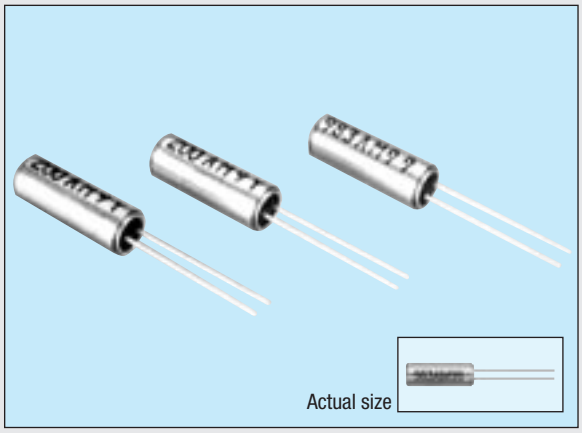
CYLINDER HIGH-FREQUENCY CRYSTAL UNIT

CA-301

Product number (please refer to page 1)

Q21CA301xxxxx00

- Compact design with case as small as 3 mm in diameter while still maintaining excellent characteristics of AT-cut.
- High-stability assured with tight vacuum sealing.
- Capable of covering a frequency range from 4 MHz to 64 MHz.
- Available for complete lead (Pb)-free product.



■ Specifications (characteristics)

Item		Symbol	Specifications	Remarks
Nominal frequency		f	4.000 MHz to 29.999 MHz	Fundamental mode
			30.000 MHz to 64.000 MHz	3rd overtone mode
Temperature range	Storage temperature	TSTG	-40 ˚C to +85 ˚C	Stored as bare product after unpacking
	Operating temperature	TOPR	-20 ˚C to +70 ˚C	The operating temperature range is -10 ˚C to +60 ˚C for 5.5 MHz and below
Recommended drive level		DL	10 µW to 100 µW	
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		CL	Fundamental: 10 pF to ∞. Over tone: 5 pF to ∞	Please specify
Series resistance		R1	As per below table	-20 ˚C to +70 ˚C, DL = 100 µW
Shunt capacitance		C0	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 x10^{-6} Max.	Three drops on a hard board from 750 mm or excitation test with 29400 m/s² x 0.3 ms x 1/2 sine wave x 3 directions

*1 8.0 MHz < f < 8.2 MHz: Unavailable. 4.0 MHz f < 5.5 MHz : As per below table.
*2 26.000 MHz ≤ f < 30.000 MHz : please contact us for inquiries for 3rd overtone mode.

■ Series resistance

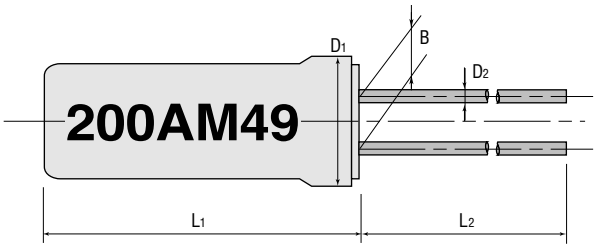
Frequency (MHz)	Series resistance (Ω)	mode
4.0 ≤ f < 5.5	150 Ω Max.	Fundamental
5.5 ≤ f < 6.0	100 Ω Max.	
6.0 ≤ f < 10.0	80 Ω Max.	
10.0 ≤ f < 12.0	60 Ω Max.	
12.0 ≤ f < 16.0	50 Ω Max.	
16.0 ≤ f < 30.0	40 Ω Max.	
26.0 ≤ f < 36.0	100 Ω Max.	3rd overtone
36.0 ≤ f ≤ 64.0	80 Ω Max.	

■ 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		L1	L2	D1	D2	B
CA-301	Under 5.5 MHz	9.3 Max.	9.5 Min.	ø3.1 Max.	ø0.3	1.1
	Over 5.5 MHz	8.9 Max.	9.5 Min.	ø3.1 Max.	ø0.3	1.1

Sample products are without marking.