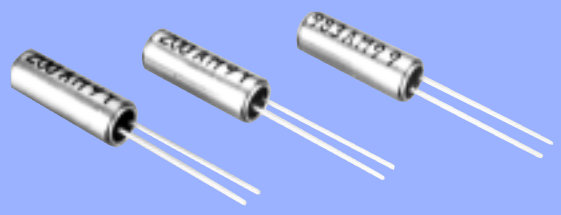
MHz RANGE CRYSTAL UNIT
CYLINDER

CA - 301

- Frequency range : 4 MHz to 64 MHz
- Thickness : ϕ3.1 mm Max.
- Overtone order : Fundamental
  3rd overtone (30 MHz to 64 MHz)
- Applications : For Clock of integrated circuit

Pb Free RoHS Compliant

Product Number (please contact us)
Q21CA3011xxxx00



Actual size

Specifications (characteristics)

Item		Symbol	Specification	Remarks
Nominal frequency range		f_nom	4.000 MHz to 29.999 MHz	Fundamental *1
			30.000 MHz to 64.000 MHz	3rd overtone *2
Temperature range	Storage temperature	T_stg	-40 °C to +85 °C	Store as bare product after unpacking
	Operating temperature	T_use	-20 °C to +70 °C	The operating temperature range is -10 °C to +60 °C for 5.5 MHz and below
Level of drive		DL	10 µW to 100 µW	
Frequency tolerance (standard)		f_tol	$\pm 30 \times 10^{-6}$ ($\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$)	+25 °C
Frequency versus temperature characteristics (standard)		f_tem	Under 5.5 MHz: $\pm 50 \times 10^{-6}$	-10 °C to +60 °C
			Over 5.5 MHz: $\pm 30 \times 10^{-6}$	-20 °C to +70 °C
Load capacitance		CL	Fundamental: 10 pF to ∞.	Please specify
			Overtone: 5 pF to ∞	
Motional resistance (ESR)		R1	As per below table	-20 °C to +70 °C, DL=100 µW
Frequency aging		f_age	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year

*1 4.0 MHz ≦ f_nom < 5.5 MHz : See "Available frequencies from 4.0 MHz to less than 5.5 MHz". 8.0 MHz < f_nom < 8.2 MHz: Unavailable.
*2 26.000 MHz ≦ f_nom <30.000 MHz :please contact us for inquiries for 3rd overtone mode.

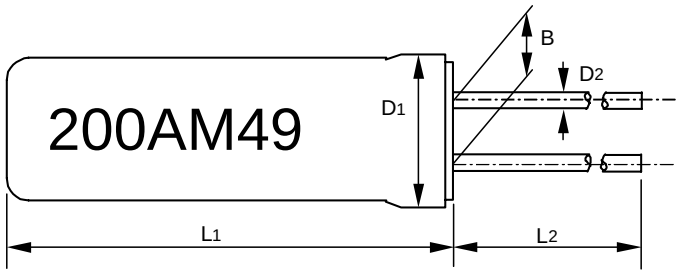
Available frequencies from 4.0 MHz to less than 5.5 MHz (MHz)

4.000	4.032	4.096	4.190	4.194304	4.433619	4.500	4.800	4.9152

Motional resistance (ESR)

Frequency (MHz)	4 ≤ f_nom < 5.5	5.5 ≤ f_nom < 6	6 ≤ f_nom < 10	10 ≤ f_nom < 12	12 ≤ f_nom < 16	16 ≤ f_nom < 30	30 ≤ f_nom ≤ 36	36 < f_nom ≤ 64
Motional resistance	150 Ω Max.	100 Ω Max.	80 Ω Max.	60 Ω Max.	50 Ω Max.	40 Ω Max.	100 Ω Max.	80 Ω Max.
Overtone order	Fundamental						3rd overtone	

External dimensions (Unit:mm)



Frequency	L1	L2	D1	D2	B
Under 5.5 MHz	9.3 Max.	9.5 Min.	ϕ 3.1 Max.	ϕ 0.3	1.1
Over 5.5 MHz	8.9 Max.	9.5 Min.	ϕ 3.1 Max.	ϕ 0.3	1.1

“QMEMS” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, ”Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.

Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers “Digital Convergence” solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, all environmental initiatives operate under the Plan-Do-Check-Action(PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

All of our major manufacturing and non-manufacturing sites,in Japan and overseas, completed the acquisition of ISO 14001 certification.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,
Epson Toyocom made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS 16949 is a global standard based on QS-9001, a severe standard corresponding to the requirements from the automobile industry.

►Explanation of the mark that are using it for the catalog

Pb Free	**►Pb free.**
RoHS Compliant	**►Complies with EU RoHS directive.** ***About the products without the Pb-free mark.** **Contains Pb in products exempted by EU RoHS directive.** **(Contains Pb in sealing glass, high melting temperature type solder or other.)**
For Automotive	**►The products have been designed for high reliability applications such as Automotive.**

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  / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment
  / traffic control equipment / and others requiring equivalent reliability.
- In this new crystal master for Epson Toyocom, product codes and markings will remain as previously identified prior to the merger.
  Due to the on-going strategy of gradual unification of part numbers, please review product codes and markings, as they will change during the course of the coming months.

  We apologize for the inconvenience, but we will eventually have a unified part numbering system for Epson Toyocom that will be user friendly.