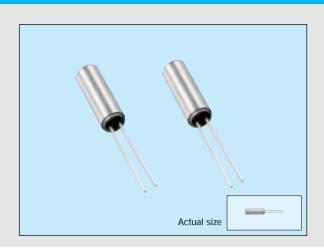
SMALL CYLINDER LOW/MEDIUM-FREQUENCY CRYSTAL UNIT

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)

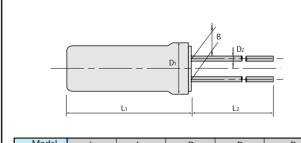
Item		Symbol	Specifications Remarks		
Nominal frequency		f	32.000 kHz to 120.000 kHz 192 kHz	Please refer to frequency list below	
Temperature range	Storage temperature	Тѕтс	-20°C to +70°C		
	Operating temperature	Topr	-10°C to +60°C		
Maximum drive level		GL	1.0μW max.		
Recommended drive level (characteristics)		DL	0.1μW typ.		
Soldering condition		Tsol	Under 280°C with in 5 sec.	Do not heat the package at more than 150°C	
Frequency tolerance (standard)		Δf/f	±50ppm,±100ppm	Ta=25°C, DL=0.1μW	
Peak temperature (frequency)		θТ	25°C ±5°C		
Temperature coefficient (frequency)		a	-0.04ppm/*C² max.		
Load capacitance		CL	6pF to ∞	Please specify	
Series resistance		R ₁	$ 32 \text{ kHz} \leq f < 40 \text{ kHz}: \ 55 k\Omega \text{ max}. $ $ 40 \text{ kHz} \leq f < 60 \text{ kHz}: \ 30 k\Omega \text{ max}. $ $ 60 \text{ kHz} \leq f < 70 \text{ kHz}: \ 25 k\Omega \text{ max}. $ $ 70 \text{ kHz} \leq f \leq 100 \text{ kHz}: \ 22 k\Omega \text{ max}. $ $ 100 \text{ kHz} < f \leq 120 \text{ kHz}: \ 15 k\Omega \text{ max}. $ $ 192 \text{ kHz}: \ 10 k\Omega \text{ max}. $		
Motional capacitance		C ₁	3.0fF max.		
Shunt capacitance		Co	1.5pF max.		
Insulation resistance		IR	$500~\text{M}\Omega$ min.		
Aging		fa	±5ppm/year max.	Ta=25°C±3°C, first year	
Shock resistance		S.R.	±5ppm max. Three drops on a hard board from 75 cm or excitatest with 3000G x 0.3ms x 1/2 sine wave x 3 directions.		

■ Frequency example

Type	Frequency	C _L Value	
-	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	
C-2-TYPE	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	
	153.6000 kHz	11.0pF	
	307.2000 kHz	11.0pF	
	38.4000 kHz	11.0pF	
C-4-TYPF	50.0000 kHz	9.0pF	
V	76.8000 kHz	11.0pF	
	77.5030 kHz	10.0pF	
	192.0000 kHz	11.0pF	

External dimensions

(Unit: mm)



Iviodei	L1	L2	D ₁	D ₂	В
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: D_1 =ø2.2 max.)

THE CRYSTALMASTER



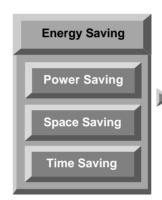
ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.



Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO2,

measures to preserve the global environ-

ment, and the development of energyefficient products. Environmental
problems are of global concern, and
although the contribution of energysaving technology developed by
EPSON may appear insignificant,
we seek to contribute to the develop-

ment of energy-saving products by our

customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.





Resource

Saving



SEIKO EPSON CORP. QUARTZ DEVICE DIVISION acquired ISO9001 and ISO14001 certification by B.V.Q.I. (Bureau Veritas Quality International).

ISO9001 in October, 1992. ISO14001 in November,1997.

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