

EPSON

EPSON ELECTRONOC TECHNOLOGY DEVELOPMENT (SHENZHEN) CO., LTD.

Ref No: ETDSDM-C001R-041108-1

Product Catalog Information

Product No : Q11C001R10021XX

XX: Packing size
(Contact Sale office, to get
information)

Model : C-001R Type

Description : C-001R 32.768KHz 12.5pF +/-20ppm
(Pb-free Model)

Part no To HuaWei : C001R 12.5 20

Note:

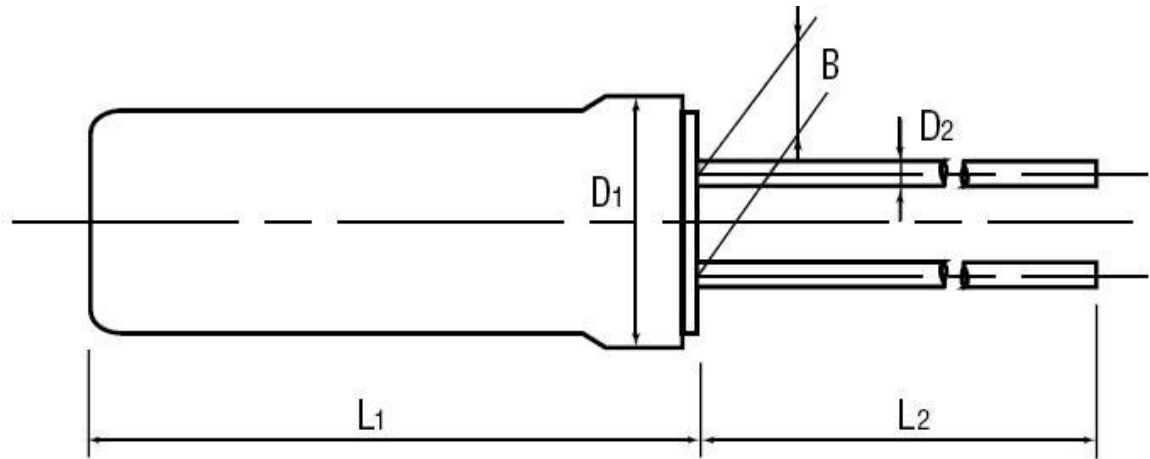
1. The contents are subject to change without notice.
2. This sheet is not intended to guarantee or provide an approval of implementation of industrial patents
3. We have prepared this as carefully as possible. If you find it incomplete or unsatisfactory in any respect. We would welcome your comments

Specifications for C-type (Characteristics)

Item	Symbol	C-001R	Remark
Nominal Frequency range	f	32.768kHz	Fundamental
Temperature	Storage	TSTG	-20 ° C to +70 ° C
	Operating	TOPR	-10 ° C to +60 ° C
Maximum drive level	GL	1.0 μ W Max	
Frequency tolerance (standard)	$\Delta f/f$	+/-20 x 10 ⁻⁶	Ta= +25 ° C, DL=0.1 μ W
Peak temperature (frequency)	θT	+25 ° C +/-5	
Temperature coefficient (frequency)	a	-0.04 x10 ⁻⁶ / ° C ² max	
Load capacitance	CL	12.5pF	
Series resistance	R1	35kΩ Max (18kΩ Typ)	DL = 1.0uW
Motional Capacitance	C1	2.1fF Typ	
Shunt Capacitance	C0	0.9pF Typ	
Insulation resistance	IR	500MΩ Min	
Aging	fa	+/-3.0x10 ⁻⁶ /year Max	Ta=+25 ° C +/- 3, first year
Shock resistance	S.R	+/-5 x10 ⁻⁶ Max	Three drops on hard board from 750mm or excitation test with 29400 m/s ² x 0.3ms x 1/2 sine wave x 3 directions

Dimensions of C-001RX

Unit: mm



Model	L1	L2	D1	D2	B
C-001RX	8.0Max	9.0Min	ψ 3.1Max	ψ 0.3	1.1

Soldering heat resistance

EPSON's crystal products except SMD products use solder having a +180°C to +200°C melting point. Heating up the package more than +150°C may deteriorate the characteristics or damage the products. If the crystal products need to be soldered at temperature of more than +150°C, SMD products is recommendable. Giving higher temperature over the following reflow conditions to crystal products, even SMD products, may cause the characteristics to deteriorate. The reflow conditions within following profile is recommendable. Please check always the soldering temperature and time before mounting these products. Also, please check them again when the mounting conditions are changed. Please contact us for inquiries about heat-resistance if crystal products need to be soldered over the following profile.

Model	Soldering condition
Cylinder C-TYPE	Under +280 ° C within 5s Do not heat the package at more than +150 ° C

Standard Packing

Cylinder product is packed in vinyl bags per lot of 250 to 1000pcs. From 5 to 20 bags are then placed in inner box to make a lot. Inner boxes are then placed in cartons for shipment.

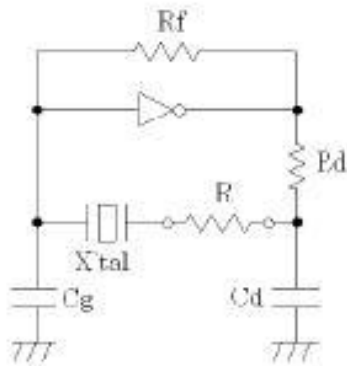
Code	Spec	Package style
00	Standard	One or more bags

Note: For Handling precautions, please refer to the Crystal master Product Catalog in applications guide

Appendix: Note

1. If the temperature of the package exceeds +150 °C., the crystal resonator may be damaged or its characteristic may be impaired.
2. Bending the lead too closely to the case or pulling the lead strongly may cause the hermetic glass seal to crack. If the lead needs to bend, please leave more than 0.5 mm from the lead to the case.
3. Excessive pressure may cause leakage of hermetically. Please take caution not to give excessive press to the sealed part of the package.
4. Excessive shock or vibration is not allowed. The internal crystal resonator may be damaged from machine shock during assembly. Please check conditions carefully prior to use.
5. To avoid condensation, do not store or use in an environment where temperature may change rapidly. We recommend that products be stored in an environment where temperature and humidity are normal.
6. Products using a tuning fork crystal can not be guaranteed for ultrasonic cleaning because they may be damaged by resonance vibration.
7. Applying excessive drive level to the crystal resonator may cause deterioration or damage. Circuit design must be such that the proper drive level is maintained.
8. Unless adequate negative resistance is allocated in the oscillation circuit, start up time of oscillation may be increased or stopped. In order to avoid this, please provide enough negative resistance in the circuit design.

〈 How to check the negative resistance [-NR] 〉



- (1) Connect the resistor (R) to the circuit in series with the crystal resonator.
- (2) Adjust (R) so that oscillation can start (or stop).
- (3) Measure (R) when oscillation just start (or stop) in above (2).
- (4) Get the negative resistance.
[-NR] = R + CI value
- (5) Recommended [-NR]
[-NR] > CI (Max.) × (5 to 10)