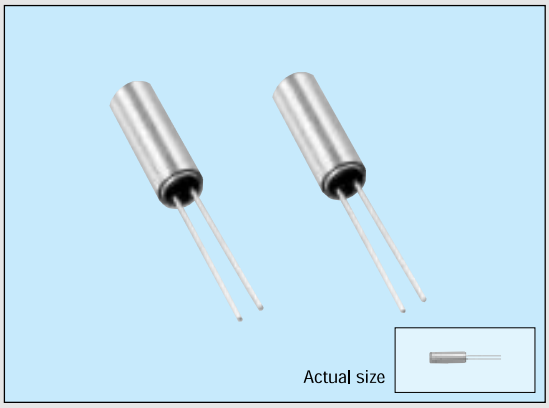
SMALL CYLINDER LOW/MEDIUM-FREQUENCY CRYSTAL UNIT

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)

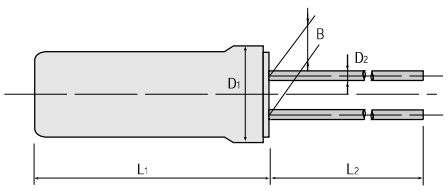
Item		Symbol	Specifications	Remarks
Nominal frequency		f	32.000 kHz to 120.000 kHz 192 kHz	Please refer to frequency list below
Temperature range	Storage temperature	T_{STG}	-20˚C to +70˚C	
	Operating temperature	T_{OPR}	-10˚C to +60˚C	
Maximum drive level		GL	1.0μW max.	
Recommended drive level (characteristics)		DL	0.1μW typ.	
Soldering condition		T_{SOL}	Under 280˚C with in 5 sec.	Do not heat the package at more than 150˚C
Frequency tolerance (standard)		Δf/f	±50ppm,±100ppm	Ta=25˚C, DL=0.1μW
Peak temperature (frequency)		θT	25˚C ±5˚C	
Temperature coefficient (frequency)		a	-0.04ppm/˚C² 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		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 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
	153.6000 kHz	11.0pF
	307.2000 kHz	11.0pF
C-4-TYPE	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: D_1=ø2.2 max.)

THE CRYSTALMASTER

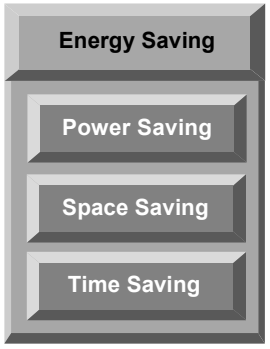
ENERGY SAVING EPSON

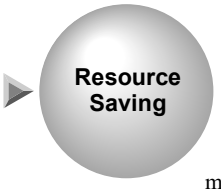
EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

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 environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development 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.

BVQI ISO 9001 Accredited by the Dutch Council for Certification

BVQI ISO 9001 NATIONAL ACCREDITATION OF CERTIFICATION BODIES

BVQI ISO 14001 NATIONAL ACCREDITATION OF CERTIFICATION BODIES

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.