kHz RANGE CRYSTAL UNIT
CYLINDER

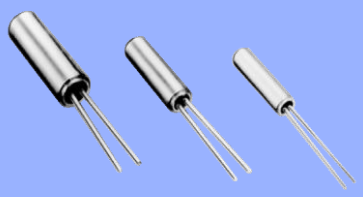
C - TYPE
C - 2 - TYPE / C - 4 - TYPE

- 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～+70 °C			Store as bare product.
Operating temperature	T_use	-10 °C～+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～ ∞			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	Specifications		Conditions / Remarks
		C-2-TYPE	C-4-TYPE	
Nominal frequency range	f_nom	20 kHz～120 kHz	32 kHz～120 kHz	
Storage temperature	T_stg	-20 °C～+70 °C		Store as bare product.
Operating temperature	T_use	-10 °C～+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～ ∞		Please specify
Motional resistance (ESR)	R_1	As per below table		
Motional capacitance	C_1	4.0 fF～0.6 fF		
Shunt capacitance	C_0	2.0 pF～0.6 pF		
Frequency aging	f_age	$\pm 5 \times 10^{-6}$ / year Max.		+25 °C, First year

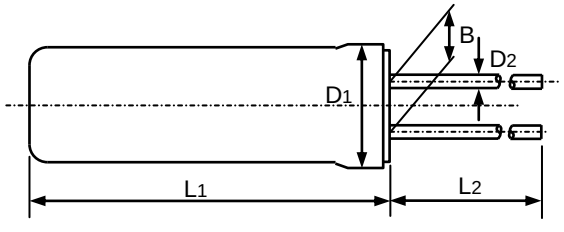
Motional resistance　C-2-TYPE

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.

External dimentions



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