≤ f < 16.0	50 Ω Max.	
16.0 ≤ f < 30.0	40 Ω Max.	
26.0 ≤ f < 36.0	100 Ω Max.	3rd overtone
36.0 ≤ f ≤ 64.0	80 Ω Max.	

■ Available frequencies from 4.0 MHz to less than 5.5 MHz

Frequency (MHz)	
4.000 MHz	4.433619 MHz
4.032 MHz	4.500 MHz
4.096 MHz	4.800 MHz
4.190 MHz	4.842673 MHz
4.194304 MHz	4.9152 MHz

■ External dimensions

(Unit: mm)

Model	L ₁	L ₂	D ₁	D ₂	B
CA-301	Under 5.5 MHz	10.3 Max.	9.5 Min.	ø3.1 Max.	ø0.3
	Over 5.5 MHz	8.9 Max.	9.5 Min.	ø3.1 Max.	ø0.3

Sample products are without marking.