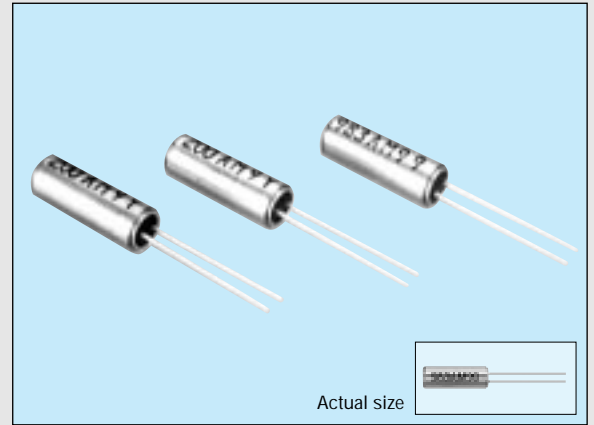


CYLINDER HIGH-FREQUENCY CRYSTAL UNIT

CA-301

- Compact design with case as small as 3mm 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 30.000 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
	Operating temperature	T _{OPR}	-20°C to +70°C
Drive level	Maximum drive level	GL	2mW max.
	Recommended level	DL	10μW to 100μW
Soldering condition (only lead part)	T _{SOL}	Under 260°C within 10 sec.	Do not heat the package at more than 150°C
Frequency tolerance (standard)	Δf/f	±30ppm (Under 5.5MHz: ±50ppm, ±100ppm)	T _a =25°C
Frequency temperature characteristics (standard)		Under 5.5MHz: ±50ppm	-10°C to +60°C
		Over 5.5MHz: ±30ppm	-20°C to 70°C
Load capacitance	C _L	Fundamental: 10pF to ∞. Over tone: 5pF to ∞	Please specify
Series resistance	R ₁	As per below table	-20°C to +70°C, DL=100μW
Shunt capacitance	C ₀	5pF max.	
Insulation resistance	IR	500 MΩ min.	
Aging	f _a	±5ppm/year max.	T _a =25°C±3°C, first year
Shock resistance	S.R.	±10ppm max.	Three drops on a hard board from 75cm height or excitation test with 3000G x 0.3ms x 1/2 sine wave x 3 directions

*1 8.0 MHz < f < 8.2 MHz: Unavailable.
26.000 MHz to 30.000 MHz: 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.

THE CRYSTALMASTER



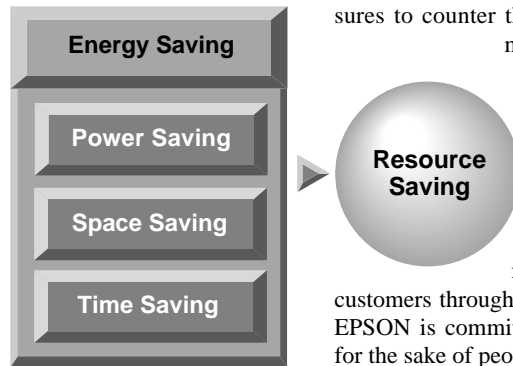
ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.



Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO₂, measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.



SEIKO EPSON CORP. QUARTZ DEVICE DIVISION acquired ISO9001 and ISO14001 certification by B.V.Q.I. (Bureau Veritas Quality International) .

ISO9001 in October, 1992.

ISO14001 in November, 1997.

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