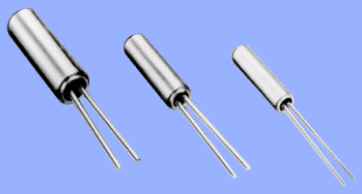
kHz RANGE CRYSTAL UNIT

C - TYPE
C - 2 TYPE

- Frequency range : 32.768 kHz（20 kHz～120 kHz）
- Thickness : φ1.2 mm ～φ2.0 mm Max.
- Overtone order : Fundamental
- Applications : Clock and Microcomputer

Pb Free
RoHS Compliant

Product Number (please contact us)
C-002RX : Q11C02RX1xxxx00
C-004R : Q11C004R1xxxx00
C-005R : Q11C005R1xxxx00
C-2 TYPE : Q12C20001xxxx00



Actual size

C-002RX

C-002RX
C-2 TYPE
C-004R
C-005R

Specifications for C-TYPE (characteristics)

Item	Symbol	C-002RX	C-004R	C-005R	Conditions / Remarks
Nominal frequency range	f_nom	32.768 kHz			
Storage temperature	T_stg	-20 °C to +70 °C			Storage as single product.
Operating temperature	T_use	-10 °C to +60 °C			
Level of drive	DL	1.0 µW Max.			
Frequency tolerance (standard)	f_tol	$\pm 20 \times 10^{-6}$			+25 °C, DL=0.1 µW
Turnover temperature	Ti	+25 °C ± 5 °C			
Load capacitance	CL	6 pF to ∞			Please specify
Motional resistance (ESR)	R_1	50, 60 kΩ Max.（30 kΩ Typ.）	50 kΩ Max.（30 kΩ Typ.）	50 kΩ Max.（37 kΩ Typ.）	
Frequency aging	f_age	$\pm 3 \times 10^{-6}$ / year Max.			+25 °C, First year

Specifications for C-2 TYPE (characteristics)

Item	Symbol	C-2 TYPE	Conditions / Remarks
Nominal frequency range	f_nom	20 kHz to 120 kHz	Please contact us about available frequencies.
Storage temperature	T_stg	-20 °C to +70 °C	Storage as single product.
Operating temperature	T_use	-10 °C to +60 °C	
Level of drive	DL	1.0 µW Max.	
Frequency tolerance (standard)	f_tol	$\pm 20 \times 10^{-6}$, $\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$	+25 °C, DL=0.1 µW
Turnover temperature	Ti	+25 °C ± 5 °C	
Load capacitance	CL	6 pF to ∞	Please specify
Motional resistance (ESR)	R_1	As per table below	
Frequency aging	f_age	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year

Motional resistance C-2 TYPE

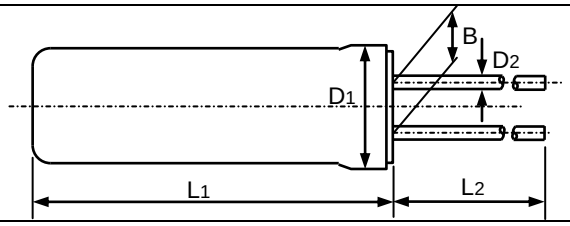
Frequency	20 kHz≦f_nom＜31.2 kHz	31.2 kHz≦f_nom＜40 kHz	40 kHz≦f_nom＜90 kHz	90 kHz≦f_nom≦120 kHz
Motional resistance	55 kΩ Max.	35 kΩ Max.	20 kΩ Max.	12 kΩ Max.

Product name (Standard form) C-002RX ① 32.768000kHz ② 12.5 ③ +20.0-20.0 ④

①Model ②Frequency ③Load capacitance(pF) ④Frequency tolerance($\times 10^{-6}$, +25 °C)

External dimentions

(Unit:mm)



Model	L_1	L_2	D_1	D_2	B
C-002RX C-2 TYPE	6.0 Max.	4.0 Min.	φ 2.0 Max.	φ 0.2	0.7
C-004R	5.0 Max.	4.0 Min.	φ 1.5 Max.	φ 0.18	0.5
C-005R	4.6 Max.	4.0 Min.	φ 1.2 Max.	φ 0.15	0.3

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, 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.

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

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.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson 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/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

►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	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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