



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





3.2 x 1.5mm Auto Grade Crystal K13A

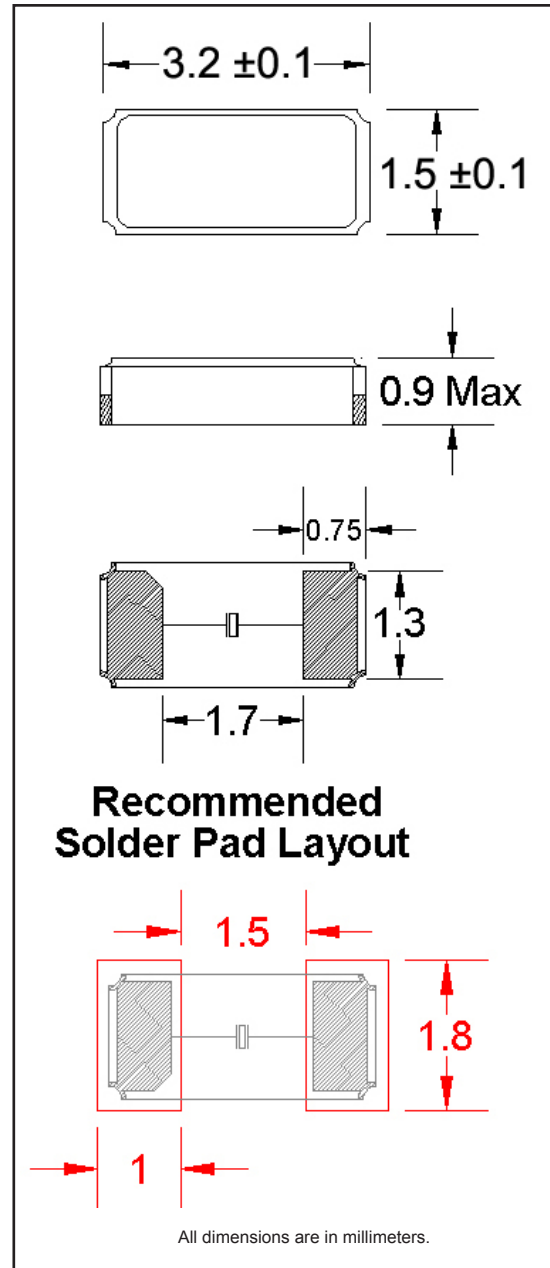
(former FXA135)

DATASHEET

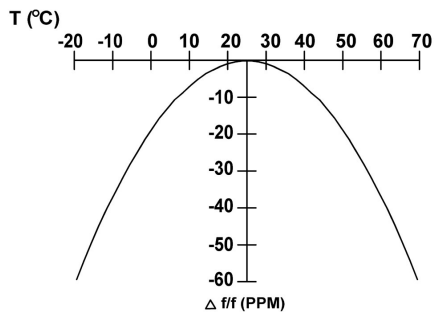
• SPECIFICATIONS

PARAMETERS	MAX (unless otherwise noted)
Frequency	32.768 kHz
Frequency Tolerance @ 25°C	±20 PPM
Frequency Stability, ref @ 25°C (Temperature Coefficient)	-0.04 PPM / (Δ°C) ²
Temperature Range	
Turnover (TO)	+20°C ~ +30°C
Operating (TOPR)	-40°C ~ +125°C
Storage (TSTG)	-40°C ~ +125°C
Equivalent Series Resistance (RS)	80 kΩ
Load Capacitance (CL)	12.5pF (Standard)*
Insulation Resistance @ 100VDC	500 MΩ Min
Drive Level	0.5 μW 0.1 μW Typ.
Aging per year	±3 PPM
Maximum Soldering Temp / Time	260°C / 10 Seconds
Moisture Sensitivity Level (MSL)	1
Termination Finish	Au over Ni
Seal Method	Seam Seal
Lead (Pb) Free	Yes
RoHS Compliant	No Exemptions

Note: Dimensional drawing is for reference to critical specifications defined by size measurements. Certain non-critical visual attributes, such as side castellations, etc. may vary.
* Other CLs available with conditions. Contact Fox Technical Support for specific requirements.



Parabolic Temperature Curve



To determine frequency stability, use parabolic curvature (K).
For example: What is stability at 45°C?

- 1) Change in T (°C) = 45-25 = 20°C
- 2) Change in frequency = -0.04 PPM * (Δ C)²
= -0.04 PPM * (20)²
= -16.0 PPM



3.2 x 1.5mm Auto Grade Crystal

K13A

(former FXA135)

DATASHEET

• TAPE SPECIFICATIONS (millimeters)							• REEL SPECIFICATIONS (millimeters)								
MODEL	A	B	C	D	E	F	STD Reel QTY	MODEL	G	H	I	J	K	L	M
K13A	Ø1.5	4.0	4.0	5.5	12.0	1.0	3000	K13A	2.0	Ø13	Ø21	Ø60	Ø180	13.0	1.2

Available Options & Part Identification for Automotive Crystal Model Number K13A

F K13A E I H M 0.032768

F	K13A	E	I	H	M	0.032768
FOX	Model Number	Tolerance E=20ppm	Stability I=-0.04 PPM / (Δ°C) ²	Load Capacitance B=6pF D=8pF H=12.5pF V=7pF W=9pF	Operating Temperature D=-10~+60°C M=-40~+85°C I=-40~+125°C	Frequency



Corporate Headquarters
5570 Enterprise Parkway
Fort Myers, FL 33905
<http://www.FOXONLINE.com>

Sales
1-888-GET-2-FOX (1-888-438-2369) or
1-239-693-0099
<http://www.FOXONLINE.com/repdisty>

Tech Support
<http://www.FOXONLINE.com/email>

PRODUCT USE: Fox Electronics reserves the right to modify the products and/or specifications described herein at any time and at Fox Electronics' sole discretion. All information in this document, including descriptions of product features and performance, is subject to change without notice. Performance specifications and the operating parameters of the described products are determined in the independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of Fox Electronics' products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of Fox Electronics or any third parties.

Fox Electronics' products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of a Fox Electronics product can be reasonably expected to significantly affect the health or safety of users. Anyone using a Fox Electronics product in such a manner does so at their own risk, absent an express, written agreement by Fox Electronics.

Fox Electronics and the Fox logo are registered trademarks of Fox Electronics. Product specification is subject to change without notice. Other trademarks and service marks used herein, including protected names, logos and designs, are the property of Fox Electronics or their respective third party owners. For datasheet type definitions and a glossary of common terms, visit <http://www.foxonline.com/tgcrystals.html>.