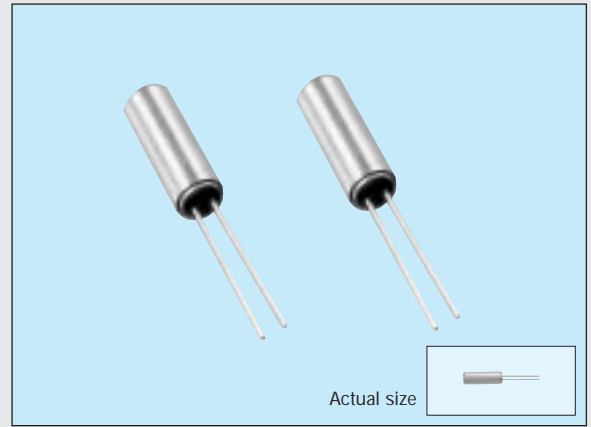


SMALL CYLINDER LOW/MEDIUM-FREQUENCY
CRYSTAL UNIT

C-4-TYPE

- Photolithography finished allows uniform and stable performance.
- Small and light weight. (ø1.5 x 6mm)
- Excellent shock resistance and environmental capability.
- Most suitable for pagers and card products like PCMCIA.



Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Nominal frequency	f	32.000 kHz to 120.000 kHz 192 kHz	Please refer to frequency list below
Temperature range	Storage temperature	T _{STG}	-20°C to +70°C
	Operating temperature	T _{OPR}	-10°C to +60°C
Maximum drive level	GL	1.0μW max.	
Recommended drive level (characteristics)	DL	0.1μW typ.	
Soldering condition	T _{SOL}	Under 280°C with in 5 sec.	Do not heat the package to more than 150°C
Frequency tolerance (standard)	Δf/f	±50ppm, ±100ppm	T _a =25°C, DL=0.1μW
Peak temperature (frequency)	θT	25°C ±5°C	
Temperature coefficient (frequency)	a	-0.04ppm/°C ² max.	
Load capacitance	C _L	6pF to ∞	Please specify
Series resistance	R ₁	32 kHz ≤ f < 40 kHz: 55 kΩ max. 40 kHz ≤ f < 60 kHz: 30 kΩ max. 60 kHz ≤ f < 70 kHz: 25 kΩ max. 70 kHz ≤ f ≤ 100 kHz: 22 kΩ max. 100 kHz < f ≤ 120 kHz: 15 kΩ max. 192 kHz: 10 kΩ max.	
Motional capacitance	C ₁	3.0fF max.	
Shunt capacitance	C ₀	1.5pF 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.	±5ppm max.	Three drops on a hard board from 75 cm or excitation test with 3000G x 0.3ms x 1/2 sine wave x 3 directions

Frequency example

Type	Frequency	C _L Value
C-2-TYPE	26.6667 kHz	10.0pF, 11.0pF
	32.5600 kHz	7.0pF
	36.8640 kHz	13.5pF
	38.4000 kHz	10.0pF
	44.7340 kHz	10.0pF
	48.0000 kHz	15.0pF
	75.0000 kHz	6.5pF, 9.0pF, 20.0pF
	77.5030 kHz	10.0pF, 20.0pF
	76.8000 kHz	6.0pF, 10.0pF, 11.0pF
	96.0000 kHz	6.0pF, 8.4pF, 11.0pF
C-4-TYPE	153.6000 kHz	11.0pF
	307.2000 kHz	11.0pF
	38.4000 kHz	11.0pF
	50.0000 kHz	9.0pF
	76.8000 kHz	11.0pF
	77.5030 kHz	10.0pF
192.0000 kHz	11.0pF	

External dimensions

(Unit: mm)

Model	L ₁	L ₂	D ₁	D ₂	B
C-2-TYPE	6.0 max.	4.0 min.	ø2.0 max.	ø0.2	0.7
C-001R	8.0 max.	9.0 min.	ø3.1 max.	ø0.3	1.1
C-002RX	6.0 max.	4.0 min.	ø2.0 max.	ø0.2	0.7
C-004R	5.0 max.	4.0 min.	ø1.5 max.	ø0.2	0.5
C-005R	4.6 max.	4.0 min.	ø1.2 max.	ø0.15	0.3
C-4-TYPE	5.0 max.	4.0 min.	ø1.5 max.	ø0.2	0.5

(160 to 165kHz, 307.2 kHz: D₁=ø2.2 max.)