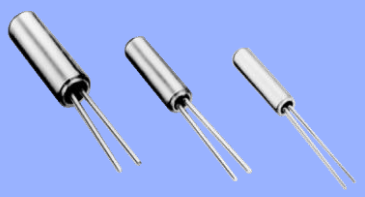
kHz RANGE CRYSTAL UNIT

C - TYPE
C - 2 TYPE / C - 4 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
C-4 TYPE : Q12C40001xxxx00



Actual size

C-002RX

C-002RX
C-2 TYPE

C-004R
C-4 TYPE

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			
Parabolic coefficient	B	-0.04×10^{-6} / °C^2 Max.			
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.）	
Motional capacitance	C_1	2.0 fF	2.0 fF	1.9 fF Typ.	
Shunt capacitance	C_0	0.85 pF	0.85 pF	0.75 pF Typ.	
Frequency aging	f_age	$\pm 3 \times 10^{-6}$ / year Max.			+25 °C, First year

Specifications for C-2 TYPE C-4 TYPE (characteristics)

Item	Symbol	C-2 TYPE	C-4 TYPE	Conditions / Remarks
Nominal frequency range	f_nom	20 kHz to 120 kHz	32 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	$\pm 20 \times 10^{-6}$,$\pm 50 \times 10^{-6}$,$\pm 100 \times 10^{-6}$	$\pm 50 \times 10^{-6}$,$\pm 100 \times 10^{-6}$	+25 °C, DL=0.1 µW
Turnover temperature	Ti	+25 °C ± 5 °C		
Parabolic coefficient	B	-0.04×10^{-6} / °C^2 Max.		
Load capacitance	CL	6 pF to ∞		Please specify
Motional resistance (ESR)	R_1	As per table below		
Motional capacitance	C_1	4.0 fF to 0.6 fF		
Shunt capacitance	C_0	2.0 pF to 0.6 pF		
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.

Motional resistance C-4 TYPE

Frequency	32 kHz≦f_nom＜38 kHz	38 kHz≦f_nom＜60 kHz	60 kHz≦f_nom＜74 kHz	74 kHz≦f_nom≦100 kHz	100 kHz＜f_nom≦120 kHz
Motional resistance	55 kΩ Max.	30 kΩ Max.	25 kΩ Max.	22 kΩ Max.	15 kΩ Max.

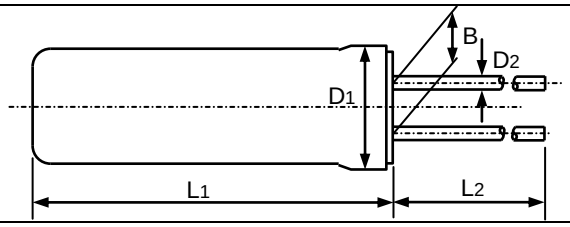
Product name (Standard form)

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 C-4 TYPE	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

Mouser Electronics

Authorized Distributor

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Epson:

C-002RX 32.7680K-AC C-002RX 32.7680K-A:PBFREE C-002RX 32.7680K-E:PBFREE