Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

kHz RANGE CRYSTAL UNIT
For Automotive

FC-13A

- Frequency range : 32.768 kHz
- External dimensions : 3.2 × 1.5 × 0.9 mm
- Overtone order : Fundamental
- Applications : Car audio, ECU sub clock, Car navigation system, Clock
- Conforms to AEC-Q200

Pb Free
RoHS Compliant

Product Number (please contact us)
X1A000091xxxx00

Actual size

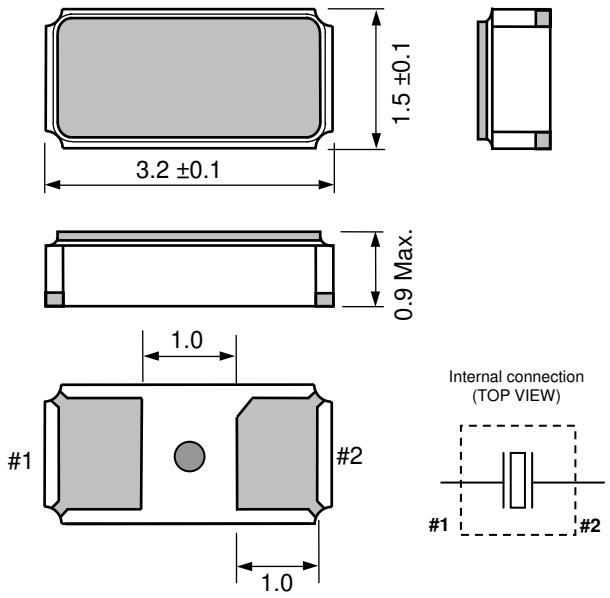
Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Nominal frequency range	f_nom	32.768 kHz	
Storage temperature	T_stg	-55 °C to +125 °C	Storage as single product.
Operating temperature	T_use	-40 °C to +125 °C	
Level of drive	DL	0.5 μW (1.0 μW Max.)	Please contact us if you require 1.0μW Max.
Frequency tolerance (standard)	f_tol	±20 × 10^{-6}, ±30 × 10^{-6}, ±50 × 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	C_L	9 pF, 12.5 pF	Please specify
Motional resistance (ESR)	R_1	70 kΩ Max.	
Motional capacitance	C1	3.2 fF Typ.	
Shunt capacitance	C0	0.9 pF Typ.	
Frequency aging	f_age	±3 × 10^{-6} / year Max.	+25 °C, First year

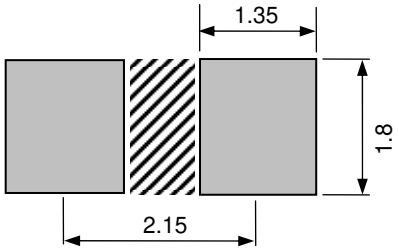
Product name (Standard form): FC-13A ① 32.768000kHz ② 12.5 ③ +20.0-20.0 ④

①Model ②Frequency ③Load capacitance(pF) ④Frequency tolerance(×10^{-6}, +25 °C)

External dimensions (Unit:mm)



Footprint (Recommended) (Unit:mm)



*Do not design any circuit patterns in the shaded area.

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

►Explanation of the mark that are using it for the catalog

Pb Free	►Pb free.
RoHS Compliant	►Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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